NORTH PEORIA AREA DRAINAGE MASTER PLAN

Prepared for the
Flood Control District
of Maricopa County

FLOOD CONTROL DISTRICT of MARICOPA COUNTY 1959

and the
City of Peoria

CITY OF PEORIA

Prepared by

Stantec

Project No. 82000146
Contract FCD 99-45

Flood Insurance Study Technical Data Notebook

Book 2 of 2

June 2001

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NORTH PEORIA AREA DRAINAGE MASTER PLAN

Flood Insurance Study
Hydrologic and Hydraulic Technical Data Notebook

Book 2 of 2

PREPARED FOR:

FLOOD CONTROL DISTRICT
of
Maricopa County
and
City of Peoria

PREPARED BY:

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June 2001

STANTEC CONSULTING Inc.
Project No. 82000146

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FLOOD CONTROL DISTRICT of MARICOPA COUNTY 1959

CITY OF PEORIA

Stantec

APPENDIX A: RAINFALL LOSS PARAMETER CALCULATIONS

TABLE A-1

DTHETA & PSIF Lookup Table
Using XKSAT

Note:
The values in this table taken from Figure 4.3 of the FCDMC Drainage Design Manual.

XKSAT in/hr (1)	DTHETA Dry (2)	DTHETA Normal (3)	PSIF inches (4)
0.01	0.150	0.050	12.400
0.02	0.193	0.100	11.200
0.03	0.223	0.127	10.100
0.04	0.248	0.150	9.700
0.05	0.269	0.150	8.800
0.06	0.287	0.150	8.400
0.07	0.304	0.150	8.000
0.08	0.319	0.150	7.600
0.09	0.332	0.150	7.300
0.10	0.345	0.150	7.000
0.11	0.357	0.169	6.800
0.12	0.369	0.189	6.600
0.13	0.380	0.209	6.400
0.14	0.390	0.229	6.200
0.15	0.400	0.250	6.000
0.16	0.393	0.250	5.800
0.17	0.387	0.250	5.700
0.18	0.381	0.250	5.600
0.19	0.376	0.250	5.400
0.20	0.371	0.250	5.300
0.21	0.366	0.250	5.200
0.22	0.362	0.250	5.100
0.23	0.358	0.250	5.000
0.24	0.354	0.250	4.900
0.25	0.350	0.250	4.800
0.26	0.350	0.250	4.700
0.27	0.350	0.250	4.650
0.28	0.350	0.250	4.600
0.29	0.350	0.250	4.550
0.30	0.350	0.250	4.500
0.31	0.350	0.250	4.450
0.32	0.350	0.250	4.400
0.33	0.350	0.250	4.350
0.34	0.350	0.250	4.300
0.35	0.350	0.250	4.250
0.36	0.350	0.250	4.200
0.37	0.350	0.250	4.150
0.38	0.350	0.250	4.100
0.39	0.350	0.250	4.000
0.40	0.350	0.250	3.950
0.41	0.350	0.251	3.915
0.42	0.350	0.252	3.880
0.43	0.350	0.253	3.845
0.44	0.350	0.254	3.810

TABLE A-1

DTHETA & PSIF Lookup Table
Using XKSAT

XKSAT in/hr (1)	DTHETA Dry (2)	DTHETA Normal (3)	PSIF inches (4)
0.45	0.350	0.255	3.775
0.46	0.350	0.256	3.740
0.47	0.350	0.257	3.705
0.48	0.350	0.258	3.670
0.49	0.350	0.259	3.635
0.50	0.350	0.259	3.600
0.51	0.350	0.260	3.575
0.52	0.350	0.261	3.550
0.53	0.350	0.262	3.525
0.54	0.350	0.263	3.500
0.55	0.350	0.264	3.475
0.56	0.350	0.264	3.450
0.57	0.350	0.265	3.425
0.58	0.350	0.266	3.400
0.59	0.350	0.267	3.375
0.60	0.350	0.267	3.350
0.61	0.350	0.268	3.330
0.62	0.350	0.269	3.310
0.63	0.350	0.270	3.290
0.64	0.350	0.270	3.270
0.65	0.350	0.271	3.250
0.66	0.350	0.272	3.230
0.67	0.350	0.272	3.210
0.68	0.350	0.273	3.190
0.69	0.350	0.274	3.170
0.70	0.350	0.274	3.150
0.71	0.350	0.275	3.130
0.72	0.350	0.276	3.110
0.73	0.350	0.276	3.090
0.74	0.350	0.277	3.070
0.75	0.350	0.277	3.050
0.76	0.350	0.278	3.030
0.77	0.350	0.279	3.010
0.78	0.350	0.279	2.990
0.79	0.350	0.280	2.970
0.80	0.350	0.280	2.950
0.81	0.350	0.281	2.935
0.82	0.350	0.282	2.920
0.83	0.350	0.282	2.905
0.84	0.350	0.283	2.890
0.85	0.350	0.283	2.875
0.86	0.350	0.284	2.860
0.87	0.350	0.284	2.845
0.88	0.350	0.285	2.830

TABLE A-1

DTHETA & PSIF Lookup Table
Using XKSAT

XKSAT in/hr (1)	DTHETA Dry (2)	DTHETA Normal (3)	PSIF inches (4)
0.89	0.350	0.285	2.815
0.90	0.350	0.286	2.800
0.91	0.350	0.287	2.785
0.92	0.350	0.287	2.770
0.93	0.350	0.288	2.755
0.94	0.350	0.288	2.740
0.95	0.350	0.289	2.725
0.96	0.350	0.289	2.710
0.97	0.350	0.290	2.695
0.98	0.350	0.290	2.680
0.99	0.350	0.291	2.665
1.00	0.350	0.291	2.650
1.01	0.350	0.292	2.640
1.02	0.350	0.292	2.630
1.03	0.350	0.292	2.620
1.04	0.350	0.293	2.610
1.05	0.350	0.293	2.600
1.06	0.350	0.294	2.590
1.07	0.350	0.294	2.580
1.08	0.350	0.295	2.570
1.09	0.350	0.295	2.560
1.10	0.350	0.296	2.550
1.11	0.350	0.296	2.540
1.12	0.350	0.297	2.530
1.13	0.350	0.297	2.520
1.14	0.350	0.297	2.510
1.15	0.350	0.298	2.500
1.16	0.350	0.298	2.490
1.17	0.350	0.299	2.480
1.18	0.350	0.299	2.470
1.19	0.350	0.300	2.460
1.20	0.350	0.300	2.450

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S100

Soil Class	...	21	52	108
Sub-Area (acres)	...	38.9	81.5	246.8
XKSAT (bare ground)	...	0.38	0.16	0.31
RTIMP (rock)	...	0%	20%	30%
IA (natural only)	...	0.35	0.25	0.15

XKSAT log avg (bare ground) =	**0.27**	
PSIF =	**4.65**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**24.60**	**%**
Veg. Cover avg. =	**32**	**%**
IA avg. =	**0.19**	

Total Sub Basin Area in sq. miles = 0.5737

S101

Soil Class	...	21	51	52	108
Sub-Area (acres)	...	70.4	30.4	286.5	16.6
XKSAT (bare ground)	...	0.38	0.24	0.16	0.31
RTIMP (rock)	...	0%	0%	20%	30%
IA (natural only)	...	0.35	0.15	0.25	0.15

XKSAT log avg (bare ground) =	**0.20**	
PSIF =	**5.30**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**15.42**	**%**
Veg. Cover avg. =	**32**	**%**
IA avg. =	**0.26**	

Total Sub Basin Area in sq. miles = 0.6312

S102

Soil Class	...	52	103	108	109
Sub-Area (acres)	...	3.0	0.3	283.4	1.1
XKSAT (bare ground)	...	0.16	0.10	0.31	0.35
RTIMP (rock)	...	20%	65%	30%	35%
IA (natural only)	...	0.25	0.25	0.15	0.25

XKSAT log avg (bare ground) =	**0.31**	
PSIF =	**4.45**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**29.95**	**%**
Veg. Cover avg. =	**32**	**%**
IA avg. =	**0.15**	

Total Sub Basin Area in sq. miles = 0.4495

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S103

Soil Class	...	21	51	52	103	108
Sub-Area (acres)	...	12.2	39.4	197.1	3.9	0.0
XKSAT (bare ground)	...	0.38	0.24	0.16	0.10	0.31
RTIMP (rock)	...	0%	0%	20%	65%	30%
IA (natural only)	...	0.35	0.15	0.25	0.25	0.15

XKSAT log avg (bare ground) =	**0.18**	
PSIF =	**5.60**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**16.61**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.24**	

Total Sub Basin Area in sq. miles = 0.3947

S104

Soil Class	...	13	51	52
Sub-Area (acres)	...	8.9	190.2	377.0
XKSAT (bare ground)	...	0.01	0.24	0.16
RTIMP (rock)	...	0%	0%	20%
IA (natural only)	...	0.35	0.15	0.25

XKSAT log avg (bare ground) =	**0.18**	
PSIF =	**5.60**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**13.09**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.9002

S105

Soil Class	...	51	52
Sub-Area (acres)	...	128.3	251.7
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.18**	
PSIF =	**5.60**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**13.25**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.5938

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S106

Soil Class	...	51	52
Sub-Area (acres)	...	226.9	136.1
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.21**	
PSIF =	**5.20**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**7.50**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.19**	

Total Sub Basin Area in sq. miles = 0.5672

S107

Soil Class	...	51	52
Sub-Area (acres)	...	594.8	4.2
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.24**	
PSIF =	**4.90**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**0.14**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.15**	

Total Sub Basin Area in sq. miles = 0.9359

S200

Soil Class	...	109
Sub-Area (acres)	...	613.7
XKSAT (bare ground)	...	0.35
RTIMP (rock)	...	35%
IA (natural only)	...	0.25

XKSAT log avg (bare ground) =	**0.35**	
PSIF =	**4.25**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**35.00**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.9588

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S201

Soil Class	...	109
Sub-Area (acres)	...	224.1
XKSAT (bare ground)	...	0.35
RTIMP (rock)	...	35%
IA (natural only)	...	0.25

XKSAT log avg (bare ground)	**=**	**0.35**	
PSIF	**=**	**4.25**	
DTHETA (Dry)	**=**	**0.35**	
DTHETA (Normal)	**=**	**0.25**	
RTIMP avg.	**=**	**35.00**	**%**
Veg. Cover avg.	**=**	**32**	**%**
IA avg.	**=**	**0.25**	

Total Sub Basin Area in sq. miles = 0.3501

S202

Soil Class	...	109
Sub-Area (acres)	...	81.2
XKSAT (bare ground)	...	0.35
RTIMP (rock)	...	35%
IA (natural only)	...	0.25

XKSAT log avg (bare ground)	**=**	**0.35**	
PSIF	**=**	**4.25**	
DTHETA (Dry)	**=**	**0.35**	
DTHETA (Normal)	**=**	**0.25**	
RTIMP avg.	**=**	**35.00**	**%**
Veg. Cover avg.	**=**	**32**	**%**
IA avg.	**=**	**0.25**	

Total Sub Basin Area in sq. miles = 0.1268

S203

Soil Class	...	109
Sub-Area (acres)	...	239.0
XKSAT (bare ground)	...	0.35
RTIMP (rock)	...	35%
IA (natural only)	...	0.25

XKSAT log avg (bare ground)	**=**	**0.35**	
PSIF	**=**	**4.25**	
DTHETA (Dry)	**=**	**0.35**	
DTHETA (Normal)	**=**	**0.25**	
RTIMP avg.	**=**	**35.00**	**%**
Veg. Cover avg.	**=**	**32**	**%**
IA avg.	**=**	**0.25**	

Total Sub Basin Area in sq. miles = 0.3734

Table A-2

Worksheet

Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S204

Soil Class ...	3	52	70	108	109	
Sub-Area (acres) ...	34.1	8.5	0.4	64.1	501.3	
XKSAT (bare ground) ...	0.58	0.16	0.36	0.31	0.35	
RTIMP (rock) ...	0%	20%	0%	30%	35%	
IA (natural only) ...	0.35	0.25	0.25	0.15	0.25	

XKSAT log avg (bare ground) =	**0.35**	
PSIF =	**4.25**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**32.28**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.9506

S205

Soil Class ...	3	52	70	108	109
Sub-Area (acres) ...	12.2	61.4	50.6	127.5	12.8
XKSAT (bare ground) ...	0.58	0.16	0.36	0.31	0.35
RTIMP (rock) ...	0%	20%	0%	30%	35%
IA (natural only) ...	0.35	0.25	0.25	0.15	0.25

XKSAT log avg (bare ground) =	**0.28**	
PSIF =	**4.60**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**20.80**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.21**	

Total Sub Basin Area in sq. miles = 0.4132

S206

Soil Class ...	3	13	52	108	109	110
Sub-Area (acres) ...	17.3	6.8	95.1	88.0	290.3	48.3
XKSAT (bare ground) ...	0.58	0.01	0.16	0.31	0.35	0.13
RTIMP (rock) ...	0%	0%	20%	30%	35%	0%
IA (natural only) ...	0.35	0.35	0.25	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.27**	
PSIF =	**4.65**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**26.93**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.8529

Table A-2

Worksheet

Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S207

Soil Class ...	13	48	108	109	110	
Sub-Area (acres) ...	4.7	1.7	14.1	584.5	7.4	
XKSAT (bare ground) ...	0.01	0.06	0.31	0.35	0.13	
RTIMP (rock) ...	0%	0%	30%	35%	0%	
IA (natural only) ...	0.35	0.15	0.15	0.25	0.35	

XKSAT log avg (bare ground) =	**0.33**	
PSIF =	**4.35**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.09**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.9569

S208

Soil Class ...	51	52	108	109	110
Sub-Area (acres) ...	2.0	482.7	129.3	90.5	1.2
XKSAT (bare ground) ...	0.24	0.16	0.31	0.35	0.13
RTIMP (rock) ...	0%	20%	30%	35%	0%
IA (natural only) ...	0.15	0.25	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.20**	
PSIF =	**5.30**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**23.67**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.23**	

Total Sub Basin Area in sq. miles = 1.1025

S209

Soil Class ...	18	51	52	108	109	110
Sub-Area (acres) ...	111.9	105.8	158.9	15.1	24.6	0.0
XKSAT (bare ground) ...	0.33	0.24	0.16	0.31	0.35	0.13
RTIMP (rock) ...	15%	0%	20%	30%	35%	0%
IA (natural only) ...	0.25	0.15	0.25	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.23**	
PSIF =	**5.00**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**14.82**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.6504

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S210

Soil Class	...	51	52
Sub-Area (acres)	...	277.6	30.1
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.23**	
PSIF =	**5.00**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**1.96**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.16**	

Total Sub Basin Area in sq. miles = 0.4809

S211

Soil Class	...	51	52	110
Sub-Area (acres)	...	225.0	58.4	28.7
XKSAT (bare ground)	...	0.24	0.16	0.13
RTIMP (rock)	...	0%	20%	0%
IA (natural only)	...	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.21**	
PSIF =	**5.20**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**3.74**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.19**	

Total Sub Basin Area in sq. miles = 0.4876

S300

Soil Class	...	21	48	52	98	108	109	110
Sub-Area (acres)	...	45.4	27.3	17.5	13.6	30.8	245.4	13.7
XKSAT (bare ground)	...	0.38	0.06	0.16	0.37	0.31	0.35	0.13
RTIMP (rock)	...	0%	0%	20%	0%	30%	35%	0%
IA (natural only)	...	0.35	0.15	0.25	0.35	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.29**	
PSIF =	**4.55**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**25.05**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.6151

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S301

Soil Class	...	109
Sub-Area (acres)	...	636.5
XKSAT (bare ground)	...	0.35
RTIMP (rock)	...	35%
IA (natural only)	...	0.25

XKSAT log avg (bare ground) =	**0.35**	
PSIF =	**4.25**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**35.00**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.9945

S302

Soil Class	...	18	51	52	98	108	109	110
Sub-Area (acres)	...	73.7	17.6	57.3	2.8	20.8	123.9	1.1
XKSAT (bare ground)	...	0.33	0.24	0.16	0.37	0.31	0.35	0.13
RTIMP (rock)	...	15%	0%	20%	0%	30%	35%	0%
IA (natural only)	...	0.25	0.15	0.25	0.35	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.29**	
PSIF =	**4.55**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**24.26**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.24**	

Total Sub Basin Area in sq. miles = 0.4645

S303

Soil Class	...	18	51	52	110
Sub-Area (acres)	...	266.0	153.6	15.8	17.6
XKSAT (bare ground)	...	0.33	0.24	0.16	0.13
RTIMP (rock)	...	15%	0%	20%	0%
IA (natural only)	...	0.25	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.28**	
PSIF =	**4.60**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**9.51**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.7078

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S304

Soil Class	...	12	18	45	48	51	52	98	110
Sub-Area (acres)	...	0.2	38.6	6.7	2.3	396.1	55.3	1.1	26.2
XKSAT (bare ground)	...	0.01	0.33	0.03	0.06	0.24	0.16	0.37	0.13
RTIMP (rock)	...	0%	15%	0%	0%	0%	20%	0%	0%
IA (natural only)	...	0.35	0.25	0.15	0.15	0.15	0.25	0.35	0.35

XKSAT log avg (bare ground) =	**0.22**	
PSIF =	**5.10**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**3.20**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.18**	

Total Sub Basin Area in sq. miles = 0.8225

S400

Soil Class	...	13	18	51	52	98	109	110
Sub-Area (acres)	...	42.2	238.7	44.0	253.7	0.9	45.8	45.3
XKSAT (bare ground)	...	0.01	0.33	0.24	0.16	0.37	0.35	0.13
RTIMP (rock)	...	0%	15%	0%	20%	0%	35%	0%
IA (natural only)	...	0.35	0.25	0.15	0.25	0.35	0.25	0.35

XKSAT log avg (bare ground) =	**0.19**	
PSIF =	**5.40**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**15.30**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.26**	

Total Sub Basin Area in sq. miles = 1.0480

S401

Soil Class	...	13	18	70	98	110
Sub-Area (acres)	...	5.6	179.5	19.6	37.3	171.6
XKSAT (bare ground)	...	0.01	0.33	0.36	0.37	0.13
RTIMP (rock)	...	0%	15%	0%	0%	0%
IA (natural only)	...	0.35	0.25	0.25	0.35	0.35

XKSAT log avg (bare ground) =	**0.22**	
PSIF =	**5.10**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**6.51**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.30**	

Total Sub Basin Area in sq. miles = 0.6462

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S402

Soil Class ...	13	18	45	48	98	110
Sub-Area (acres) ...	35.7	105.4	10.5	21.8	175.7	124.4
XKSAT (bare ground) ...	0.01	0.33	0.03	0.06	0.37	0.13
RTIMP (rock) ...	0%	15%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.25	0.15	0.15	0.35	0.35

XKSAT log avg (bare ground) =	**0.18**	
PSIF =	**5.60**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**3.34**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.31**	

Total Sub Basin Area in sq. miles = 0.7399

S403

Soil Class ...	10	12	13	18	45	48	98	110
Sub-Area (acres) ...	9.6	5.0	55.4	3.7	80.2	12.3	42.5	149.0
XKSAT (bare ground) ...	0.94	0.01	0.01	0.33	0.03	0.06	0.37	0.13
RTIMP (rock) ...	0%	0%	0%	15%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.35	0.25	0.15	0.15	0.35	0.35

XKSAT log avg (bare ground) =	**0.07**	
PSIF =	**8.00**	
DTHETA (Dry) =	**0.30**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.16**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.30**	

Total Sub Basin Area in sq. miles = 0.5591

S404

Soil Class ...	10	45	98	110	112	118	CF	TSC
Sub-Area (acres) ...	8.7	65.3	0.5	4.3	12.9	34.8	1.2	40.8
XKSAT (bare ground) ...	0.94	0.03	0.37	0.13	0.39	0.42	0.50	0.14
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.15	0.35	0.35	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.12**	
PSIF =	**6.60**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.19**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.27**	

Total Sub Basin Area in sq. miles = 0.2633

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S500

Soil Class	...	51	109
Sub-Area (acres)	...	0.2	674.6
XKSAT (bare ground)	...	0.24	0.35
RTIMP (rock)	...	0%	35%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.35**	
PSIF =	**4.25**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.99**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 1.0544

S501

Soil Class	...	18	51	52	109
Sub-Area (acres)	...	23.9	126.0	0.1	243.1
XKSAT (bare ground)	...	0.33	0.24	0.16	0.35
RTIMP (rock)	...	15%	0%	20%	35%
IA (natural only)	...	0.25	0.15	0.25	0.25

XKSAT log avg (bare ground) =	**0.31**	
PSIF =	**4.45**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**22.56**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.6142

S502

Soil Class	...	10	18	109	110
Sub-Area (acres)	...	13.3	175.1	29.9	39.4
XKSAT (bare ground)	...	0.94	0.33	0.35	0.13
RTIMP (rock)	...	0%	15%	35%	0%
IA (natural only)	...	0.35	0.25	0.25	0.35

XKSAT log avg (bare ground) =	**0.30**	
PSIF =	**4.50**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**14.25**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.27**	

Total Sub Basin Area in sq. miles = 0.4026

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S503

Soil Class ...	10	51	52	108	109	110
Sub-Area (acres) ...	3.2	81.0	22.5	1.8	406.8	120.8
XKSAT (bare ground) ...	0.94	0.24	0.16	0.31	0.35	0.13
RTIMP (rock) ...	0%	0%	20%	30%	35%	0%
IA (natural only) ...	0.35	0.15	0.25	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.27**	
PSIF =	**4.65**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**23.17**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.26**	

Total Sub Basin Area in sq. miles = 0.9940

S504

Soil Class ...	10	18	68	98	110	113
Sub-Area (acres) ...	45.2	0.9	27.4	46.0	83.0	6.1
XKSAT (bare ground) ...	0.94	0.33	0.63	0.37	0.13	0.39
RTIMP (rock) ...	0%	15%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.25	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.32**	
PSIF =	**4.40**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**0.07**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.35**	

Total Sub Basin Area in sq. miles = 0.3259

S505

Soil Class ...	18	110
Sub-Area (acres) ...	87.8	3.7
XKSAT (bare ground) ...	0.33	0.13
RTIMP (rock) ...	15%	0%
IA (natural only) ...	0.25	0.35

XKSAT log avg (bare ground) =	**0.32**	
PSIF =	**4.40**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**14.39**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.1430

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S506

Soil Class	...	13	18	110
Sub-Area (acres)	...	11.2	60.3	24.9
XKSAT (bare ground)	...	0.01	0.33	0.13
RTIMP (rock)	...	0%	15%	0%
IA (natural only)	...	0.35	0.25	0.35

XKSAT log avg (bare ground) =	**0.17**	
PSIF =	**5.70**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**9.38**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.29**	

Total Sub Basin Area in sq. miles = 0.1507

S507

Soil Class	...	10	18	68	98	110
Sub-Area (acres)	...	3.9	35.7	42.7	11.8	332.1
XKSAT (bare ground)	...	0.94	0.33	0.63	0.37	0.13
RTIMP (rock)	...	0%	15%	0%	0%	0%
IA (natural only)	...	0.35	0.25	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.17**	
PSIF =	**5.70**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**1.26**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.34**	

Total Sub Basin Area in sq. miles = 0.6659

S508

Soil Class	...	10	48	98	110	PWB
Sub-Area (acres)	...	27.7	14.3	21.9	112.1	12.7
XKSAT (bare ground)	...	0.94	0.06	0.37	0.13	0.38
RTIMP (rock)	...	0%	0%	0%	0%	0%
IA (natural only)	...	0.35	0.15	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.20**	
PSIF =	**5.30**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.33**	

Total Sub Basin Area in sq. miles = 0.2949

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S509

Soil Class ...	52	100	109	110	
Sub-Area (acres) ...	4.5	14.6	60.7	28.7	
XKSAT (bare ground) ...	0.16	0.40	0.35	0.13	
RTIMP (rock) ...	20%	20%	35%	0%	
IA (natural only) ...	0.25	0.25	0.25	0.35	

XKSAT log avg (bare ground) =	**0.27**	
PSIF =	**4.65**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**23.10**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.28**	

Total Sub Basin Area in sq. miles = 0.1695

S510

Soil Class ...	13	52	109	110	113	
Sub-Area (acres) ...	15.8	17.0	4.1	40.6	3.6	
XKSAT (bare ground) ...	0.01	0.16	0.35	0.13	0.39	
RTIMP (rock) ...	0%	20%	35%	0%	0%	
IA (natural only) ...	0.35	0.25	0.25	0.35	0.35	

XKSAT log avg (bare ground) =	**0.09**	
PSIF =	**7.30**	
DTHETA (Dry) =	**0.33**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**5.95**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.32**	

Total Sub Basin Area in sq. miles = 0.1267

S511

Soil Class ...	13	52	109	110
Sub-Area (acres) ...	27.9	3.8	132.0	82.7
XKSAT (bare ground) ...	0.01	0.16	0.35	0.13
RTIMP (rock) ...	0%	20%	35%	0%
IA (natural only) ...	0.35	0.25	0.25	0.35

XKSAT log avg (bare ground) =	**0.17**	
PSIF =	**5.70**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**19.06**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.29**	

Total Sub Basin Area in sq. miles = 0.3849

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S512

Soil Class ...	13	109	110	113
Sub-Area (acres) ...	56.6	1.4	31.1	47.6
XKSAT (bare ground) ...	0.01	0.35	0.13	0.39
RTIMP (rock) ...	0%	35%	0%	0%
IA (natural only) ...	0.35	0.25	0.35	0.35

XKSAT log avg (bare ground) =	**0.07**	
PSIF =	**8.00**	
DTHETA (Dry) =	**0.30**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.36**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.35**	

Total Sub Basin Area in sq. miles = 0.2136

S513

Soil Class ...	10	18	48	68	98	110	113	PWB
Sub-Area (acres) ...	24.9	48.9	39.7	34.6	34.9	289.2	15.3	10.3
XKSAT (bare ground) ...	0.94	0.33	0.06	0.63	0.37	0.13	0.39	0.38
RTIMP (rock) ...	0%	15%	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.25	0.15	0.35	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.19**	
PSIF =	**5.40**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**1.47**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.32**	

Total Sub Basin Area in sq. miles = 0.7778

S514

Soil Class ...	13	48	49	98	110	PWB
Sub-Area (acres) ...	49.9	151.6	2.1	14.3	185.9	11.8
XKSAT (bare ground) ...	0.01	0.06	0.06	0.37	0.13	0.38
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.15	0.25	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.08**	
PSIF =	**7.60**	
DTHETA (Dry) =	**0.32**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.28**	

Total Sub Basin Area in sq. miles = 0.6495

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S515

Soil Class ...	10	13	48	49	68	110	112	PWB	TSC
Sub-Area (acres) ...	0.6	265.7	78.1	55.1	47.4	173.3	21.8	62.5	0.4
XKSAT (bare ground) ...	0.94	0.01	0.06	0.06	0.63	0.13	0.39	0.38	0.14
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.15	0.25	0.35	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.05**	
PSIF =	**8.80**	
DTHETA (Dry) =	**0.27**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.32**	

Total Sub Basin Area in sq. miles = 1.1015

S516

Soil Class ...	10	110	CF	LcA	MTB	PRB	PWB	PYD	TB	TSC
Sub-Area (acres) ...	3.0	2.1	18.7	2.0	3.8	0.0	73.6	48.9	80.6	112.9
XKSAT (bare ground) ...	0.94	0.13	0.50	0.25	0.15	0.28	0.38	0.20	0.40	0.14
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.25**	
PSIF =	**4.80**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.35**	

Total Sub Basin Area in sq. miles = 0.5400

S600

Soil Class ...	16	31	CmD	Le	Lh
Sub-Area (acres) ...	141.4	263.6	806.1	2.4	78.1
XKSAT (bare ground) ...	0.44	0.33	0.44	0.09	0.14
RTIMP (rock) ...	15%	35%	15%	30%	60%
IA (natural only) ...	0.25	0.25	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.39**	
PSIF =	**4.00**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**21.83**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 2.0181

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S601

Soil Class	...	16	31	72	CmD	Le	Lh	Rr
Sub-Area (acres)	...	35.3	58.0	58.4	67.2	50.6	305.2	1.6
XKSAT (bare ground)	...	0.44	0.33	0.09	0.44	0.09	0.14	0.01
RTIMP (rock)	...	15%	35%	30%	15%	30%	60%	50%
IA (natural only)	...	0.25	0.25	0.25	0.25	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.17**	
PSIF =	**5.70**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**43.77**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.9008

S602

Soil Class	...	8	16	31
Sub-Area (acres)	...	0.8	0.2	1204.3
XKSAT (bare ground)	...	0.96	0.44	0.33
RTIMP (rock)	...	0%	15%	35%
IA (natural only)	...	0.35	0.25	0.25

XKSAT log avg (bare ground) =	**0.33**	
PSIF =	**4.35**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.97**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 1.8833

S603

Soil Class	...	8	31	72	104	Lh	Rr
Sub-Area (acres)	...	4.8	197.5	85.4	74.5	27.4	36.0
XKSAT (bare ground)	...	0.96	0.33	0.09	0.14	0.14	0.01
RTIMP (rock)	...	0%	35%	30%	60%	60%	50%
IA (natural only)	...	0.35	0.25	0.25	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.16**	
PSIF =	**5.80**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**40.85**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.6650

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S604

Soil Class	...	8	31
Sub-Area (acres)	...	6.7	1693.2
XKSAT (bare ground)	...	0.96	0.33
RTIMP (rock)	...	0%	35%
IA (natural only)	...	0.35	0.25

XKSAT log avg (bare ground) =	**0.33**	
PSIF =	**4.35**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.86**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 2.6560

S605

Soil Class	...	8	31
Sub-Area (acres)	...	2.9	691.7
XKSAT (bare ground)	...	0.96	0.33
RTIMP (rock)	...	0%	35%
IA (natural only)	...	0.35	0.25

XKSAT log avg (bare ground) =	**0.33**	
PSIF =	**4.35**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.86**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 1.0853

S606

Soil Class	...	8	31	41	104
Sub-Area (acres)	...	58.9	239.0	18.7	105.7
XKSAT (bare ground)	...	0.96	0.33	0.17	0.14
RTIMP (rock)	...	0%	35%	0%	60%
IA (natural only)	...	0.35	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.30**	
PSIF =	**4.50**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.82**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.26**	

Total Sub Basin Area in sq. miles = 0.6600

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S607

Soil Class	...	8	31	33	41	72	104
Sub-Area (acres)	...	12.2	310.5	4.1	11.3	137.4	50.3
XKSAT (bare ground)	...	0.96	0.33	0.23	0.17	0.09	0.14
RTIMP (rock)	...	0%	35%	0%	0%	30%	60%
IA (natural only)	...	0.35	0.25	0.35	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.22**	
PSIF =	**5.10**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.24**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.8216

S608

Soil Class	...	8	31	72	95	104
Sub-Area (acres)	...	13.3	96.3	146.0	0.2	69.4
XKSAT (bare ground)	...	0.96	0.33	0.09	0.04	0.14
RTIMP (rock)	...	0%	35%	30%	0%	60%
IA (natural only)	...	0.35	0.25	0.25	0.35	0.25

XKSAT log avg (bare ground) =	**0.16**	
PSIF =	**5.80**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**36.64**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.5082

S609

Soil Class	...	8	31	33	41	72
Sub-Area (acres)	...	58.3	270.0	25.5	1.0	3.9
XKSAT (bare ground)	...	0.96	0.33	0.23	0.17	0.09
RTIMP (rock)	...	0%	35%	0%	0%	30%
IA (natural only)	...	0.35	0.25	0.35	0.25	0.25

XKSAT log avg (bare ground) =	**0.38**	
PSIF =	**4.10**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**26.68**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.27**	

Total Sub Basin Area in sq. miles = 0.5603

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S610

Soil Class	...	8	31	72	95	104
Sub-Area (acres)	...	46.2	133.6	68.4	0.0	138.0
XKSAT (bare ground)	...	0.96	0.33	0.09	0.04	0.14
RTIMP (rock)	...	0%	35%	30%	0%	60%
IA (natural only)	...	0.35	0.25	0.25	0.35	0.25

XKSAT log avg (bare ground) =	**0.22**	
PSIF =	**5.10**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**38.86**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.26**	

Total Sub Basin Area in sq. miles = 0.6034

S611

Soil Class	...	31
Sub-Area (acres)	...	364.4
XKSAT (bare ground)	...	0.33
RTIMP (rock)	...	35%
IA (natural only)	...	0.25

XKSAT log avg (bare ground) =	**0.33**	
PSIF =	**4.35**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**35.00**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.5693

S612

Soil Class	...	8	31	72
Sub-Area (acres)	...	0.4	138.0	379.0
XKSAT (bare ground)	...	0.96	0.33	0.09
RTIMP (rock)	...	0%	35%	30%
IA (natural only)	...	0.35	0.25	0.25

XKSAT log avg (bare ground) =	**0.13**	
PSIF =	**6.40**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.21**	
RTIMP avg. =	**31.31**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.8085

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S613

Soil Class	...	8	10	31	72	104	109
Sub-Area (acres)	...	11.3	0.1	430.9	162.4	0.9	544.2
XKSAT (bare ground)	...	0.96	0.94	0.33	0.09	0.14	0.35
RTIMP (rock)	...	0%	0%	35%	30%	60%	35%
IA (natural only)	...	0.35	0.35	0.25	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.29**	
PSIF =	**4.55**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**33.97**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 1.7965

S614

Soil Class	...	8	10	31	51	52	72	104	108	109
Sub-Area (acres)	...	5.4	43.5	5.7	3.8	7.2	14.1	80.7	119.9	410.5
XKSAT (bare ground)	...	0.96	0.94	0.33	0.24	0.16	0.09	0.14	0.31	0.35
RTIMP (rock)	...	0%	0%	35%	0%	20%	30%	60%	30%	35%
IA (natural only)	...	0.35	0.35	0.25	0.15	0.25	0.25	0.25	0.15	0.25

XKSAT log avg (bare ground) =	**0.32**	
PSIF =	**4.40**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**34.12**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.24**	

Total Sub Basin Area in sq. miles = 1.0792

S615

Soil Class	...	31	72	104
Sub-Area (acres)	...	25.7	90.6	558.7
XKSAT (bare ground)	...	0.33	0.09	0.14
RTIMP (rock)	...	35%	30%	60%
IA (natural only)	...	0.25	0.25	0.25

XKSAT log avg (bare ground) =	**0.14**	
PSIF =	**6.20**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.23**	
RTIMP avg. =	**55.02**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 1.0548

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S616

Soil Class ...	10	21	48	51	52	104	
Sub-Area (acres) ...	11.8	33.2	10.4	138.7	37.3	92.0	
XKSAT (bare ground) ...	0.94	0.38	0.06	0.24	0.16	0.14	
RTIMP (rock) ...	0%	0%	0%	0%	20%	60%	
IA (natural only) ...	0.35	0.35	0.15	0.15	0.25	0.25	

XKSAT log avg (bare ground) = 0.21
PSIF = 5.20
DTHETA (Dry) = 0.37
DTHETA (Normal) = 0.25
RTIMP avg. = 19.37 %
Veg. Cover avg. = 32 %
IA avg. = 0.22

Total Sub Basin Area in sq. miles = 0.5054

S617

Soil Class ...	10	48	51	52	68	70	103	108	109
Sub-Area (acres) ...	42.2	1.5	32.4	146.3	16.9	15.3	38.9	93.0	45.7
XKSAT (bare ground) ...	0.94	0.06	0.24	0.16	0.63	0.36	0.10	0.31	0.35
RTIMP (rock) ...	0%	0%	0%	20%	0%	0%	65%	30%	35%
IA (natural only) ...	0.35	0.15	0.15	0.25	0.35	0.25	0.25	0.15	0.25

XKSAT log avg (bare ground) = 0.25
PSIF = 4.80
DTHETA (Dry) = 0.35
DTHETA (Normal) = 0.25
RTIMP avg. = 22.78 %
Veg. Cover avg. = 32 %
IA avg. = 0.23

Total Sub Basin Area in sq. miles = 0.6754

S618

Soil Class ...	10	21	51	52	72	93	104
Sub-Area (acres) ...	29.8	0.0	309.9	59.7	0.6	11.2	202.0
XKSAT (bare ground) ...	0.94	0.38	0.24	0.16	0.09	0.33	0.14
RTIMP (rock) ...	0%	0%	0%	20%	30%	0%	60%
IA (natural only) ...	0.35	0.35	0.15	0.25	0.25	0.15	0.25

XKSAT log avg (bare ground) = 0.21
PSIF = 5.20
DTHETA (Dry) = 0.37
DTHETA (Normal) = 0.25
RTIMP avg. = 21.74 %
Veg. Cover avg. = 32 %
IA avg. = 0.20

Total Sub Basin Area in sq. miles = 0.9581

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S619

Soil Class	...	66	72	93	95	104
Sub-Area (acres)	...	27.0	125.4	20.5	79.1	277.0
XKSAT (bare ground)	...	0.23	0.09	0.33	0.04	0.14
RTIMP (rock)	...	0%	30%	0%	0%	60%
IA (natural only)	...	0.35	0.25	0.15	0.35	0.25

XKSAT log avg (bare ground) =	**0.11**	
PSIF =	**6.80**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.17**	
RTIMP avg. =	**38.53**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.27**	

Total Sub Basin Area in sq. miles = 0.8266

S620

Soil Class	...	10	51	52	72	93	95	103	104
Sub-Area (acres)	...	0.4	47.9	2.1	106.3	3.0	5.4	16.0	103.1
XKSAT (bare ground)	...	0.94	0.24	0.16	0.09	0.33	0.04	0.10	0.14
RTIMP (rock)	...	0%	0%	20%	30%	0%	0%	65%	60%
IA (natural only)	...	0.35	0.15	0.25	0.25	0.15	0.35	0.25	0.25

XKSAT log avg (bare ground) =	**0.13**	
PSIF =	**6.40**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.21**	
RTIMP avg. =	**36.79**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.23**	

Total Sub Basin Area in sq. miles = 0.4441

S621

Soil Class	...	10	51	52	103
Sub-Area (acres)	...	30.6	492.5	64.2	3.5
XKSAT (bare ground)	...	0.94	0.24	0.16	0.10
RTIMP (rock)	...	0%	0%	20%	65%
IA (natural only)	...	0.35	0.15	0.25	0.25

XKSAT log avg (bare ground) =	**0.25**	
PSIF =	**4.80**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**2.55**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.17**	

Total Sub Basin Area in sq. miles = 0.9231

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S622

Soil Class	...	10	45	51	52
Sub-Area (acres)	...	38.7	1.7	416.4	117.3
XKSAT (bare ground)	...	0.94	0.03	0.24	0.16
RTIMP (rock)	...	0%	0%	0%	20%
IA (natural only)	...	0.35	0.15	0.15	0.25

XKSAT log avg (bare ground) =	**0.24**	
PSIF =	**4.90**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**4.09**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.18**	

Total Sub Basin Area in sq. miles = 0.8971

S700

Soil Class	...	51	52
Sub-Area (acres)	...	295.2	95.1
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.22**	
PSIF =	**5.10**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**4.87**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.17**	

Total Sub Basin Area in sq. miles = 0.6099

S701

Soil Class	...	51	52
Sub-Area (acres)	...	128.2	332.7
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.18**	
PSIF =	**5.60**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**14.44**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.7202

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S702

Soil Class	...	51	52
Sub-Area (acres)	...	135.2	29.3
XKSAT (bare ground)	...	0.24	0.16
RTIMP (rock)	...	0%	20%
IA (natural only)	...	0.15	0.25

XKSAT log avg (bare ground) =	**0.22**	
PSIF =	**5.10**	
DTHETA (Dry) =	**0.36**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**3.57**	**%**
Veg. Cover avg. =	**32**	**%**
IA avg. =	**0.17**	

Total Sub Basin Area in sq. miles = 0.2570

S703

Soil Class	...	10	51
Sub-Area (acres)	...	0.0	164.6
XKSAT (bare ground)	...	0.94	0.24
RTIMP (rock)	...	0%	0%
IA (natural only)	...	0.35	0.15

XKSAT log avg (bare ground) =	**0.24**	
PSIF =	**4.90**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**0.00**	**%**
Veg. Cover avg. =	**32**	**%**
IA avg. =	**0.15**	

Total Sub Basin Area in sq. miles = 0.2573

S704

Soil Class	...	18	48	49	51	110
Sub-Area (acres)	...	191.4	24.7	2.6	0.1	42.5
XKSAT (bare ground)	...	0.33	0.06	0.06	0.24	0.13
RTIMP (rock)	...	15%	0%	0%	0%	0%
IA (natural only)	...	0.25	0.15	0.25	0.15	0.35

XKSAT log avg (bare ground) =	**0.24**	
PSIF =	**4.90**	
DTHETA (Dry) =	**0.35**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**10.99**	**%**
Veg. Cover avg. =	**32**	**%**
IA avg. =	**0.26**	

Total Sub Basin Area in sq. miles = 0.4081

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S705

Soil Class ...	18	45	48	49	110
Sub-Area (acres) ...	216.6	0.5	176.0	61.4	28.2
XKSAT (bare ground) ...	0.33	0.03	0.06	0.06	0.13
RTIMP (rock) ...	15%	0%	0%	0%	0%
IA (natural only) ...	0.25	0.15	0.15	0.25	0.35

XKSAT log avg (bare ground) =	**0.13**	
PSIF =	**6.40**	
DTHETA (Dry) =	**0.38**	
DTHETA (Normal) =	**0.21**	
RTIMP avg. =	**6.73**	%
Veg. Cover avg. =	**32**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.7542

S705AF

Soil Class ...	48	12	98	49	3	112	45	77
Sub-Area (acres) ...	0.1	51.7	14.0	0.0	7.6	2.5	22.3	18.8
XKSAT (bare ground) ...	0.06	0.01	0.37	0.06	0.58	0.39	0.03	0.05
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.15	0.35	0.35	0.25	0.35	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.03**	
PSIF =	**10.10**	
DTHETA (Dry) =	**0.22**	
DTHETA (Normal) =	**0.13**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.31**	

Total Sub Basin Area in sq. miles = 0.1828

S706

Soil Class ...	13	18	45	110	118
Sub-Area (acres) ...	34.4	210.9	20.3	158.0	32.6
XKSAT (bare ground) ...	0.01	0.33	0.03	0.13	0.42
RTIMP (rock) ...	0%	15%	0%	0%	0%
IA (natural only) ...	0.35	0.25	0.15	0.35	0.35

XKSAT log avg (bare ground) =	**0.17**	
PSIF =	**5.70**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**6.93**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.29**	

Total Sub Basin Area in sq. miles = 0.7129

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S707

Soil Class	...	12	13	18	45	110
Sub-Area (acres)	...	24.0	15.0	220.5	41.7	107.4
XKSAT (bare ground)	...	0.01	0.01	0.33	0.03	0.13
RTIMP (rock)	...	0%	0%	15%	0%	0%
IA (natural only)	...	0.35	0.35	0.25	0.15	0.35

XKSAT log avg (bare ground) =	**0.14**	
PSIF =	**6.20**	
DTHETA (Dry) =	**0.39**	
DTHETA (Normal) =	**0.23**	
RTIMP avg. =	**8.09**	%
Veg. Cover avg. =	**26**	%
IA avg. =	**0.28**	

Total Sub Basin Area in sq. miles = 0.6383

S708

Soil Class	...	13	45	47	110	W
Sub-Area (acres)	...	71.7	246.4	41.9	91.8	0.3
XKSAT (bare ground)	...	0.01	0.03	0.11	0.13	0.00
RTIMP (rock)	...	0%	0%	0%	0%	100%
IA (natural only)	...	0.35	0.15	0.15	0.35	0.35

XKSAT log avg (bare ground) =	**0.04**	
PSIF =	**9.70**	
DTHETA (Dry) =	**0.25**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.06**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.22**	

Total Sub Basin Area in sq. miles = 0.7065

S709

Soil Class	...	13	45	110
Sub-Area (acres)	...	178.2	71.1	32.7
XKSAT (bare ground)	...	0.01	0.03	0.13
RTIMP (rock)	...	0%	0%	0%
IA (natural only)	...	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.02**	
PSIF =	**11.20**	
DTHETA (Dry) =	**0.19**	
DTHETA (Normal) =	**0.10**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.30**	

Total Sub Basin Area in sq. miles = 0.4406

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S710

Soil Class ...	45	
Sub-Area (acres) ...	71.5	
XKSAT (bare ground) ...	0.03	
RTIMP (rock) ...	0%	
IA (natural only) ...	0.15	

XKSAT log avg (bare ground) =	**0.03**	
PSIF =	**10.10**	
DTHETA (Dry) =	**0.22**	
DTHETA (Normal) =	**0.13**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.15**	

Total Sub Basin Area in sq. miles = 0.1117

S711

Soil Class ...	13	45	110
Sub-Area (acres) ...	46.5	36.8	18.5
XKSAT (bare ground) ...	0.01	0.03	0.13
RTIMP (rock) ...	0%	0%	0%
IA (natural only) ...	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.02**	
PSIF =	**11.20**	
DTHETA (Dry) =	**0.19**	
DTHETA (Normal) =	**0.10**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.28**	

Total Sub Basin Area in sq. miles = 0.1591

S712

Soil Class ...	12	13	45	98
Sub-Area (acres) ...	0.2	4.1	39.0	0.2
XKSAT (bare ground) ...	0.01	0.01	0.03	0.37
RTIMP (rock) ...	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.03**	
PSIF =	**10.10**	
DTHETA (Dry) =	**0.22**	
DTHETA (Normal) =	**0.13**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.17**	

Total Sub Basin Area in sq. miles = 0.0680

Table A-2

Worksheet

Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S713

Soil Class	...	45	98
Sub-Area (acres)	...	68.7	0.0
XKSAT (bare ground)	...	0.03	0.37
RTIMP (rock)	...	0%	0%
IA (natural only)	...	0.15	0.35

XKSAT log avg (bare ground) =	**0.03**	
PSIF =	**10.10**	
DTHETA (Dry) =	**0.22**	
DTHETA (Normal) =	**0.13**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.15**	

Total Sub Basin Area in sq. miles = 0.1074

S714

Soil Class	...	10	12	45	98
Sub-Area (acres)	...	0.0	18.9	0.8	18.6
XKSAT (bare ground)	...	0.94	0.01	0.03	0.37
RTIMP (rock)	...	0%	0%	0%	0%
IA (natural only)	...	0.35	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.06**	
PSIF =	**8.40**	
DTHETA (Dry) =	**0.29**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.35**	

Total Sub Basin Area in sq. miles = 0.0599

S715

Soil Class	...	10	12	45	98
Sub-Area (acres)	...	1.1	97.9	27.8	13.7
XKSAT (bare ground)	...	0.94	0.01	0.03	0.37
RTIMP (rock)	...	0%	0%	0%	0%
IA (natural only)	...	0.35	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.02**	
PSIF =	**11.20**	
DTHETA (Dry) =	**0.19**	
DTHETA (Normal) =	**0.10**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.31**	

Total Sub Basin Area in sq. miles = 0.2196

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S716

Soil Class ...	13	45	110	112	
Sub-Area (acres) ...	264.0	262.0	194.2	2.0	
XKSAT (bare ground) ...	0.01	0.03	0.13	0.39	
RTIMP (rock) ...	0%	0%	0%	0%	
IA (natural only) ...	0.35	0.15	0.35	0.35	

XKSAT log avg (bare ground) =	**0.03**	
PSIF =	**10.10**	
DTHETA (Dry) =	**0.22**	
DTHETA (Normal) =	**0.13**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.28**	

Total Sub Basin Area in sq. miles = 1.1284

S717

Soil Class ...	12	13	45	98	112
Sub-Area (acres) ...	0.1	90.5	91.1	1.2	0.1
XKSAT (bare ground) ...	0.01	0.01	0.03	0.37	0.39
RTIMP (rock) ...	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.15	0.35	0.35

XKSAT log avg (bare ground) =	**0.02**	
PSIF =	**11.20**	
DTHETA (Dry) =	**0.19**	
DTHETA (Normal) =	**0.10**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.2860

S718

Soil Class ...	10	12	13	45	98
Sub-Area (acres) ...	1.5	125.1	4.6	148.1	3.5
XKSAT (bare ground) ...	0.94	0.01	0.01	0.03	0.37
RTIMP (rock) ...	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.35	0.15	0.35

XKSAT log avg (bare ground) =	**0.02**	
PSIF =	**11.20**	
DTHETA (Dry) =	**0.19**	
DTHETA (Normal) =	**0.10**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.25**	

Total Sub Basin Area in sq. miles = 0.4420

Table A-2

Worksheet

Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S719

Soil Class ...	10	12	45	118	
Sub-Area (acres) ...	0.1	85.3	8.1	5.0	
XKSAT (bare ground) ...	0.94	0.01	0.03	0.42	
RTIMP (rock) ...	0%	0%	0%	0%	
IA (natural only) ...	0.35	0.35	0.15	0.35	

XKSAT log avg (bare ground) =	**0.01**	
PSIF =	**12.40**	
DTHETA (Dry) =	**0.15**	
DTHETA (Normal) =	**0.05**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.33**	

Total Sub Basin Area in sq. miles = 0.1538

S720

Soil Class ...	10	12	13	45	98	118
Sub-Area (acres) ...	0.6	142.0	8.3	75.0	7.1	3.7
XKSAT (bare ground) ...	0.94	0.01	0.01	0.03	0.37	0.42
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.35	0.15	0.35	0.35

XKSAT log avg (bare ground) =	**0.02**	
PSIF =	**11.20**	
DTHETA (Dry) =	**0.19**	
DTHETA (Normal) =	**0.10**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.29**	

Total Sub Basin Area in sq. miles = 0.3697

S721

Soil Class ...	45	110
Sub-Area (acres) ...	52.5	161.7
XKSAT (bare ground) ...	0.03	0.13
RTIMP (rock) ...	0%	0%
IA (natural only) ...	0.15	0.35

XKSAT log avg (bare ground) =	**0.09**	
PSIF =	**7.30**	
DTHETA (Dry) =	**0.33**	
DTHETA (Normal) =	**0.15**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.30**	

Total Sub Basin Area in sq. miles = 0.3346

Table A-2

Worksheet

Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S722

Soil Class ...	10	12	13	45	98	112	113	
Sub-Area (acres) ...	0.7	24.7	246.8	159.0	40.0	41.6	98.5	
XKSAT (bare ground) ...	0.94	0.01	0.01	0.03	0.37	0.39	0.39	
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%	0%	
IA (natural only) ...	0.35	0.35	0.35	0.15	0.35	0.35	0.35	

XKSAT log avg (bare ground) = 0.04
PSIF = 9.70
DTHETA (Dry) = 0.25
DTHETA (Normal) = 0.15
RTIMP avg. = 0.00 %
Veg. Cover avg. = 15 %
IA avg. = 0.30

Total Sub Basin Area in sq. miles = 0.9552

S723

Soil Class ...	12	13	45	98
Sub-Area (acres) ...	23.8	1.4	17.6	11.8
XKSAT (bare ground) ...	0.01	0.01	0.03	0.37
RTIMP (rock) ...	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.15	0.35

XKSAT log avg (bare ground) = 0.03
PSIF = 10.10
DTHETA (Dry) = 0.22
DTHETA (Normal) = 0.13
RTIMP avg. = 0.00 %
Veg. Cover avg. = 15 %
IA avg. = 0.29

Total Sub Basin Area in sq. miles = 0.0852

S724

Soil Class ...	3	12	13	45	68	110	112	113
Sub-Area (acres) ...	2.3	92.7	265.1	282.1	4.0	55.3	11.4	27.1
XKSAT (bare ground) ...	0.58	0.01	0.01	0.03	0.63	0.13	0.39	0.39
RTIMP (rock) ...	0%	0%	0%	0%	0%	0%	0%	0%
IA (natural only) ...	0.35	0.35	0.35	0.15	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) = 0.02
PSIF = 11.20
DTHETA (Dry) = 0.19
DTHETA (Normal) = 0.10
RTIMP avg. = 0.00 %
Veg. Cover avg. = 15 %
IA avg. = 0.27

Total Sub Basin Area in sq. miles = 1.1564

Table A-2

Worksheet

Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S725

Soil Class	...	10	13	45	63	98	110	112	113
Sub-Area (acres)	...	2.2	210.9	174.6	8.7	41.8	212.3	48.8	41.4
XKSAT (bare ground)	...	0.94	0.01	0.03	0.14	0.37	0.13	0.39	0.39
RTIMP (rock)	...	0%	0%	0%	25%	0%	0%	0%	0%
IA (natural only)	...	0.35	0.35	0.15	0.25	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.05**		
PSIF =	**8.80**		
DTHETA (Dry) =	**0.27**		
DTHETA (Normal) =	**0.15**		
RTIMP avg. =	**0.29**	%	
Veg. Cover avg. =	**15**	%	
IA avg. =	**0.30**		
		Total Sub Basin Area in sq. miles =	**1.1575**

S726

Soil Class	...	13	21	44	100	110
Sub-Area (acres)	...	13.8	7.1	1.9	76.0	115.1
XKSAT (bare ground)	...	0.01	0.38	0.03	0.40	0.13
RTIMP (rock)	...	0%	0%	0%	20%	0%
IA (natural only)	...	0.35	0.35	0.35	0.25	0.35

XKSAT log avg (bare ground) =	**0.17**		
PSIF =	**5.70**		
DTHETA (Dry) =	**0.39**		
DTHETA (Normal) =	**0.25**		
RTIMP avg. =	**7.11**	%	
Veg. Cover avg. =	**15**	%	
IA avg. =	**0.31**		
		Total Sub Basin Area in sq. miles =	**0.3341**

S727

Soil Class	...	12	13	45	98	110	112
Sub-Area (acres)	...	1.8	67.1	95.4	26.9	36.6	12.3
XKSAT (bare ground)	...	0.01	0.01	0.03	0.37	0.13	0.39
RTIMP (rock)	...	0%	0%	0%	0%	0%	0%
IA (natural only)	...	0.35	0.35	0.15	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.04**		
PSIF =	**9.70**		
DTHETA (Dry) =	**0.25**		
DTHETA (Normal) =	**0.15**		
RTIMP avg. =	**0.00**	%	
Veg. Cover avg. =	**15**	%	
IA avg. =	**0.27**		
		Total Sub Basin Area in sq. miles =	**0.3750**

Table A-2

Worksheet
Soils compostition and corresponding natural condition Green & Ampt rainfall loss parameters for each subbasin

S728

Soil Class	...	CF	Es	LcA	MTB	PWB	PYD
Sub-Area (acres)	...	0.5	3.8	7.0	90.7	54.9	19.6
XKSAT (bare ground)	...	0.50	0.25	0.25	0.15	0.38	0.20
RTIMP (rock)	...	0%	0%	0%	0%	0%	0%
IA (natural only)	...	0.35	0.35	0.35	0.35	0.35	0.35

XKSAT log avg (bare ground) =	**0.21**	
PSIF =	**5.20**	
DTHETA (Dry) =	**0.37**	
DTHETA (Normal) =	**0.25**	
RTIMP avg. =	**0.00**	%
Veg. Cover avg. =	**15**	%
IA avg. =	**0.35**	

Total Sub Basin Area in sq. miles = 0.2757

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S100

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	367.2
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.5737

S101

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	403.9
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.6312

S102

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	287.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.4495

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S103

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	252.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	100.00	%
Developed Area	=	0.00	%
RTIMP (Dev.) avg.	=	0.00	%
Veg Cover (Dev.) avg.	=	0.00	%
IA (Dev.) avg.	=	0.00	

Total Sub Basin Area in sq. miles = 0.3947

S104

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	576.1
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	100.00	%
Developed Area	=	0.00	%
RTIMP (Dev.) avg.	=	0.00	%
Veg Cover (Dev.) avg.	=	0.00	%
IA (Dev.) avg.	=	0.00	

Total Sub Basin Area in sq. miles = 0.9002

S105

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	380.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	100.00	%
Developed Area	=	0.00	%
RTIMP (Dev.) avg.	=	0.00	%
Veg Cover (Dev.) avg.	=	0.00	%
IA (Dev.) avg.	=	0.00	

Total Sub Basin Area in sq. miles = 0.5938

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S106

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	363.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.5672

S107

Land Use Class	...	COMM	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	8.4	590.5
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	15%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**98.60**	**%**
Developed Area	**=**	**1.40**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**15.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 0.9359

S200

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	613.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.9588

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S201

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	224.1
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.3501

S202

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	81.2
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.1268

S203

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	239.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.3734

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S204

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	608.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.9506

S205

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	264.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.4132

S206

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	545.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.8529

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S207

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	612.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.9569

S208

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	705.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 1.1025

S209

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	416.3
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6504

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S210

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	307.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.4809

S211

Land Use Class	...	COMM	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	2.4	309.7
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	15%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**99.22**	**%**
Developed Area	**=**	**0.78**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**15.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 0.4876

S300

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	393.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.6151

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S301

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	636.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.9945

S302

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	297.3
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.4645

S303

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	453.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.7078

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S304

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	526.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.8225

S400

Land Use Class	...	IND	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	177.9	492.8
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	0%	---
IA (Developed)	...	0.15	---

Natural Area	**=**	**73.48**	**%**
Developed Area	**=**	**26.52**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.15**	

Total Sub Basin Area in sq. miles = 1.0480

S401

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	413.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.6462

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S402

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	473.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	100.00	%
Developed Area	=	0.00	%
RTIMP (Dev.) avg.	=	0.00	%
Veg Cover (Dev.) avg.	=	0.00	%
IA (Dev.) avg.	=	0.00	

Total Sub Basin Area in sq. miles = 0.7399

S403

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	357.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	100.00	%
Developed Area	=	0.00	%
RTIMP (Dev.) avg.	=	0.00	%
Veg Cover (Dev.) avg.	=	0.00	%
IA (Dev.) avg.	=	0.00	

Total Sub Basin Area in sq. miles = 0.5591

S404

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	168.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	100.00	%
Developed Area	=	0.00	%
RTIMP (Dev.) avg.	=	0.00	%
Veg Cover (Dev.) avg.	=	0.00	%
IA (Dev.) avg.	=	0.00	

Total Sub Basin Area in sq. miles = 0.2633

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S500

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	674.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 1.0544

S501

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	393.1
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.6142

S502

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	257.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.4026

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S503

Land Use Class	...	IND	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	278.9	357.3
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	0%	---
IA (Developed)	...	0.15	---

Natural Area	**=**	**56.16**	**%**
Developed Area	**=**	**43.84**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.15**	

Total Sub Basin Area in sq. miles = 0.9940

S504

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	208.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.3259

S505

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	91.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.1430

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S506

Land Use Class	...	IND	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	0.2	96.2
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	0%	---
IA (Developed)	...	0.15	---

Natural Area	=	**99.78**	%
Developed Area	=	**0.22**	%
RTIMP (Dev.) avg.	=	**10.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.15**	

Total Sub Basin Area in sq. miles = 0.1507

S507

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	426.2
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6659

S508

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	188.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.2949

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S509

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	108.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.1695

S510

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	81.1
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.1267

S511

Land Use Class	...	IND	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	2.4	244.0
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	0%	---
IA (Developed)	...	0.15	---

Natural Area	=	**99.04**	%
Developed Area	=	**0.96**	%
RTIMP (Dev.) avg.	=	**10.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.15**	

Total Sub Basin Area in sq. miles = 0.3849

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S512

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	136.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.2136

S513

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	497.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.7778

S514

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	415.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6495

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S515

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	*705.0*
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 1.1015

S516

Land Use Class	...	*LDR*	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	1.4	344.2
Base RTIMP (Dev.)	...	5%	---
Veg. Cover (Developed)	...	25%	---
IA (Developed)	...	0.30	---

Natural Area	=	**99.60**	%
Developed Area	=	**0.40**	%
RTIMP (Dev.) avg.	=	**5.00**	%
Veg Cover (Dev.) avg.	=	**25.00**	%
IA (Dev.) avg.	=	**0.30**	

Total Sub Basin Area in sq. miles = 0.5400

S600

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	1282.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 2.0040

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S601

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	571.9
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.8935

S602

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	1205.3
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 1.8833

S603

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	420.9
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.6576

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S604

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	1699.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	**%**
Developed Area	=	**0.00**	**%**
RTIMP (Dev.) avg.	=	**0.00**	**%**
Veg Cover (Dev.) avg.	=	**0.00**	**%**
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 2.6560

S605

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	694.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	**%**
Developed Area	=	**0.00**	**%**
RTIMP (Dev.) avg.	=	**0.00**	**%**
Veg Cover (Dev.) avg.	=	**0.00**	**%**
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 1.0853

S606

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	422.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	**%**
Developed Area	=	**0.00**	**%**
RTIMP (Dev.) avg.	=	**0.00**	**%**
Veg Cover (Dev.) avg.	=	**0.00**	**%**
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6600

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S607

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	525.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.8216

S608

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	325.3
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.5082

S609

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	358.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.5603

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S610

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	386.2
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	**%**
Developed Area	=	**0.00**	**%**
RTIMP (Dev.) avg.	=	**0.00**	**%**
Veg Cover (Dev.) avg.	=	**0.00**	**%**
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6034

S611

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	364.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	**%**
Developed Area	=	**0.00**	**%**
RTIMP (Dev.) avg.	=	**0.00**	**%**
Veg Cover (Dev.) avg.	=	**0.00**	**%**
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.5693

S612

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	517.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	**%**
Developed Area	=	**0.00**	**%**
RTIMP (Dev.) avg.	=	**0.00**	**%**
Veg Cover (Dev.) avg.	=	**0.00**	**%**
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.8085

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S613

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	1149.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 1.7965

S614

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	690.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 1.0792

S615

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	675.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 1.0548

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S616

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	323.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.5054

S617

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	432.2
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6754

S618

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	19.5	593.7
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.9581

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S619

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	14.1	514.9
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.8266

S620

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	242.5	41.7
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.4441

S621

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	182.3	408.5
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.9231

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S622

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	411.6	162.6
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.8971

S700

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	23.3	367.0
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.6099

S701

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	460.9
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.7202

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S702

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	164.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.2570

S703

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	164.6
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.2573

S704

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	261.2
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.4081

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S705

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	482.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.7542

S705AF

Land Use Class	...	OPEN
Natural or Developed	...	N
Sub-Area (acres)	...	117.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.1828

S706

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	456.3
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.7129

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S707

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	408.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.6383

S708

Land Use Class	...	LDR	OPEN	DESERT
Natural or Developed	...	D	N	N
Sub-Area (acres)	...	6.7	307.4	138.0
Base RTIMP (Dev.)	...	5%	---	---
Veg. Cover (Developed)	...	25%	---	---
IA (Developed)	...	0.30	---	---

Natural Area	=	**98.51**	%
Developed Area	=	**1.49**	%
RTIMP (Dev.) avg.	=	**5.00**	%
Veg Cover (Dev.) avg.	=	**25.00**	%
IA (Dev.) avg.	=	**0.30**	

Total Sub Basin Area in sq. miles = 0.7065

S709

Land Use Class	...	OPEN	DESERT
Natural or Developed	...	N	N
Sub-Area (acres)	...	115.4	166.6
Base RTIMP (Dev.)	...	---	---
Veg. Cover (Developed)	...	---	---
IA (Developed)	...	---	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.4406

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S710

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	71.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.1117

S711

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	101.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.1591

S712

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	43.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.0680

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S713

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	68.7
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.1074

S714

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	38.3
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.0599

S715

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	140.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.2196

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S716

Land Use Class	...	ARP	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	18.7	703.4
Base RTIMP (Dev.)	...	50%	---
Veg. Cover (Developed)	...	5%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**97.41**	**%**
Developed Area	**=**	**2.59**	**%**
RTIMP (Dev.) avg.	**=**	**50.00**	**%**
Veg Cover (Dev.) avg.	**=**	**5.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 1.1284

S717

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	183.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.2860

S718

Land Use Class	...	COMM	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	47.5	235.4
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	15%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**83.21**	**%**
Developed Area	**=**	**16.79**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**15.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 0.4420

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S719

Land Use Class	...	COMM	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	42.6	55.8
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	15%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**56.70**	**%**
Developed Area	**=**	**43.30**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**15.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 0.1538

S720

Land Use Class	...	COMM	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	17.9	218.7
Base RTIMP (Dev.)	...	10%	---
Veg. Cover (Developed)	...	15%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**92.43**	**%**
Developed Area	**=**	**7.57**	**%**
RTIMP (Dev.) avg.	**=**	**10.00**	**%**
Veg Cover (Dev.) avg.	**=**	**15.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 0.3697

S721

Land Use Class	...	ARP	DESERT
Natural or Developed	...	D	N
Sub-Area (acres)	...	0.9	213.3
Base RTIMP (Dev.)	...	50%	---
Veg. Cover (Developed)	...	5%	---
IA (Developed)	...	0.10	---

Natural Area	**=**	**99.59**	**%**
Developed Area	**=**	**0.41**	**%**
RTIMP (Dev.) avg.	**=**	**50.00**	**%**
Veg Cover (Dev.) avg.	**=**	**5.00**	**%**
IA (Dev.) avg.	**=**	**0.10**	

Total Sub Basin Area in sq. miles = 0.3346

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S722

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	611.4
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.9552

S723

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	54.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 0.0852

S724

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	740.1
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	=	**100.00**	%
Developed Area	=	**0.00**	%
RTIMP (Dev.) avg.	=	**0.00**	%
Veg Cover (Dev.) avg.	=	**0.00**	%
IA (Dev.) avg.	=	**0.00**	

Total Sub Basin Area in sq. miles = 1.1564

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S725

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	740.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 1.1575

S726

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	213.8
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.3341

S727

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	240.0
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.3750

Table A-3

Worksheet
Land use composition and corresponding rainfall loss characteristics for each subbasin
Existing condition

S728

Land Use Class	...	DESERT
Natural or Developed	...	N
Sub-Area (acres)	...	176.5
Base RTIMP (Dev.)	...	---
Veg. Cover (Developed)	...	---
IA (Developed)	...	---

Natural Area	**=**	**100.00**	**%**
Developed Area	**=**	**0.00**	**%**
RTIMP (Dev.) avg.	**=**	**0.00**	**%**
Veg Cover (Dev.) avg.	**=**	**0.00**	**%**
IA (Dev.) avg.	**=**	**0.00**	

Total Sub Basin Area in sq. miles = 0.2757

Table A-4

Green & Ampt rainfall loss parameters for each subbasin

Sub-basin ID	Total sq. mi.	Area Natural %	Urban %	IA, in inches			RTIMP, in %			Vegetation Cover, in %			XKSAT Bare Ground in/hr	PSIF inches	DTHETA			XKSAT Corrected for Veg. in/hr
				Natural	Urban	Weighted	Natural	Urban	Total	Natural	Urban	Weighted			Natural dry	Urban normal	Weighted	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
S100	0.5737	100.0	0.0	0.19	0.00	0.19	25	0	25	32	0	32	0.27	4.65	0.35	0.25	0.35	0.34
S101	0.6312	100.0	0.0	0.26	0.00	0.26	15	0	15	32	0	32	0.20	5.30	0.37	0.25	0.37	0.25
S102	0.4495	100.0	0.0	0.15	0.00	0.15	30	0	30	32	0	32	0.31	4.45	0.35	0.25	0.35	0.39
S103	0.3947	100.0	0.0	0.24	0.00	0.24	17	0	17	32	0	32	0.18	5.60	0.38	0.25	0.38	0.22
S104	0.9002	100.0	0.0	0.22	0.00	0.22	13	0	13	32	0	32	0.18	5.60	0.38	0.25	0.38	0.22
S105	0.5938	100.0	0.0	0.22	0.00	0.22	13	0	13	32	0	32	0.18	5.60	0.38	0.25	0.38	0.22
S106	0.5672	100.0	0.0	0.19	0.00	0.19	7	0	7	32	0	32	0.21	5.20	0.37	0.25	0.37	0.26
S107	0.9359	98.6	1.4	0.15	0.10	0.15	0	10	0	32	15	32	0.24	4.90	0.35	0.25	0.35	0.30
S200	0.9588	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S201	0.3501	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S202	0.1268	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S203	0.3734	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S204	0.9506	100.0	0.0	0.25	0.00	0.25	32	0	32	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S205	0.4132	100.0	0.0	0.21	0.00	0.21	21	0	21	32	0	32	0.28	4.60	0.35	0.25	0.35	0.35
S206	0.8529	100.0	0.0	0.25	0.00	0.25	27	0	27	32	0	32	0.27	4.65	0.35	0.25	0.35	0.34
S207	0.9569	100.0	0.0	0.25	0.00	0.25	34	0	34	32	0	32	0.33	4.35	0.35	0.25	0.35	0.41
S208	1.1025	100.0	0.0	0.23	0.00	0.23	24	0	24	32	0	32	0.20	5.30	0.37	0.25	0.37	0.25
S209	0.6504	100.0	0.0	0.22	0.00	0.22	15	0	15	32	0	32	0.23	5.00	0.36	0.25	0.36	0.29
S210	0.4809	100.0	0.0	0.16	0.00	0.16	2	0	2	32	0	32	0.23	5.00	0.36	0.25	0.36	0.29
S211	0.4876	99.2	0.8	0.19	0.10	0.19	4	10	4	32	15	32	0.21	5.20	0.37	0.25	0.37	0.26
S300	0.6151	100.0	0.0	0.25	0.00	0.25	25	0	25	32	0	32	0.29	4.55	0.35	0.25	0.35	0.36
S301	0.9945	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S302	0.4645	100.0	0.0	0.24	0.00	0.24	24	0	24	32	0	32	0.29	4.55	0.35	0.25	0.35	0.36
S303	0.7078	100.0	0.0	0.22	0.00	0.22	10	0	10	32	0	32	0.28	4.60	0.35	0.25	0.35	0.35
S304	0.8225	100.0	0.0	0.18	0.00	0.18	3	0	3	32	0	32	0.22	5.10	0.36	0.25	0.36	0.27
S400	1.0480	73.5	26.5	0.26	0.15	0.23	15	10	14	26	0	19	0.19	5.40	0.38	0.25	0.34	0.21
S401	0.6462	100.0	0.0	0.30	0.00	0.30	7	0	7	26	0	26	0.22	5.10	0.36	0.25	0.36	0.26
S402	0.7399	100.0	0.0	0.31	0.00	0.31	3	0	3	26	0	26	0.18	5.60	0.38	0.25	0.38	0.21
S403	0.5591	100.0	0.0	0.30	0.00	0.30	0	0	0	26	0	26	0.07	8.00	0.30	0.15	0.30	0.08
S404	0.2633	100.0	0.0	0.27	0.00	0.27	0	0	0	26	0	26	0.12	6.60	0.37	0.19	0.37	0.14

Table A-4

Green & Ampt rainfall loss parameters for each subbasin

Sub-basin ID	Total sq. mi.	Area Natural %	Urban %	IA, in inches			RTIMP, in %			Vegetation Cover, in %			XKSAT Bare Ground in/hr	PSIF inches	DTHETA			XKSAT Corrected for Veg. in/hr
				Natural	Urban	Weighted	Natural	Urban	Total	Natural	Urban	Weighted			Natural dry	Urban normal	Weighted	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
S500	1.0544	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.35	4.25	0.35	0.25	0.35	0.44
S501	0.6142	100.0	0.0	0.22	0.00	0.22	23	0	23	32	0	32	0.31	4.45	0.35	0.25	0.35	0.39
S502	0.4026	100.0	0.0	0.27	0.00	0.27	14	0	14	26	0	26	0.30	4.50	0.35	0.25	0.35	0.35
S503	0.9940	56.2	43.8	0.26	0.15	0.21	23	10	17	26	0	15	0.27	4.65	0.35	0.25	0.31	0.28
S504	0.3259	100.0	0.0	0.35	0.00	0.35	0	0	0	26	0	26	0.32	4.40	0.35	0.25	0.35	0.38
S505	0.1430	100.0	0.0	0.25	0.00	0.25	14	0	14	26	0	26	0.32	4.40	0.35	0.25	0.35	0.38
S506	0.1507	99.8	0.2	0.29	0.15	0.29	9	10	9	26	0	26	0.17	5.70	0.39	0.25	0.39	0.20
S507	0.6659	100.0	0.0	0.34	0.00	0.34	1	0	1	26	0	26	0.17	5.70	0.39	0.25	0.39	0.20
S508	0.2949	100.0	0.0	0.33	0.00	0.33	0	0	0	26	0	26	0.20	5.30	0.37	0.25	0.37	0.24
S509	0.1695	100.0	0.0	0.28	0.00	0.28	23	0	23	26	0	26	0.27	4.65	0.35	0.25	0.35	0.32
S510	0.1267	100.0	0.0	0.32	0.00	0.32	6	0	6	26	0	26	0.09	7.30	0.33	0.15	0.33	0.11
S511	0.3849	99.0	1.0	0.29	0.15	0.29	19	10	19	26	0	26	0.17	5.70	0.39	0.25	0.39	0.20
S512	0.2136	100.0	0.0	0.35	0.00	0.35	0	0	0	26	0	26	0.07	8.00	0.30	0.15	0.30	0.08
S513	0.7778	100.0	0.0	0.32	0.00	0.32	1	0	1	26	0	26	0.19	5.40	0.38	0.25	0.38	0.22
S514	0.6495	100.0	0.0	0.28	0.00	0.28	0	0	0	26	0	26	0.08	7.60	0.32	0.15	0.32	0.09
S515	1.1015	100.0	0.0	0.32	0.00	0.32	0	0	0	26	0	26	0.05	8.80	0.27	0.15	0.27	0.06
S516	0.5400	99.6	0.4	0.35	0.30	0.35	0	5	0	26	25	26	0.25	4.80	0.35	0.25	0.35	0.29
S600	2.0181	100.0	0.0	0.25	0.00	0.25	22	0	22	32	0	32	0.39	4.00	0.35	0.25	0.35	0.49
S601	0.9008	100.0	0.0	0.25	0.00	0.25	44	0	44	32	0	32	0.17	5.70	0.39	0.25	0.39	0.21
S602	1.8833	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.33	4.35	0.35	0.25	0.35	0.41
S603	0.6650	100.0	0.0	0.25	0.00	0.25	41	0	41	32	0	32	0.16	5.80	0.39	0.25	0.39	0.20
S604	2.6560	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.33	4.35	0.35	0.25	0.35	0.41
S605	1.0853	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.33	4.35	0.35	0.25	0.35	0.41
S606	0.6600	100.0	0.0	0.26	0.00	0.26	35	0	35	32	0	32	0.30	4.50	0.35	0.25	0.35	0.37
S607	0.8216	100.0	0.0	0.25	0.00	0.25	34	0	34	32	0	32	0.22	5.10	0.36	0.25	0.36	0.27
S608	0.5082	100.0	0.0	0.25	0.00	0.25	37	0	37	32	0	32	0.16	5.80	0.39	0.25	0.39	0.20
S609	0.5603	100.0	0.0	0.27	0.00	0.27	27	0	27	32	0	32	0.38	4.10	0.35	0.25	0.35	0.47
S610	0.6034	100.0	0.0	0.26	0.00	0.26	39	0	39	32	0	32	0.22	5.10	0.36	0.25	0.36	0.27
S611	0.5693	100.0	0.0	0.25	0.00	0.25	35	0	35	32	0	32	0.33	4.35	0.35	0.25	0.35	0.41
S612	0.8085	100.0	0.0	0.25	0.00	0.25	31	0	31	32	0	32	0.13	6.40	0.38	0.21	0.38	0.16

Table A-4

Green & Ampt rainfall loss parameters for each subbasin

Sub-basin ID	Total sq. mi.	Area Natural %	Urban %	IA, in inches			RTIMP, in %			Vegetation Cover, in %			XKSAT Bare Ground in/hr	PSIF inches	DTHETA			XKSAT Corrected for Veg. in/hr
				Natural	Urban	Weighted	Natural	Urban	Total	Natural	Urban	Weighted			Natural dry	Urban normal	Weighted	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
S613	1.7965	100.0	0.0	0.25	0.00	0.25	34	0	34	32	0	32	0.29	4.55	0.35	0.25	0.35	0.36
S614	1.0792	100.0	0.0	0.24	0.00	0.24	34	0	34	32	0	32	0.32	4.40	0.35	0.25	0.35	0.40
S615	1.0548	100.0	0.0	0.25	0.00	0.25	55	0	55	32	0	32	0.14	6.20	0.39	0.23	0.39	0.17
S616	0.5054	100.0	0.0	0.22	0.00	0.22	19	0	19	32	0	32	0.21	5.20	0.37	0.25	0.37	0.26
S617	0.6754	100.0	0.0	0.23	0.00	0.23	23	0	23	32	0	32	0.25	4.80	0.35	0.25	0.35	0.31
S618	0.9581	100.0	0.0	0.20	0.00	0.20	22	0	22	32	0	32	0.21	5.20	0.37	0.25	0.37	0.26
S619	0.8266	100.0	0.0	0.27	0.00	0.27	39	0	39	32	0	32	0.11	6.80	0.36	0.17	0.36	0.14
S620	0.4441	100.0	0.0	0.23	0.00	0.23	37	0	37	32	0	32	0.13	6.40	0.38	0.21	0.38	0.16
S621	0.9231	100.0	0.0	0.17	0.00	0.17	3	0	3	32	0	32	0.25	4.80	0.35	0.25	0.35	0.31
S622	0.8971	100.0	0.0	0.18	0.00	0.18	4	0	4	32	0	32	0.24	4.90	0.35	0.25	0.35	0.30
S700	0.6099	100.0	0.0	0.17	0.00	0.17	5	0	5	32	0	32	0.22	5.10	0.36	0.25	0.36	0.27
S701	0.7202	100.0	0.0	0.22	0.00	0.22	14	0	14	32	0	32	0.18	5.60	0.38	0.25	0.38	0.22
S702	0.2570	100.0	0.0	0.17	0.00	0.17	4	0	4	32	0	32	0.22	5.10	0.36	0.25	0.36	0.27
S703	0.2573	100.0	0.0	0.15	0.00	0.15	0	0	0	32	0	32	0.24	4.90	0.35	0.25	0.35	0.30
S704	0.4081	100.0	0.0	0.26	0.00	0.26	11	0	11	32	0	32	0.24	4.90	0.35	0.25	0.35	0.30
S705	0.7542	100.0	0.0	0.22	0.00	0.22	7	0	7	32	0	32	0.13	6.40	0.38	0.21	0.38	0.16
S705AF	0.1828	100.0	0.0	0.31	0.00	0.31	0	0	0	15	0	15	0.03	10.10	0.22	0.13	0.22	0.03
S706	0.7129	100.0	0.0	0.29	0.00	0.29	7	0	7	26	0	26	0.17	5.70	0.39	0.25	0.39	0.20
S707	0.6383	100.0	0.0	0.28	0.00	0.28	8	0	8	26	0	26	0.14	6.20	0.39	0.23	0.39	0.16
S708	0.7065	98.5	1.5	0.22	0.30	0.22	0	5	0	15	25	15	0.04	9.70	0.25	0.15	0.25	0.04
S709	0.4406	100.0	0.0	0.30	0.00	0.30	0	0	0	15	0	15	0.02	11.20	0.19	0.10	0.19	0.02
S710	0.1117	100.0	0.0	0.15	0.00	0.15	0	0	0	15	0	15	0.03	10.10	0.22	0.13	0.22	0.03
S711	0.1591	100.0	0.0	0.28	0.00	0.28	0	0	0	15	0	15	0.02	11.20	0.19	0.10	0.19	0.02
S712	0.0680	100.0	0.0	0.17	0.00	0.17	0	0	0	15	0	15	0.03	10.10	0.22	0.13	0.22	0.03
S713	0.1074	100.0	0.0	0.15	0.00	0.15	0	0	0	15	0	15	0.03	10.10	0.22	0.13	0.22	0.03
S714	0.0599	100.0	0.0	0.35	0.00	0.35	0	0	0	15	0	15	0.06	8.40	0.29	0.15	0.29	0.06
S715	0.2196	100.0	0.0	0.31	0.00	0.31	0	0	0	15	0	15	0.02	11.20	0.19	0.10	0.19	0.02
S716	1.1284	97.4	2.6	0.28	0.10	0.27	0	50	1	15	5	15	0.03	10.10	0.22	0.13	0.22	0.03
S717	0.2860	100.0	0.0	0.25	0.00	0.25	0	0	0	15	0	15	0.02	11.20	0.19	0.10	0.19	0.02
S718	0.4420	83.2	16.8	0.25	0.10	0.22	0	10	2	15	15	15	0.02	11.20	0.19	0.10	0.18	0.02

Table A-4

Green & Ampt rainfall loss parameters for each subbasin

Sub-basin ID	Total sq. mi.	Area Natural %	Urban %	IA, in inches			RTIMP, in %			Vegetation Cover, in %			XKSAT Bare Ground in/hr	PSIF inches	DTHETA			XKSAT Corrected for Veg. in/hr
				Natural	Urban	Weighted	Natural	Urban	Total	Natural	Urban	Weighted			Natural dry	Urban normal	Weighted	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
S719	0.1538	56.7	43.3	0.33	0.10	0.23	0	10	4	15	15	15	0.01	12.40	0.15	0.05	0.11	0.01
S720	0.3697	92.4	7.6	0.29	0.10	0.27	0	10	1	15	15	15	0.02	11.20	0.19	0.10	0.19	0.02
S721	0.3346	99.6	0.4	0.30	0.10	0.30	0	50	0	15	5	15	0.09	7.30	0.33	0.15	0.33	0.09
S722	0.9552	100.0	0.0	0.30	0.00	0.30	0	0	0	15	0	15	0.04	9.70	0.25	0.15	0.25	0.04
S723	0.0852	100.0	0.0	0.29	0.00	0.29	0	0	0	15	0	15	0.03	10.10	0.22	0.13	0.22	0.03
S724	1.1564	100.0	0.0	0.27	0.00	0.27	0	0	0	15	0	15	0.02	11.20	0.19	0.10	0.19	0.02
S725	1.1575	100.0	0.0	0.30	0.00	0.30	0	0	0	15	0	15	0.05	8.80	0.27	0.15	0.27	0.05
S726	0.3341	100.0	0.0	0.31	0.00	0.31	7	0	7	15	0	15	0.17	5.70	0.39	0.25	0.39	0.18
S727	0.3750	100.0	0.0	0.27	0.00	0.27	0	0	0	15	0	15	0.04	9.70	0.25	0.15	0.25	0.04
S728	0.2757	100.0	0.0	0.35	0.00	0.35	0	0	0	15	0	15	0.21	5.20	0.37	0.25	0.37	0.22

IA composite: (7) = [(5)*(3) + (6)*(4)]/100
RTIMP total: (10) = [(8) *(3)+ (9)*(4)]/100
Vegetation Cover composite: (13) = [(11)*(3) + (12)*(4)]/100
DTHETA composite: (18) = [(16)*(3) + (17)*(4)]/100
XKSAT Corrected: (19) = (14)*[(13)/100 * 1.111 + 0.889] where (13) > 10 and (14) < 1.2

Project: N. PEORIA ADMP		Project Number: 82000146	
Notes: Sample Calculations		Scale:	
		Page 1 of 6 Page(s)	
Computed By:	MCG Date:	Checked By:	Date:

Stantec

The following is an example of the calculation procedures used in preparing the data in Tables A-2 through A-4. Sample calculations are performed for subbasin S503. It should be noted that some disparity between sample calculations and values in the tables can exist due to greater precision of the spreadsheet numerics.

Step 1: Calculate the log-average value of XKSAT. Refer to Table A-2, page 12.

Log-Average XKSAT = 10^a, where

$$a = \left[\frac{(3.2)\log 0.94 + (81.0)\log 0.24 + (22.5)\log 0.16 + (1.8)\log 0.31 + (406.8)\log 0.35 + (120.8)\log 0.13}{3.2 + 81.0 + 22.5 + 1.8 + 406.8 + 120.8}\right]$$

$$a = \frac{-361.6}{636.1} = -0.568$$

Log-Average XKSAT = $10^{-0.568}$ = 0.27 IN/HR

This value is placed in Table A-2, row 6 of the calculation set for subbasin S503, and in Table A-4, column 15.

Step 2: Determine DTHETA and PSIF corresponding to Log-Average XKSAT. Use the Log-Average value of 0.27 IN/HR to look up the values for $DTHETA_{dry}$, $DTHETA_{normal}$ and PSIF in Table A-1.

$DTHETA_{DRY}$ = 0.350
$DTHETA_{NORMAL}$ = 0.250
PSIF = 4.650"

These values are placed in Table A-2, rows 8, 9 and 7, respectively, and in Table A-4, columns 16, 17 and 15, respectively.

Step 3: Calculate the weighted value of natural area RTIMP for the subbasin. Refer to Table A-2, page 12.

$$RTIMP_{weighted} = \left[\frac{(3.2)(0) + (81.0)(0) + (22.5)(20) + (1.8)(30) + (406.8)(35) + (120.8)(0)}{3.2 + 81.0 + 22.5 + 1.8 + 406.8 + 120.8} \right]$$

$$RTIMP_{weighted} = 23.17\%$$

This value is placed in Table A-2, row 10 of the calculation set for subbasin 5503, and in column 8 of Table A-4.

Step 4: Calculate the weighted value of surface retention, IA, for the subbasin. Refer to Table A-2, page 12.

$$IA_{weighted} = \left[\frac{(3.2)(0.35) + (81.0)(0.15) + (22.5)(0.25) + (1.8)(0.15) + (406.8)(0.25) + (120.8)(0.35)}{3.2 + 81.0 + 22.5 + 1.8 + 406.8 + 120.8} \right]$$

$$IA_{weighted} = 0.26^{IN}$$

This value is placed in Table A-2, row 12 of the calculation set for subbasin 5503, and in column 5 of Table A-4.

Step 5: Calculate the percentage of natural area in the subbasin. Refer to Table A-3, page 12. A land use is considered "natural" if the identifier in row 2 is "N".

$$\text{Natural Area} = \left[\frac{357.3}{278.9 + 357.3}\right] 100$$

Natural Area = 56.16 %

This value is placed in Table A-3, row 7 of the calculation set for subbasin S503, and in Table A-4, column 3.

Step 6: Calculate the percentage of developed area in the subbasin. Refer to Table A-3, page 12. A land use is considered "developed" if the identifier in row 2 is "D".

$$\text{Developed Area} = \left[\frac{278.9}{278.9 + 357.3}\right] 100$$

Developed Area = 43.84 %

This value is placed in Table A-3, row 8 of the calculation set for subbasin S503, and in Table A-4, column 4.

Step 7: Calculate the average developed area RTIMP for the subbasin. Refer to Table A-3, page 12. It should be noted that the average value is for the developed area only of the subbasin.

$$RTIMP_{Dev.}\text{-}avg = \frac{(10)(278.9)}{278.9} = 10\%$$

This value is placed in Table A-3, row 9 of the calculation set for subbasin S503, and in Table A-4, column 9.

Step 8: Calculate the average developed area vegetative cover density for the subbasin. Refer to Table A-3, page 12. It should be noted that the average value is for the developed area only of the subbasin.

$$Veg.\ Cover_{Dev}\text{-}avg = \frac{(0)(278.9)}{278.9} = 0\%$$

This value is placed in Table A-3, row 10 of the calculation set for subbasin S503, and in Table A-4, column 12.

Step 9: Calculate the average developed area IA for the subbasin. Refer to Table A-3, page 12. It should be noted that the average value is for the developed area only of the subbasin.

$$IA_{Dev}\text{-}avg = \frac{(0.15)(278.9)}{278.9} = 0.15$$

This value is placed in Table A-3, row 11 of the calculation set for subbasin S503, and in Table A-4, column 6.

Step 10: Calculate the weighted IA for the subbasin. Refer to Table A-4, page 2.

Percent Natural Area = 56.2%
Percent Developed Area = 43.8%
Natural Area IA = 0.26 IN
Developed Area IA = 0.15 IN

$$\text{Weighted IA} = \left[\frac{(56.2)(0.26) + (43.8)(0.15)}{100}\right]$$

Weighted IA = 0.21 IN

This value is placed in Table A-4, column 7.

Step 11: Calculate the weighted RTIMP for the subbasin. Refer to Table A-4, page 2.

Natural Area RTIMP = 23%
Developed Area RTIMP = 10%

$$\text{Weighted RTIMP} = \left[\frac{(56.2)(23) + (43.8)(10)}{100}\right]$$

Weighted RTIMP = 17.3%

Step 12: Calculate the weighted vegetative cover density. Refer to Table A-4, page 2.

Natural Area Vegetative Cover = 26%
Developed Area Vegatative Cover = 0%

$$\text{Weighted Vegetative Cover} = \left[\frac{(56.2)(26) + (43.8)(0)}{100}\right]$$

Weighted Vegetative Cover = 14.6%

This value is placed in Table A-4, column 13.

Step 13: Calculate the weighted value of DTHETA for the subbasin. Refer to Table A-4, page 2.

$DTHETA_{DRY}$ - natural = 0.35
$DTHETA_{Normal}$ - developed = 0.25

$$\text{Weighted DTHETA} = \left[\frac{(56.2)(0.35) + (43.8)(0.25)}{100}\right]$$

Weighted DTHETA = 0.31

This value is placed in Table A-4, column 18.

Step 14: Adjust XKSAT to reflect effects of vegetative cover. Refer to Table A-4, page 2.

Weighted Vegetative Cover = 15%
Log-Avg XKSAT = 0.27 IN/HR

$$C_K = \frac{(15-10)}{90} + 1 = 1.06$$

XKSAT (Adjusted) = (0.27)(1.06) = 0.28 IN/HR

This value is placed in Table A-4, column 17.

APPENDIX B: VEGETATION TRANSECTS

Stantec

Project: N. Peoria ADMP Project Number: 82000146

Notes: Vegetative Transects Scale:

Page 1 of 4 Page(s)

Computed By: MCG Date: 5 2000 Checked By: Date:

Vegetative Transect # 1

- Location: S619; just west of Castle Hotsprings Rd
- Photographs: VT1
- Typical vegetation types:
  - Palo Verde Trees
  - Creasote
  - Brittle Brush
  - Various species of cacti
- Vegetative cover = 28%

Vegetative Transect # 2

- Location: S607, near dirt road east of Morgan City Wash (WPT 55)
- Photographs: N/A
- Typical vegetation types:
  - Palo Verde Trees
  - Mesquite Trees
  - Creosote
  - Brittle Brush
  - Various species of cacti
- Vegetative cover = 35%

Stantec

Project: Project Number:

Notes: Scale:

Computed By: Date: Checked By: Date:

Vegetative Transect # 3

- Location: 5613; near unnamed tributary to Morgan City Wash
- Photograph: VT3
- Typical Vegetation types:
  - Palo Verde Trees
  - Mesquite Trees
  - Creosote
  - Brittle Brush
  - Various species of cacti
- Vegetative cover = 34%

Vegetative Transect # 4

- Location: 5201; near upstream "Zone A" study limits of Unnamed Wash 2. (WPT 42)
- Photographs: VT4
- Typical Vegetative types:
  - Palo Verde Trees
  - Creosote
  - Brittle Brush
  - Various species of cacti
- Vegetative cover = 30%

Vegetative Transect # 5

- Location: S400; just north of Caterpillar Tanks Wash (WPT 56)
- Photograph: VT5
- Typical Vegetative types:
  - Creosote
  - Brittle Brush
  - Various species of cacti
- Vegetative Cover = 25%

Vegetative Transect # 6

- Location: S513; just west of Twin Buttes Wash (WPT 5
- Photograph: VT6
- Typical Vegetative types:
  - Creosote
  - Brittle Brush
  - Various species of cacti
- Vegetative Cover = 26%

Vegetative cover on a subbasin by subbasin basis is determined from the vegetative transects and inspection of circa 1999 aerial photography. Using these two data sets, three vegetative cover zones are identified. The boundaries of these zones can be generalized as the CAP Canal west of the Agua Fria River and the Agua Fria River.

The vegetative cover density for all subbasins east of the Agua Fria River is estimated, based on visual inspection, to be 15%. The vegetative cover density for all subbasins north of the CAP Canal, with the exception of subbasins S400, S502, S503, S505, S506, S509 and S511 is estimated to be 32%. The vegetative cover density for the remaining subbasin (primarily south of the CAP Canal) is estimated to be

Stantec

Project: Project Number:

Notes: Scale:

Page 4 of 4 Pages

Computed By: Date: Checked By: Date:

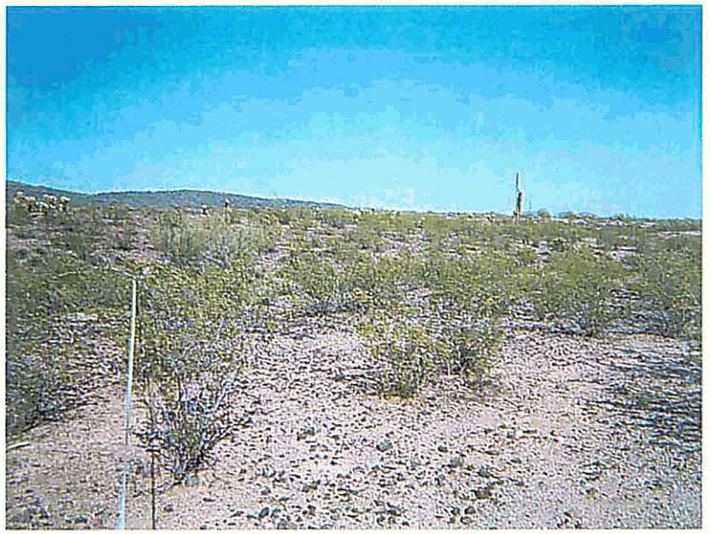
26%. The vegetative cover densities for the two zones west of the Agua Fria River are determined by averaging the vegetative transect results for those transects located in each of the two zones.

VT1

VT3

VT4

VT5



VT6

APPENDIX C: UNIT HYDROGRAPH PARAMETER CALCULATIONS

Table C-1

Summary of Clark unit hydrograph input parameters

Sub-basin ID	Area sq. mi.	Elevation, in feet		Flow Path Length		Slope ft/mile	Adjusted Slope ft/mile	Surface Roughness Type	Kb	Time-Area Relation
		Top	Bottom	feet	miles					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
S100	0.574	2040	1770	9560	1.811	149.13	149.13	C	0.09	Natural
S101	0.631	1920	1680	8154	1.544	155.42	155.42	C	0.08	Natural
S102	0.449	1940	1780	7849	1.487	107.63	107.63	C/D	0.11	Natural
S103	0.395	1780	1680	6977	1.321	75.68	75.68	C/D	0.11	Natural
S104	0.900	1760	1580	8574	1.624	110.84	110.84	C/D	0.10	Natural
S105	0.594	1770	1580	10434	1.976	96.15	96.15	C/D	0.10	Natural
S106	0.567	1720	1440	9345	1.770	158.20	158.20	C/D	0.10	Natural
S107	0.936	1890	1360	13689	2.593	204.43	204.43	C/D	0.10	Natural
S200	0.959	2260	1940	8790	1.665	192.21	192.21	C/D	0.10	Natural
S201	0.350	2080	1850	6241	1.182	194.59	194.59	C/D	0.11	Natural
S202	0.127	2060	1840	3639	0.689	319.25	270.63	C/D	0.12	Natural
S203	0.373	2060	1800	8887	1.683	154.47	154.47	C/D	0.11	Natural
S204	0.951	2140	1800	10342	1.959	173.58	173.58	C/D	0.10	Natural
S205	0.413	2040	1780	7840	1.485	175.11	175.11	C/D	0.11	Natural
S206	0.853	1980	1710	12122	2.296	117.61	117.61	C/D	0.10	Natural
S207	0.957	1980	1710	12221	2.315	116.65	116.65	C/D	0.10	Natural
S208	1.103	1840	1635	11644	2.205	92.96	92.96	C/D	0.10	Natural
S209	0.650	1660	1480	7170	1.358	132.55	132.55	D	0.12	Natural
S210	0.481	1710	1480	6726	1.274	180.56	180.56	C/D	0.11	Natural
S211	0.488	1580	1360	7176	1.359	161.87	161.87	D	0.13	Natural
S300	0.615	1850	1620	9378	1.776	129.49	129.49	C/D	0.10	Natural
S301	0.994	2000	1620	10564	2.001	189.93	189.93	C/D	0.10	Natural
S302	0.465	1700	1550	5781	1.095	137.00	137.00	D	0.13	Natural
S303	0.708	1770	1480	8124	1.539	188.47	188.47	D	0.12	Natural
S304	0.823	1770	1340	12219	2.314	185.81	185.81	C/D	0.10	Natural
S400	1.048	1730	1525	9840	1.864	110.00	110.00	C/D	0.10	Natural
S401	0.646	1550	1450	7125	1.349	74.10	74.10	C/D	0.10	Natural
S402	0.740	1470	1360	7753	1.468	74.91	74.91	C	0.08	Natural

Table C-1

Summary of Clark unit hydrograph input parameters

Sub-basin ID	Area	Elevation, in feet		Flow Path Length		Slope	Adjusted Slope	Surface Roughness		Time-Area
	sq. mi.	Top	Bottom	feet	miles	ft/mile	ft/mile	Type	Kb	Relation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
S403	0.559	1415	1330	8650	1.638	51.88	51.88	C	0.09	Natural
S404	0.263	1400	1260	4080	0.773	181.17	181.17	C	0.09	Natural
S500	1.054	1940	1660	12666	2.399	116.72	116.72	C/D	0.10	Natural
S501	0.614	1780	1580	7846	1.486	134.59	134.59	C/D	0.10	Natural
S502	0.403	1720	1500	5558	1.053	208.99	208.99	D	0.13	Natural
S503	0.994	1720	1500	9985	1.891	116.33	116.33	C	0.08	Natural
S504	0.326	1520	1420	8295	1.571	63.65	63.65	C	0.09	Natural
S505	0.143	2120	1525	2494	0.472	1259.43	364.69	D	0.14	Natural
S506	0.151	1880	1520	3835	0.726	495.69	307.29	D	0.14	Natural
S507	0.666	1520	1420	7745	1.467	68.17	68.17	C	0.08	Natural
S508	0.295	1480	1380	5713	1.082	92.41	92.41	C	0.09	Natural
S509	0.170	1860	1520	3809	0.721	471.27	304.18	C	0.10	Natural
S510	0.127	1520	1460	4238	0.803	74.74	74.74	C	0.10	Natural
S511	0.385	1940	1520	6962	1.319	318.54	270.33	C	0.09	Natural
S512	0.214	1520	1460	5141	0.974	61.62	61.62	C	0.10	Natural
S513	0.778	1500	1380	12149	2.301	52.15	52.15	C	0.08	Natural
S514	0.650	1500	1360	11339	2.147	65.19	65.19	C	0.08	Natural
S515	1.102	1420	1315	10283	1.948	53.91	53.91	C	0.08	Natural
S516	0.540	1355	1240	9226	1.747	65.81	65.81	C	0.09	Natural
S600	2.018	3450	2555	14762	2.796	320.12	270.99	C/D	0.09	Natural
S601	0.901	2880	2440	9717	1.840	239.10	231.94	C/D	0.10	Natural
S602	1.883	3160	2280	16023	3.035	289.98	257.76	C/D	0.09	Natural
S603	0.665	3200	2280	7268	1.377	668.36	325.69	C/D	0.10	Natural
S604	2.656	3000	2150	21673	4.105	207.08	207.08	C/D	0.09	Natural
S605	1.085	2695	2150	12262	2.322	234.68	229.45	C/D	0.10	Natural
S606	0.660	3080	2150	11149	2.111	440.45	300.02	C/D	0.10	Natural
S607	0.822	2740	2000	13552	2.567	288.30	256.98	C/D	0.10	Natural
S608	0.508	2320	1990	7383	1.398	236.02	230.21	C/D	0.11	Natural

Table C-1

Summary of Clark unit hydrograph input parameters

Sub-basin ID	Area sq. mi.	Elevation, in feet		Flow Path Length		Slope ft/mile	Adjusted Slope ft/mile	Surface Roughness Type	Kb	Time-Area Relation
		Top	Bottom	feet	miles					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
S609	0.560	2480	2000	11821	2.239	214.40	214.40	C/D	0.10	Natural
S610	0.603	2100	1880	9866	1.869	117.74	117.74	C/D	0.10	Natural
S611	0.569	2540	2130	6793	1.286	318.70	270.40	D	0.12	Natural
S612	0.808	2475	1880	13362	2.531	235.11	229.69	C/D	0.10	Natural
S613	1.797	2190	1860	13334	2.525	130.67	130.67	D	0.11	Natural
S614	1.079	2120	1780	12065	2.285	148.80	148.80	D	0.11	Natural
S615	1.055	2120	1840	10870	2.059	136.01	136.01	D	0.12	Natural
S616	0.505	1840	1760	9176	1.738	46.04	46.04	C/D	0.11	Natural
S617	0.675	1870	1760	7191	1.362	80.77	80.77	C/D	0.10	Natural
S618	0.958	2060	1590	12481	2.364	198.84	198.84	C/D	0.10	Natural
S619	0.827	2000	1880	6398	1.212	99.03	99.03	D	0.12	Natural
S620	0.444	2000	1590	9307	1.763	232.61	228.26	D	0.13	Natural
S621	0.923	1780	1530	7760	1.470	170.09	170.09	C/D	0.10	Natural
S622	0.897	1720	1415	10579	2.004	152.22	152.22	D	0.12	Natural
S700	0.610	1760	1405	10153	1.923	184.61	184.61	C/D	0.10	Natural
S701	0.720	1780	1395	14897	2.821	136.46	136.46	C/D	0.10	Natural
S702	0.257	1700	1400	7364	1.395	215.09	215.09	C/D	0.11	Natural
S703	0.257	1600	1370	5944	1.126	204.32	204.32	C/D	0.11	Natural
S704	0.408	2040	1480	6686	1.266	442.21	300.27	C/D	0.11	Natural
S705	0.754	1940	1340	11328	2.145	279.66	252.91	C/D	0.10	Natural
S705AF	0.183	1351	1320	4926	0.933	33.61	33.61	B	0.05	Natural
S706	0.713	1715	1340	10674	2.022	185.49	185.49	C/D	0.10	Natural
S707	0.638	1790	1300	11910	2.256	217.22	217.22	C/D	0.10	Natural
S708	0.706	1770	1460	8416	1.594	194.49	194.49	C/D	0.10	Natural
S709	0.441	1710	1490	7484	1.417	155.21	155.21	C	0.09	Natural
S710	0.112	1545	1420	3340	0.633	197.59	197.59	C	0.10	Natural
S711	0.159	1570	1490	2746	0.520	153.85	153.85	C	0.10	Natural
S712	0.068	1520	1420	1645	0.312	320.89	271.31	B/C	0.08	Natural

Table C-1

Summary of Clark unit hydrograph input parameters

Sub-basin ID	Area sq. mi.	Elevation, in feet		Flow Path Length		Slope ft/mile	Adjusted Slope ft/mile	Surface Roughness Type	Kb	Time-Area Relation
		Top	Bottom	feet	miles					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
S713	0.107	1540	1420	2880	0.545	220.00	220.00	B/C	0.08	Natural
S714	0.060	1440	1385	2259	0.428	128.56	128.56	B/C	0.08	Natural
S715	0.220	1420	1360	5062	0.959	62.59	62.59	B/C	0.07	Natural
S716	1.128	1700	1495	12424	2.353	87.12	87.12	B/C	0.06	Natural
S717	0.286	1515	1420	3839	0.727	130.66	130.66	B/C	0.07	Natural
S718	0.442	1440	1345	11106	2.103	45.17	45.17	B/C	0.07	Natural
S719	0.154	1440	1340	6444	1.221	81.93	81.93	B/C	0.08	Natural
S720	0.370	1470	1340	8007	1.516	85.73	85.73	B/C	0.07	Natural
S721	0.335	1575	1480	4394	0.832	114.15	114.15	B/C	0.07	Natural
S722	0.955	1515	1330	12326	2.334	79.25	79.25	B/C	0.06	Natural
S723	0.085	1425	1325	2968	0.562	177.89	177.89	C	0.11	Natural
S724	1.156	1535	1310	12242	2.319	97.05	97.05	B/C	0.06	Natural
S725	1.158	1505	1290	16039	3.038	70.78	70.78	B/C	0.06	Natural
S726	0.334	1818	1395	5469	1.036	408.35	295.36	B/C	0.07	Natural
S727	0.375	1435	1280	9583	1.815	85.40	85.40	B/C	0.07	Natural
S728	0.276	1340	1220	8182	1.550	77.44	77.44	B/C	0.07	Natural

Table C-2

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 6-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S100	0.43	0.43	0.43	0.14	0.10	0.09	0.04	0.04	0.04	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.00	38.8	0.646	0.503
S101	0.42	0.41	0.41	0.13	0.10	0.09	0.05	0.04	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.86	31.3	0.521	0.330
S102	0.45	0.45	0.44	0.13	0.10	0.09	0.04	0.04	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.07	44.8	0.746	0.579
S103	0.46	0.45	0.45	0.14	0.10	0.09	0.04	0.04	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.97	47.8	0.796	0.609
S104	0.37	0.37	0.36	0.14	0.12	0.11	0.06	0.06	0.06	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	1.81	45.3	0.754	0.423
S105	0.43	0.43	0.42	0.14	0.10	0.09	0.05	0.04	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.88	55.0	0.917	0.780
S106	0.43	0.42	0.42	0.13	0.09	0.08	0.04	0.04	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.76	40.8	0.679	0.525
S107	0.35	0.35	0.34	0.13	0.10	0.09	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	51.5	0.858	0.695
S200	0.36	0.35	0.35	0.14	0.11	0.10	0.06	0.06	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.00	37.3	0.621	0.336
S201	0.45	0.45	0.44	0.13	0.09	0.08	0.04	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.10	29.0	0.483	0.343
S202	0.45	0.45	0.44	0.13	0.09	0.08	0.04	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.11	18.5	0.308	0.241
S203	0.45	0.45	0.44	0.13	0.09	0.08	0.04	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.10	41.8	0.696	0.658
S204	0.36	0.35	0.35	0.14	0.11	0.09	0.06	0.06	0.05	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	1.94	43.8	0.729	0.459
S205	0.45	0.44	0.44	0.13	0.09	0.08	0.03	0.03	0.03	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.93	36.3	0.604	0.480
S206	0.38	0.37	0.37	0.14	0.11	0.10	0.06	0.06	0.05	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.95	57.3	0.954	0.748
S207	0.36	0.36	0.35	0.14	0.11	0.10	0.06	0.06	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.00	58.0	0.967	0.715
S208	0.35	0.34	0.34	0.15	0.13	0.12	0.08	0.07	0.07	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.93	62.0	1.033	0.683
S209	0.41	0.41	0.40	0.13	0.10	0.09	0.05	0.04	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.83	42.0	0.700	0.407
S210	0.44	0.44	0.43	0.12	0.08	0.07	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	32.3	0.538	0.342
S211	0.45	0.44	0.44	0.12	0.09	0.08	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	40.3	0.671	0.457
S300	0.42	0.42	0.41	0.13	0.10	0.08	0.04	0.04	0.04	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.95	44.8	0.746	0.558
S301	0.35	0.35	0.35	0.14	0.11	0.10	0.06	0.06	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	1.99	42.5	0.708	0.441
S302	0.45	0.44	0.44	0.13	0.09	0.08	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.96	36.8	0.613	0.357
S303	0.39	0.39	0.38	0.12	0.09	0.08	0.04	0.04	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.67	40.8	0.679	0.414
S304	0.38	0.37	0.37	0.13	0.10	0.09	0.05	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	47.8	0.796	0.628
S400	0.36	0.35	0.35	0.15	0.13	0.12	0.08	0.07	0.07	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.85	50.0	0.833	0.484
S401	0.41	0.40	0.40	0.13	0.09	0.08	0.04	0.04	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.70	48.3	0.804	0.473
S402	0.39	0.39	0.38	0.13	0.10	0.08	0.05	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65	43.0	0.717	0.413
S403	0.46	0.45	0.45	0.16	0.13	0.12	0.06	0.06	0.06	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	54.5	0.908	0.688
S404	0.46	0.46	0.45	0.14	0.11	0.10	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	19.0	0.317	0.180

Table C-2

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 6-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S500	0.35	0.34	0.34	0.14	0.12	0.10	0.07	0.06	0.06	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	1.98	60.3	1.004	0.726
S501	0.42	0.41	0.41	0.13	0.09	0.08	0.04	0.04	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.89	39.0	0.650	0.416
S502	0.44	0.44	0.43	0.12	0.08	0.06	0.03	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.79	30.0	0.500	0.300
S503	0.36	0.36	0.35	0.15	0.13	0.12	0.07	0.07	0.07	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.87	42.0	0.700	0.416
S504	0.43	0.42	0.41	0.10	0.05	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	57.8	0.963	0.964
S505	0.44	0.44	0.43	0.12	0.08	0.06	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.77	14.5	0.242	0.127
S506	0.46	0.45	0.45	0.13	0.10	0.08	0.04	0.04	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.86	20.3	0.338	0.252
S507	0.41	0.40	0.40	0.13	0.09	0.07	0.05	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63	44.8	0.746	0.458
S508	0.44	0.44	0.43	0.12	0.08	0.06	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64	33.8	0.563	0.417
S509	0.46	0.45	0.44	0.13	0.09	0.08	0.04	0.04	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.99	16.0	0.267	0.180
S510	0.47	0.47	0.46	0.15	0.12	0.11	0.05	0.05	0.05	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	2.00	30.0	0.500	0.466
S511	0.46	0.45	0.45	0.14	0.10	0.09	0.04	0.04	0.04	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	2.01	23.3	0.388	0.278
S512	0.48	0.47	0.47	0.16	0.12	0.12	0.06	0.05	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	37.0	0.617	0.510
S513	0.38	0.38	0.37	0.13	0.10	0.08	0.05	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	74.8	1.246	1.061
S514	0.44	0.43	0.43	0.16	0.13	0.12	0.07	0.06	0.06	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	55.8	0.929	0.803
S515	0.37	0.36	0.36	0.18	0.16	0.15	0.09	0.09	0.09	0.05	0.04	0.03	0.02	0.02	0.02	0.01	0.01	0.01	2.05	56.5	0.942	0.558
S516	0.43	0.42	0.41	0.11	0.07	0.05	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	59.3	0.988	0.810
S600	0.24	0.24	0.23	0.13	0.12	0.10	0.08	0.08	0.08	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.57	47.8	0.796	0.438
S601	0.39	0.39	0.38	0.17	0.14	0.13	0.08	0.08	0.08	0.04	0.04	0.04	0.02	0.02	0.02	0.01	0.01	0.01	2.34	34.5	0.575	0.346
S603	0.43	0.43	0.43	0.16	0.13	0.12	0.07	0.07	0.06	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01	2.34	24.0	0.400	0.218
S602	0.27	0.26	0.26	0.15	0.14	0.13	0.09	0.09	0.09	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.01	1.93	48.0	0.800	0.489
S606	0.42	0.41	0.41	0.14	0.11	0.09	0.05	0.05	0.05	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.11	34.5	0.575	0.461
S605	0.34	0.34	0.34	0.14	0.12	0.11	0.07	0.07	0.07	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	2.01	43.5	0.725	0.485
S604	0.22	0.22	0.21	0.16	0.15	0.14	0.11	0.10	0.10	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	1.87	67.3	1.121	0.745
S609	0.43	0.42	0.41	0.12	0.08	0.06	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.89	43.3	0.721	0.682
S607	0.39	0.39	0.39	0.15	0.13	0.12	0.07	0.07	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.14	42.0	0.700	0.592
S608	0.47	0.46	0.46	0.15	0.12	0.11	0.05	0.05	0.05	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.31	29.0	0.483	0.318
S610	0.44	0.44	0.43	0.15	0.12	0.11	0.06	0.06	0.05	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.27	45.8	0.763	0.603
S612	0.40	0.40	0.40	0.16	0.14	0.13	0.07	0.07	0.07	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.19	42.8	0.713	0.603
S611	0.44	0.43	0.43	0.13	0.10	0.08	0.04	0.04	0.04	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.10	28.8	0.479	0.276

Table C-2

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 6-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S613	0.28	0.27	0.27	0.15	0.14	0.13	0.09	0.09	0.09	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.01	1.95	65.3	1.088	0.610
S614	0.35	0.34	0.34	0.14	0.12	0.11	0.07	0.07	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.00	55.8	0.929	0.633
S617	0.41	0.41	0.40	0.14	0.11	0.09	0.05	0.05	0.04	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.95	45.3	0.754	0.433
S615	0.38	0.38	0.37	0.18	0.16	0.15	0.10	0.09	0.09	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.02	0.02	2.54	52.0	0.867	0.546
S616	0.45	0.45	0.44	0.14	0.10	0.09	0.04	0.04	0.03	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.97	75.5	1.258	1.097
S618	0.37	0.36	0.36	0.15	0.12	0.11	0.07	0.07	0.06	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	1.92	45.8	0.763	0.559
S619	0.41	0.40	0.40	0.17	0.15	0.14	0.08	0.08	0.08	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01	2.35	41.3	0.688	0.317
S620	0.48	0.47	0.47	0.16	0.13	0.12	0.06	0.06	0.05	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.37	38.5	0.642	0.565
S621	0.36	0.35	0.35	0.13	0.10	0.09	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	36.8	0.613	0.306
S622	0.36	0.36	0.35	0.13	0.10	0.09	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	55.8	0.929	0.633
S700	0.42	0.41	0.41	0.13	0.10	0.09	0.04	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	40.5	0.675	0.535
S701	0.40	0.40	0.40	0.14	0.11	0.10	0.06	0.05	0.05	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.86	61.8	1.029	1.056
S702	0.45	0.44	0.44	0.13	0.09	0.08	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	31.5	0.525	0.512
S703	0.44	0.44	0.43	0.12	0.08	0.07	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	28.0	0.467	0.379
S704	0.45	0.44	0.44	0.12	0.08	0.07	0.03	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.79	25.5	0.425	0.288
S705	0.40	0.40	0.39	0.15	0.12	0.11	0.06	0.06	0.06	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.83	37.5	0.625	0.475
S705AF	0.49	0.49	0.49	0.18	0.15	0.14	0.07	0.07	0.07	0.06	0.06	0.05	0.01	0.01	0.01	0.01	0.01	0.00	2.36	27.3	0.454	0.384
S706	0.40	0.40	0.39	0.14	0.10	0.09	0.05	0.05	0.05	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.75	42.0	0.700	0.530
S707	0.43	0.42	0.42	0.14	0.11	0.10	0.05	0.05	0.05	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.85	41.0	0.683	0.601
S728	0.45	0.44	0.44	0.12	0.08	0.06	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	38.8	0.646	0.674
S708	0.44	0.44	0.44	0.18	0.15	0.15	0.08	0.08	0.08	0.06	0.06	0.05	0.02	0.01	0.01	0.01	0.01	0.01	2.28	31.8	0.529	0.323
S709	0.50	0.49	0.49	0.18	0.15	0.15	0.07	0.07	0.07	0.07	0.07	0.06	0.01	0.01	0.01	0.01	0.01	0.01	2.48	28.8	0.479	0.345
S710	0.50	0.49	0.49	0.18	0.15	0.15	0.07	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.46	16.5	0.275	0.213
S711	0.50	0.49	0.49	0.19	0.15	0.15	0.08	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.50	16.0	0.267	0.144
S712	0.50	0.49	0.49	0.18	0.15	0.15	0.07	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.45	9.3	0.154	0.085
S713	0.50	0.49	0.49	0.18	0.15	0.15	0.07	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.46	13.0	0.217	0.149
S714	0.48	0.48	0.48	0.17	0.13	0.12	0.06	0.06	0.06	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	13.8	0.229	0.182
S715	0.50	0.49	0.49	0.18	0.15	0.15	0.07	0.07	0.07	0.07	0.07	0.06	0.01	0.01	0.01	0.01	0.01	0.01	2.48	27.0	0.450	0.350
S716	0.38	0.37	0.37	0.19	0.17	0.17	0.11	0.10	0.10	0.07	0.07	0.07	0.03	0.03	0.03	0.02	0.02	0.02	2.34	41.5	0.692	0.455
S717	0.50	0.49	0.49	0.19	0.16	0.15	0.08	0.08	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.52	16.8	0.279	0.142

Table C-2

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 6-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S718	0.50	0.49	0.49	0.19	0.16	0.15	0.08	0.08	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.56	52.8	0.879	0.926
S719	0.51	0.50	0.50	0.19	0.16	0.16	0.08	0.08	0.08	0.08	0.08	0.08	0.02	0.02	0.02	0.02	0.02	0.01	2.79	30.5	0.508	0.595
S720	0.50	0.49	0.49	0.19	0.15	0.15	0.08	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01	0.01	2.51	32.0	0.533	0.453
S721	0.47	0.47	0.47	0.16	0.12	0.11	0.05	0.05	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	20.0	0.333	0.176
S722	0.39	0.39	0.39	0.18	0.16	0.16	0.09	0.09	0.09	0.06	0.05	0.05	0.02	0.02	0.02	0.01	0.01	0.01	2.21	43.0	0.717	0.517
S723	0.49	0.49	0.49	0.18	0.15	0.14	0.07	0.07	0.07	0.06	0.06	0.05	0.01	0.01	0.01	0.01	0.01	0.00	2.38	17.0	0.283	0.235
S724	0.38	0.37	0.37	0.20	0.18	0.18	0.11	0.11	0.11	0.07	0.07	0.07	0.03	0.03	0.03	0.02	0.02	0.02	2.46	39.0	0.650	0.414
S725	0.36	0.36	0.36	0.18	0.16	0.16	0.1	0.1	0.1	0.05	0.05	0.04	0.03	0.02	0.02	0.01	0.01	0.01	2.13	55.0	0.917	0.752
S726	0.46	0.45	0.45	0.13	0.10	0.08	0.04	0.04	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.85	16.0	0.267	0.164
S727	0.49	0.48	0.48	0.17	0.14	0.14	0.07	0.07	0.06	0.05	0.05	0.04	0.01	0.01	0.00	0.00	0.00	0.00	2.28	37.3	0.621	0.614

Table C-3

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 24-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S100	0.25	0.25	0.25	0.25	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.95	41.5	0.692	0.542
S101	0.25	0.25	0.25	0.25	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.70	32.5	0.542	0.345
S102	0.25	0.25	0.25	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.07	48.8	0.813	0.637
S103	0.26	0.25	0.25	0.25	0.25	0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.79	52.3	0.871	0.673
S104	0.25	0.25	0.25	0.25	0.25	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.68	47.5	0.792	0.447
S105	0.25	0.25	0.25	0.25	0.25	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.68	59.3	0.988	0.847
S106	0.25	0.24	0.24	0.24	0.24	0.24	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	43.8	0.729	0.569
S107	0.24	0.24	0.24	0.24	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	53.8	0.896	0.729
S200	0.25	0.25	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	37.8	0.629	0.341
S201	0.25	0.25	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	31.0	0.517	0.370
S202	0.25	0.25	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	22.0	0.367	0.292
S203	0.25	0.25	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	45.5	0.758	0.724
S204	0.25	0.24	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.09	45.0	0.750	0.474
S205	0.25	0.24	0.24	0.24	0.24	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.82	39.3	0.654	0.525
S206	0.25	0.25	0.25	0.25	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2.00	60.5	1.008	0.795
S207	0.25	0.25	0.24	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.17	61.0	1.017	0.756
S208	0.26	0.25	0.25	0.25	0.25	0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.97	64.8	1.079	0.717
S209	0.25	0.25	0.24	0.24	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.67	44.8	0.746	0.436
S210	0.24	0.24	0.24	0.24	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	34.8	0.579	0.372
S211	0.25	0.24	0.24	0.24	0.24	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	43.8	0.729	0.501
S300	0.25	0.25	0.24	0.24	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.92	48.0	0.800	0.603
S301	0.25	0.25	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	43.5	0.725	0.453
S302	0.25	0.24	0.24	0.24	0.24	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.90	39.8	0.663	0.390
S303	0.24	0.24	0.23	0.23	0.23	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.48	42.8	0.713	0.437
S304	0.25	0.24	0.24	0.24	0.24	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	50.5	0.842	0.668
S400	0.26	0.26	0.26	0.25	0.25	0.25	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.77	52.0	0.867	0.506
S401	0.25	0.24	0.24	0.24	0.24	0.23	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	51.5	0.858	0.509
S402	0.25	0.25	0.24	0.24	0.24	0.24	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	45.0	0.750	0.434
S403	0.28	0.27	0.27	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	1.71	58.3	0.971	0.740
S404	0.26	0.26	0.26	0.26	0.25	0.25	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.46	22.3	0.371	0.214

Table C-3

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 24-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S500	0.25	0.25	0.24	0.24	0.24	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	62.8	1.046	0.760
S501	0.24	0.24	0.24	0.24	0.24	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.85	41.5	0.692	0.445
S502	0.24	0.24	0.24	0.24	0.23	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.60	32.0	0.533	0.322
S503	0.26	0.25	0.25	0.25	0.25	0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.79	43.3	0.721	0.430
S504	0.23	0.22	0.22	0.22	0.22	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	61.5	1.025	1.034
S505	0.24	0.24	0.23	0.23	0.23	0.22	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.58	18.3	0.304	0.164
S506	0.25	0.25	0.25	0.25	0.25	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.58	23.5	0.392	0.297
S507	0.25	0.25	0.24	0.24	0.24	0.24	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	47.3	0.788	0.486
S508	0.24	0.24	0.24	0.24	0.24	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	35.8	0.596	0.445
S509	0.25	0.25	0.25	0.24	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.89	19.8	0.329	0.228
S510	0.27	0.27	0.27	0.26	0.26	0.26	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.70	31.7	0.529	0.497
S511	0.26	0.26	0.25	0.25	0.25	0.25	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.87	26.0	0.433	0.314
S512	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	1.69	40.0	0.667	0.556
S513	0.25	0.24	0.24	0.24	0.24	0.23	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	78.0	1.300	1.113
S514	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00	1.65	59.0	0.983	0.855
S515	0.28	0.28	0.28	0.28	0.28	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	1.87	58.5	0.975	0.580
S516	0.24	0.24	0.23	0.23	0.23	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	63.5	1.058	0.875
S600	0.23	0.23	0.23	0.23	0.22	0.22	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.75	45.8	0.763	0.418
S601	0.27	0.27	0.27	0.27	0.26	0.26	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.58	35.3	0.588	0.354
S603	0.27	0.27	0.27	0.26	0.26	0.26	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.50	26.0	0.433	0.238
S602	0.25	0.25	0.24	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.20	47.3	0.788	0.481
S606	0.25	0.25	0.25	0.25	0.25	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.22	36.0	0.600	0.484
S605	0.25	0.25	0.24	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.20	44.5	0.742	0.497
S604	0.25	0.25	0.24	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.20	66.0	1.100	0.729
S609	0.24	0.24	0.23	0.23	0.23	0.22	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.92	46.0	0.767	0.731
S607	0.26	0.26	0.26	0.26	0.25	0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.25	44.3	0.738	0.627
S608	0.27	0.26	0.26	0.26	0.26	0.26	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.39	31.0	0.517	0.342
S610	0.26	0.26	0.26	0.26	0.26	0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.39	49.8	0.829	0.661
S612	0.27	0.27	0.27	0.26	0.26	0.26	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.27	45.0	0.750	0.638
S611	0.25	0.25	0.24	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.20	30.3	0.504	0.292

Table C-3

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 24-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S613	0.25	0.25	0.25	0.25	0.25	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.20	65.8	1.096	0.615
S614	0.25	0.25	0.25	0.24	0.24	0.24	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	2.18	57.8	0.963	0.658
S617	0.25	0.25	0.25	0.25	0.24	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.90	48.5	0.808	0.468
S615	0.28	0.28	0.28	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	2.93	54.8	0.913	0.578
S616	0.25	0.25	0.25	0.25	0.25	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.81	82.5	1.375	1.210
S618	0.26	0.25	0.25	0.25	0.25	0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.90	47.8	0.796	0.586
S619	0.28	0.27	0.27	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.53	43.3	0.721	0.334
S620	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	2.44	41.8	0.696	0.619
S621	0.24	0.24	0.24	0.24	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	37.3	0.621	0.311
S622	0.24	0.24	0.24	0.24	0.24	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	58.3	0.971	0.664
S700	0.25	0.24	0.24	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	43.5	0.725	0.579
S701	0.26	0.25	0.25	0.25	0.25	0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.71	66.0	1.100	1.137
S702	0.25	0.24	0.24	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	33.8	0.563	0.553
S703	0.24	0.24	0.24	0.24	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	29.8	0.496	0.405
S704	0.25	0.24	0.24	0.24	0.24	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.54	27.8	0.463	0.316
S705	0.26	0.26	0.26	0.26	0.25	0.25	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.61	39.0	0.650	0.496
S705AF	0.29	0.29	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.36	29.3	0.488	0.415
S706	0.25	0.25	0.25	0.25	0.25	0.24	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.52	44.3	0.738	0.562
S707	0.26	0.26	0.26	0.25	0.25	0.25	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.63	43.5	0.725	0.641
S728	0.25	0.25	0.24	0.24	0.24	0.24	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	41.8	0.696	0.732
S708	0.29	0.29	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.17	33.0	0.550	0.337
S709	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.63	30.5	0.508	0.368
S710	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.44	20.0	0.333	0.264
S711	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.64	19.5	0.325	0.180
S712	0.29	0.29	0.29	0.29	0.29	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.43	11.3	0.188	0.105
S713	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.44	16.0	0.267	0.188
S714	0.28	0.28	0.28	0.28	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	1.85	17.0	0.283	0.230
S715	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.62	29.0	0.483	0.378
S716	0.29	0.29	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.40	42.5	0.708	0.467
S717	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.66	20.0	0.333	0.173

Table C-3

Time of concentration and duration of rainfall excess for existing conditions, 100-year, 24-hour

Subbasin	Excess Rainfall Values By Decreasing Rank																		Total Excess	Tc	Tc	R
ID	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	inches	min.	hours	hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
S718	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.72	58.3	0.971	1.034
S719	0.30	0.30	0.29	0.29	0.29	0.29	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	3.23	33.3	0.554	0.655
S720	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.66	34.8	0.579	0.496
S721	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1.64	23.0	0.383	0.205
S722	0.29	0.28	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.14	44.5	0.742	0.537
S723	0.29	0.29	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.38	20.5	0.342	0.289
S724	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	2.64	39.8	0.663	0.423
S725	0.28	0.28	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.00	57.0	0.950	0.782
S726	0.26	0.25	0.25	0.25	0.25	0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.56	19.8	0.329	0.207
S727	0.29	0.29	0.28	0.28	0.28	0.28	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.15	40.3	0.671	0.669

APPENDIX D:. REACH ROUTE PARAMETERS

Stantec

Project: N. Peoria ADMP Project Number: 82000146

Notes: Hydrologic Routing Sections Scale:

Page 1 of Page(s)

Computed By: MCG Date: 3 29 00 Checked By: Date:

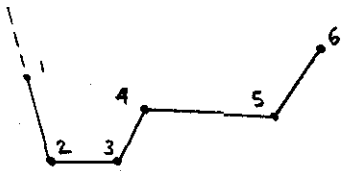
Ground elevations are estimated using a hand level and a 25' Philadelphia rod looking downstream from left to right.

Unnamed Wash 1

Routing reach 1 104 → 105

$\bar{x} = 5.4'$

PT#	B.S.	F.S.	Ground	Dist.
1		1.8'	103.6	0
2		8.6'	96.8	14.7'
3		8.8'	96.6	21.8'
4		5.4'	100.0	28.3'
5		6.5'	98.9	42.3'
6		1.5'	103.9	17.1'



Reach length = 2880.09 + 4080.73 = 6960.8
Channel slope = (1440 − 1360)/6960.8 = 0.0115
NSTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0

Sta:	1000.0[2]	1002.3[2]	1004.6	1019.3	1041.1	1069.4	1111.7	1128.8
Elev:	108.0[2]	107.5	107.0	100.2	100.0	103.4	102.3	107.3

Manning's n-values
LOB =
ch =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Extrapolated using slope between survey points (1) + (2)

Stantec

Project: North Peoria

Project Number: 82000146

Scale:

Notes:

Page of Page(s)

Computed By: SRJ

Date: 5 26 00

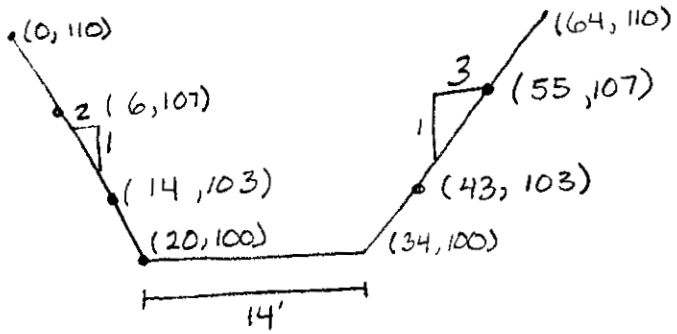
Checked By:

Date:

101 102

.045 .04 .045 7254 .0138

100	106	114	120	134	143	155	164
110	107	103	100	100	103	107	110



Stantec

Project:		Project Number:	
Notes:		Scale:	
		Page 2 of	Page(s)
Computed By:	Date:	Checked By:	Date:

Routing Reach 2

- Assume a trapezoidal section w/ sides slopes of 0.5 : 1 and a bottom width of 20'

Reach length =
Channel slope =
NSTEPS =
} See Routing Reach 1

Eight point cross section

Sta.	1000.0	1001.7	1003.4	1005.0	1025.0	1026.7	1028.4	1030.0
Elev:	110.0	106.7	103.3	100.0	100.0	103.3	106.7	110.0

Manning's n-values
LOB =
Ch =
ROB =

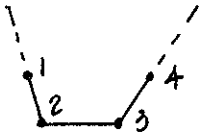
Stantec

Project:		Project Number:
Notes:		Scale:
		Page 3 of Page(s)
Computed By:	Date: Checked By:	Date:

Routing reach 3

T = 5.4 103 → 104

PT#	B.S.	F.S.	Ground	Dist.
1		0.7'	104.7	0
2		6.1'	99.3	8'
3		5.6'	99.8	22'
4		1.7'	103.7	14



Reach length = 8608
Channel slope = (1580 - 1440)/8608 = .0163
NSTEPS =

Eight point cross section w/elevations adjusted to min = 100.

Sta:	1000.0[2]	1001.5[2]	1003.0	1011.0	1033.0	1047.0	1050.6[3]	1054.2[3]
Elev:	107.4[2]	106.4[2]	105.4	100.0	100.5	104.4	105.4[3]	106.4[3]

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Extrapolated using slope between survey points (1) & (2)
3. Extrapolated using slope between survey points (3) & (4)

Stantec

Project: Project Number:

Notes: Scale:

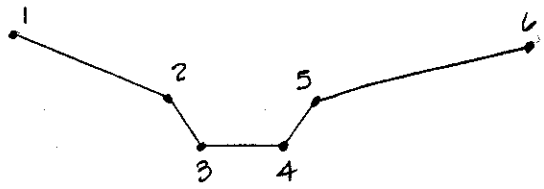
Page 4 of Page(s)

Computed By: Date: Checked By: Date:

Routing Reach 4

T = 5.4' 102→103

PT#	B.S.	F.S.	Ground	Dist.
1		1.2'	104.2	0
2		5.4'	100.0	57.9'
3		6.9'	98.5	14.1'
4		7.2'	98.2	17.6'
5		5.0'	100.4	9.8'
6		2.8	102.6	20.9'



Reach length = 1884.22 + 6183.45 = 8067.67
Channel Slope = (1680 - 1580)/8067.67 = 0.0124
NSTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0

Sta:	1000.0	1029.0[2]	1057.9	1072.0	1089.6	1099.4	1109.9[3]	1120.3
Elev:	106.0	103.9[2]	101.8	100.3	100.0	102.2	103.3[3]	104.4

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Interpolated between survey points (1) + (2)
3. Interpolated between survey points (5) + (6)

Stantec

Project: Project Number:

Notes: Scale:

Page 5 of Page(s)

Computed By: Date: Checked By: Date:

Routing Reach 5

T= 5.4' 100→102

PT#	B.S.	F.S.	Ground'	Dist.
1		2.6'	102.8	0
2		5.1'	100.3	12.7'
3		5.1'	100.3	24.8'
4		7.3'	98.1	10.2'
5		7.4'	98.0	12.3'
6		4.7'	100.7	12.4'
7		3.9'	101.5	15.4'
8		0.7'	104.7	11.0'

Reach length = 2321.34 + 4213.62 = 6534.96
Channel slope = (1770-1680)/6534.96 = 0.0138
JSTEPS =

Eight point cross section w/ elevations adjusted to min. = 100.0

Sta:	1000.0	1012.7	1037.5	1047.7	1060.0	1072.4	1087.8	1098.8
Elev:	104.8	102.3	102.3	100.1	100.0	102.7	103.5	106.7

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0

Stantec

Project:		Project Number:	
Notes:		Scale:	
		Page 6 of	Page(s)
Computed By:	Date:	Checked By:	Date:

Unnamed Wash 2

Routing Reach 1 207 → 105

- Assume a trapezoidal section w/ sides slopes of 1:1 and 1.5:1 and a bottom width of 29.5'

Reach length = 7176.26
Channel Slope = (1480 - 1360)/7176.26 = 0.0167
NSTEPS =

Eight point cross section

Sta:	1000.0	1003.0	1006.0	1009.0	1038.5	1041.5	1047.5	1053.5
Elev:	109.0	106.0	103.0	100.0	100.0	102.0	106.0	110.0

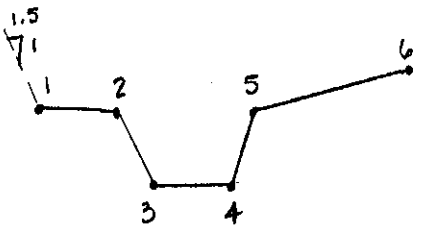
Stantec

Project:	Project Number:
Notes:	Scale:
	Page 7 of Page(s)
Computed By: Date:	Checked By: Date:

Routing Reach 2

$T = 5.5'$

PT#	B.S.	F.S.	Ground'	Dist.
1		3.8'	101.7	0
2		5.3'	100.2	41.7'
3		11.7'	93.8	21.2'
4		11.6'	93.9	14.0'
5		5.3'	100.2	14.6'
6		1.4'	104.1	27.3'



Reach length =
Channel Slope = } See Routing Reach 1
NSTEPS =

Eight point cross section w/ elevations adjusted to a min = 1[illegible]

Sta:	1000.0[2]	1003.0	1044.7	1065.9	1079.9	1094.5	1115.5[3]	1121.8
Elev:	109.9[2]	107.9	106.4	100.0	100.1	106.4	109.4[3]	110.3

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Extrapolated using a slope of 1.5:1
3. Interpolated using survey points (5) + (6)

Stantec

Project: Project Number:

Notes: Scale:

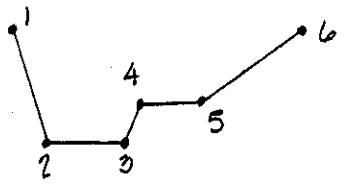
Page 8 of Page(s)

Computed By: Date: Checked By: Date:

Routing Reach 3

$\bar{T}$ = 5.5' 206 → 207

PT#	B.S.	F.S.	Ground	Dist.
1		2.7'	102.8	0
2		8.7'	96.8	22.2'
3		8.5'	97.0	35.4'
4		6.5'	99.0	10.5'
5		5.8'	99.7	20.1'



Reach length = 4971.68

Channel slope = (1635 - 1480)/4971.68 = 0.0312

NSTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0

Sta:	1000.0	1007.4[2]	1014.8[2]	1022.2	1057.6	1068.1	1088.2	1094.2[3]
Elev:	106.0	104.0[2]	102.0[2]	100.0	100.2	102.2	102.9	105.9[3]

Manning's n-values

LOB =

CH =

ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Interpolated using survey points (1) + (2)
3. Extrapolated using slope of 2:1

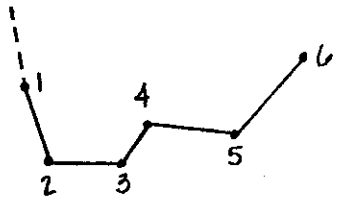
Stantec

Project:	Project Number:
Notes:	Scale:
	Page 9 of Page(s)
Computed By: Date:	Checked By: Date:

Routing Reach 4

$\pi = 5.5'$ 205 → 206

PT#	B.S.	F.S.	Ground'	Dist.
1		4.6'	100.9	0
2		9.7'	95.8	14.1'
3		9.5'	96.0	33.4'
4		5.1'	100.4	18.0'
5		6.0'	99.5	50.3'
6		0.2'	105.3	26.1'



Reach length = 10061.07 + 1832.40 = 11893.47
Channel slope = (1710 - 1635)/11893.47 = 0.00631
NSTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0'

Sta:	1000.0[2]	1002.5[2]	1005.0	1019.1	1052.5	1070.5	1120.8	1146.9
Elev:	110.1[2]	107.6[2]	105.1	100.0	100.2	104.6	103.7	109.5

Manning's n-value
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Extrapolated using a slope of 1:1

Stantec

Project: Project Number:

Notes: Scale:

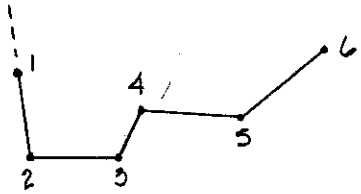
Page 10 of Page(s)

Computed By: Date: Checked By: Date:

Routing Reach 5

$\bar{\pi}$ = 5.5'

PT#	B.S.	F.S.	Ground'	Dist.
1		7.0'	98.5	0
2		9.2'	96.3	5'
3		9.1'	96.4	40.4'
4		5.5'	100.0	12.2'
5		5.8'	99.7	40.4'
6		1.2'	104.3	20.6'



Reach length =
Channel slope =
NSTEPS =
} See Routing Reach 4

Eight point cross section w/elevations adjusted to min = 100.0'

Sta:	1000.0[2]	1006.8[2]	1013.6	1018.6	1059.0	1071.2	1111.6	1132.2
Elev:	108.2[2]	105.2[2]	102.2	100.0	100.1	103.7	103.4	108.0

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevations at instrument = 100.0
2. Extrapolated using slope between survey points (1) + (2)

Stantec

Project: Project Number:

Notes: Scale:

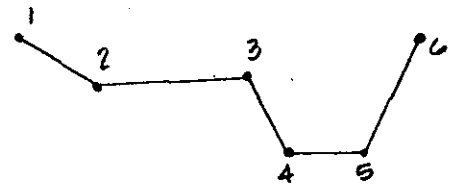
Page 11 of Page(s)

Computed By: Date: Checked By: Date:

Routing Reach 6

$\pi = 5.2'$ 204 → 205

PT#	B.S.	F.S.	Ground	Dist.
1		2.0'	103.2	0
2		5.1'	100.1	10.6
3		4.3'	100.9	42.6
4		7.2'	98.0	11.7
5		7.6'	97.6	29.8'
6		0.8'	104.4	19.1'



Reach length = 1679.32 + 3327.98 = 5007.3
Channel slope = (1780 - 1710)/ 5007.3 = 0.0140
NSTEPS =

Eight point cross section w/ elevations adjusted to min = 100

Sta:	1000.0	1010.6	1053.2	1064.9	1094.7	1103.1[2]	1105.9[2]	1113.8
Elev:	105.6	102.5	103.3	100.4	100.0	103.0[2]	104.0[2]	106.8

Manning's n-value
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Interpolated using survey points (5) + (6)

Stantec

Project:	Project Number:
Notes:	Scale:
	Page 12 of Page(s)
Computed By: Date:	Checked By: Date:

Routing Reach 7 202 → 203

T = 5.2' 201 → 202 → 203 → 204

PT#	B.S.	F.S.	Ground'	Dist.
1		3.6'	101.6	0
2		6.1'	99.1	8.4'
3		5.2'	100.0	49.1'
4		6.9'	98.3	8.8'
5		7.2'	98.0	32.1'
6		3.0'	102.2	9.2'

Reach length = 203 → 204 1325.49 203 → 201 2164.36
Channel slope = (1800 − 1780)/1325.49 = 0.0151 (1850 − 1800)/2164.36 = 0.0231
NSTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0'

Sta:	1000.0	1008.4	1057.5	1066.3	1098.4	1102.8[2]	1105.0[2]	1107.6
Elev:	103.6	101.1	102.0	100.3	100.0	102.0[2]	103.0[2]	104.2

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Interpolated using survey points (5) + (6)

Stantec

Project: Project Number:

Notes: Scale:

Page 13 of Page(s)

Computed By: Date: Checked By: Date:

Unnamed Wash 3

Routing Reach 1 302→303

T = 5.4'

PT#	B.S.	F.S.	Ground'	Dist.
1		0.1'	105.3	0
2		6.2'	99.2	26.5'
3		5.2'	100.2	40.8'
4		0.3'	105.1	8.2'

Reach length = 1950.52 + 5353.94 = 7304.46
Channel Slopes = (1480-1340)/7304.46 = 0.0192
JSTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0'

Sta :	1000.0	1009.4[2]	1017.8[2]	1026.5	1067.3	1068.7[3]	1071.5[3]	1075.5
Elev :	106.1	104.0[2]	102.0[2]	100.0	101.0	102.0[3]	104.0[3]	105.9

Manning's n-value
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0
2. Interpolated using survey points (1) + (2)
3. Interpolated using survey points (3) + (4)

Stantec

Project: Project Number:

Notes: Scale:

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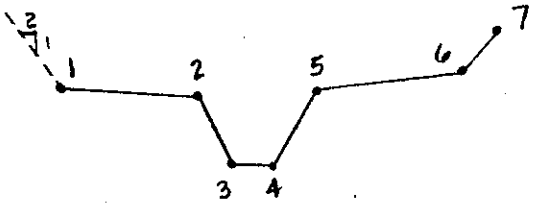
Computed By: Date: Checked By: Date:

Routing Reach 2

$\pi = 5.4'$ 301 → 302

PT #	B.S.	F.S.	Ground'	Dist.
1		1.7'	103.7	0
2		6.8'	98.6	196.3'
3		10.1'	95.3	13.3'
4		10.3'	95.1	27.0'
5		6.1	99.3	9.3'
TP_1	8.1'			
6		5.0'	102.4	94.5'
7		2.0'	105.4	25.2



Reach length = 8124.27
Channel Slope = (1550 − 1480)/ 8124.27 = 0.008616
ISTEPS =

Eight point cross section w/ elevations adjusted to min = 100.0

Sta:	1000.0[2]	1004.0	1200.3	1213.6	1240.6	1249.9	1344.4	1369.6
Elev:	110.6[2]	108.6	103.5	100.2	100.0	104.2	107.4	110.4

Manning's n-values
LOB =
CH =
ROB =

Notes

1. Assume ground elevation at instrument = 100.0 for points (1) − (5). Ground elevation at TP_1 = 102.0
2. Extrapolated using a slope of 2:1

Stantec

Project:		Project Number:	
Notes:		Scale:	
		Page 15 of	Page
Computed By:	Date:	Checked By:	Date:

Routing Reach 3 300 → 301

- Assume a trapezoidal section w/ sides slopes of 1:1 and 1.5:1 and a bottom width of 37'.

Reach length = 2309.19 + 2808.10 = 5117.29
Channel slope = (1620 - 1550)/5117.29 = 0.0137
NSTEPS =

Eight point cross section

Sta:	1000	1001	1002	1010	1047	1059	1060.5	1062
Elev:	110	109	108	100	100	108	109	110

Manning's n-values
LOB =
CH =
ROB =

Stantec

Project: North Peoria- Caterpillar Tank Project Number: 82000146

Notes: Scale:

Page 1 of 2 Page(s)

Computed By: SRJ Date: 5 15 00 Checked By: Date:

KK 403404
KM
RS 4256 0.0164
RC .045 .045 .045 ~~4400~~ ~~0.0128~~
RX 9506.5 9551.7 9955.5 9995 10007.4 10060.9 10227.2 10315.3
RY 1300.9 1282.3 1282.7 1276.7 1276.5 1283.5 1283.3 1302.1

Notes: 1) Includes x-secs A (0.02) → K (0.83) Lower = 1259
2) Used an average for n-values upper = 1315.3

.045	.045	.040
.045	.045	.045
.045	.045	.050
Avg .045	.045	.045

3) Used 0.38 as a typical x-sec

---

402 403
RS 6138 0.0049
RC .045 .043 .045 ~~5600~~ ~~0.0105~~
RX 9267 9571.2 9916.2 9988.7 9997.4 10095.3 10157.8 10641.
RY 1395.9 1388.7 1383.7 1355 1355 1361.4 1359.6 1378

Notes: 1) Includes x-sec K(0.83) → W(1.99) Lower = 1315.3
2) Average n-values upper = 1374.1

.045	.045	.040
.045	.045	.045
.045	.045	.043 - Avg

3) Used 1.61 as a typical sect

KK 401402
KM
RS 8029 0.0112
RC .045 .043 .045 ~~8000~~ ~~0.0106~~
RX 9581.3 9756.6 9997.5 10000 10022.2 10086.4 10119.5 10362.5
1455.4 1419.3 1413.3 1410.9 1409.8 1414.4 1419 1428.6

Notes 1) Includes x-secs W(1.99) → AM (3.50) 3) Used 2.84 as a typical sect.
2) Average n-values Lower = 1374.1

.045	.045	.040
.045	.045	.045
.045	.045	.043

upper = 1432.2

Stantec

Project: North Peoria- Caterpillar Tank Project Number: 82000146

Notes: Scale:

Page 2 of 2 Page(s)

Computed By: SRB Date: 5/15/00 Checked By: Date:

RK 400401
KM
RS
RC .045 .040 .045 ~~7750~~ 7424 ~~0.00849~~ 0.0101
RX 9729.2 9772.7 9849.9 10000 10007.8 10090.6 10147.3 10185.4
RY 1509.6 1508.8 1500.2 1475.5 1475.3 1495.3 1496 1497.5

Notes: 1) Includes x-secs AM(3.50) → BB(4.92) Lower = 1374.1
upper = 1498

2) Average n-values

.045	.045	.045
.045	.045	.035
.045	.045	.050
.045	.045	.040

.050 - only applies to 2 x-sec, average does not include this value

3) Used 4.45 as a typical x-sec

Stantec

Project: Peoria Project Number: 28000146

Notes: Scale:

Page 1 of 1 Page(s)

Computed By: SRJ Date: 5 17 00 Checked By: Date:

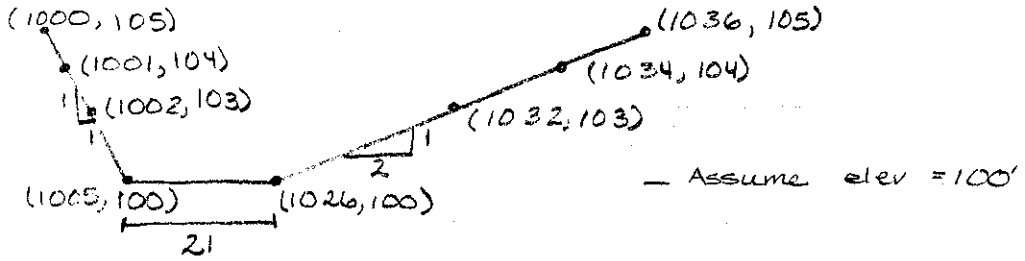
KK ~~201200~~ 200201 - Unnamed Wash 2 **RR8**

KM

RS

RC LOB CH ROB 3952.3 0.0228

RX	1000	1001	1002	1005	1026	1032	1034	1036
RY	105	104	103	100	100	103	104	105



Lower Elev = 1850
Upper Elev = 1940

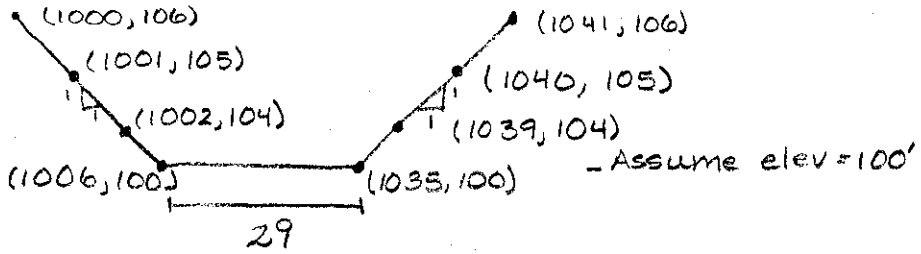
Length = 2006.6 + 1945.7
= 3952.3

KK 501502 - Twin Buttes Wash

KM

0.05 0.035 0.05 5020.89 0.0159

RX	1000	1001	1002	1006	1035	1039	1040	1041
RY	106	105	104	100	100	104	105	106



Lower = 1500
Upper = 1580

L = 4505.83 + 515.0
= 5020.89

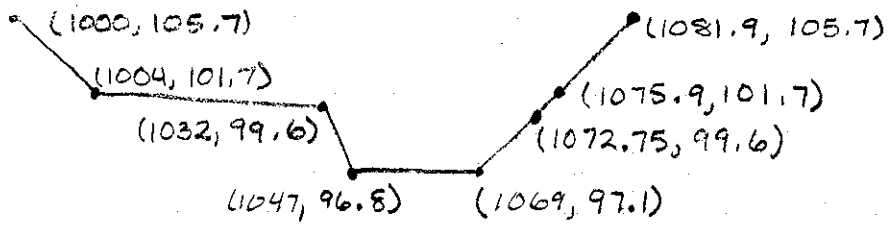
KK 500501 - Twin Buttes Wash

KM

RS

RC 0.05 0.035 0.05 5972 0.0134

RX	1000	1004	1032	1047	1069	1072.75	1075.9	1081.9
RY	105.7	101.7	99.6	96.8	97.1	99.6	101.7	105.7



Lower = 1580
Upper = 1660

L = 5972.15

3:40 pm

Stantec

Project: North Peoria - Twin Buttes Project Number: 82000146

Notes: Scale:

Page 1 of 5 Page(s)

Computed By: SRH Date: 5.15.00 Checked By: Date:

KK 511 512
KM
RS 9226 0.0081
RC .046 .044 .046 ~~9120~~ ~~0.00824~~

RX	9565.4	9565.5	9852.4	10000	10019.5	10074.2	10242.6	10760
RY	1305.6	1305.6	1303.1	1297.8	1296.9	1336.3	1339.3	1336.5

Note: 1) Between xsec U(1.92) → A(0.19) Lower elev = 1240.2
upper = 1313.8

2) Average n-values

.045	.045	.035
.045	.045	.040
.045	.050	.040
.045	.040	.040
.045	.060	.045
.053	.045	.04
.043	.045	.045
.045	.045	.045
.045	.045	.05
.045	.045	.055
.046	.042	0.044

3) Used 1.52 as a typical x-sec.

KK 510 511
KM
RS 6772 0.0067
RC .046 .044 .046 ~~6880~~ ~~.00583~~

RX	9361.9	9781.7	9944.4	9985.6	10000	10040.8	10420	11470.9
RY	1382.6	1375.5	1364.2	1355.1	1355.4	1360.8	1363.1	1381.1

Note: 1) Between x-sec U(1.92) → AI(3.22) Lower elev = 1313.8
upper elev = 1355.4

2) Average n-values

.045	.045	.055
.045	.045	.050
.045	.045	.040
.048	.045	.04
.045	.05	.04
.045	.045	.04
.046	.046	0.44

3) Used 3.22 as a typical Sect

Stantec

Project: Project Number:

Notes: Scale:

Computed By: Date: Checked By: Date:

KK 509510
KM
RS 1958 0.0102
RC .046 .043 .045 ~~2000~~ ~~0.0065~~
RX 9605.5 9805.1 9911.8 10000 10026.3 10119.6 10293.4 10613.5
RY 1374.6 1369.2 1370.3 1365.5 1364.6 1379.6 1383.9 1390.1

Notes: 1) Between X-sec AJ (3.22) → AN (3.60)
2) Average n-values

.045	.045	.040
.046	.045	.050
.048	.045	.045
.043	.045	.035
.046	.045	.043

Lower elev = 1355.4
upper elev = 1368.4

3) Used 3.5 as a typical x-sec

KK 508509
KM
RS 10349 0.0077
RC .045 .041 .045 ~~10400~~ ~~.00838~~
RX 9573.3 9869.3 9973 9985.2 10000 10053 10231.6 10511.6
RY 1439.9 1425.1 1424.7 1422.1 1419.1 1425.1 1437.1 1444.5

Notes: 1) Between A(0.09) → V(1.97) on White Peaks Wash
2) Average n-values

.045	.045	.045	(0.09)
.045	.045	.035	(1.48)
.045	.045	.041	

Lower = 1374.6
upper = 1455.5

3) Used 1.33 for a typical sect.

KK 507508
KM
RS 5400
RC .045 .045 .035 ~~5100~~ 0.0111
RX 9723.2 9781.7 9912 9989.1 10000 10022.9 10089.7 10209.7
RY 1491.1 1490.1 1489.9 1476.5 1477.1 1483.3 1486.2 1492.1

Notes 1) Between x-sec V(1.97) → AG(2.94) on White Peaks Wash
2) Average n-values

.045	.045	.035

Lower = 1455.5
upper = 1512.1

3) Used 2.37 for a typical sect

Stantec

Project: Project Number:

Notes: Scale:

Page 3 of 5 Page(s)

Computed By: Date: Checked By: Date:

KK 506 508
KM
RS
RC .045 .045 .035 ~~3500~~ 4023 ~~0.0166~~ 0.0149
RX 9717.6 9800.2 9981.4 10000 10010.3 10036.3 10068.8 10227.2
RY 1512.9 1510.9 1508.9 1502 1499 1505.7 1511.5 1512.3

Notes: 1) Between A(0.09) → G(0.66) on West Fork White Peak Wash
2) Average n-value
.045 .045 .035
3) Use 0.57 as a typical sect

Lower = 1463.3
upper = 1513.7

KK 505 509
KM
RS
RC .046 .047 .036 ~~6800~~ 6213 ~~0.00688~~ 0.0064
RX 9136.7 9456.9 9928.8 10000 10150.9 10209.7 10414 10505.9
RY 1419.5 1401.9 1395 1390 1390.3 1398.3 1395.1 1398.3

Notes: 1) Between AN(3.60) → BA(4.79) on Twin Buttes Wash
2) Average n-values

.043	.045	.035
.045	.045	.035
.045	.050	.035
.045	.058	.042
.045	.045	.042
.045	.050	.035
.045	.045	.043
.053	.043	.043
.052	.045	.038
.045	.045	.042
.045	.045	.040
.045	.043	.045
.046	.047	.036

Lower elev = 1368.4
upper elev = 1415.2

3) Used 4.17 as a typical sect.

Stantec

Project: Project Number:

Notes: Scale:

Page 4 of 5 Page(s)

Computed By: Date: Checked By: Date:

KK 504505
KM
RS
RC .045 .043 .044 7753.8 ~~.0135~~ 0.0129
RX 9785.2 9855.2 9914.4 9959.2 10013.6 10041.2 10119.8 10183.2
RY 1501 1493.8 1487.5 1473 1468.9 1480.7 1487.9 1494.5

Notes: 1) Between A (0.09) → O (1.33) East Garambullo Wash
2) Average n-values

.045	.043	.045
.045	.045	.040
.045	.044	.043

3) Use 0.95 for typical sect

KK 503505
KM
RS 9136 0.0115
RC .045 .047 .043 ~~9200~~ ~~0.0104~~
RX 9715 9892.4 9965 9996.6 10000 10044.9 10077.4 10088.5
RY 1504.8 1497.4 1487.9 1471.1 1471.6 1487.4 1484.4 1483.1

Notes: 1) Between A(0.09) → S(1.69) on West Garambullo Wash
2) Average n-value

.045	.048	.045
.045	.045	.040
.045	.047	.043

Lower = 1419.9
Upper = 1515.6

3) Use 1.14 for typical sect

Stantec

Project: Project Number:

Notes: Scale:

Computed By: Date: Checked By: Date:

KK 502505

KM

RS				8775	0.0091			
RC	.046	.040	.046	~~8200~~	0.009646			
RX	9875.7	9921.8	9941.2	9962.7	10048.7	10088.3	10258.2	10339.9
RY	1488.4	1467.5	1472.2	1469	1470.4	1480.9	1485.4	1497.1

Notes: 1) Between BA (4.79) → BR (6.34)

2) Average n-values

.045	.043	.045
.045	.045	.043
.045	.047	.045
.045	.047	.045
.045	.052	.048
.055	.045	.045
.045	.045	.040
.045	.045	.035
.045	.045	.043
.045	.045	.042
.043	.045	.053
.045	.045	.038
.045	.045	.035
.045	.045	.043
.046	.046	.040

Lower elev = 1415.2

upper elev = 1494.3

3) Used 5.87 as a typical sect

Stantec

Project: Project Number:

Notes: Scale:

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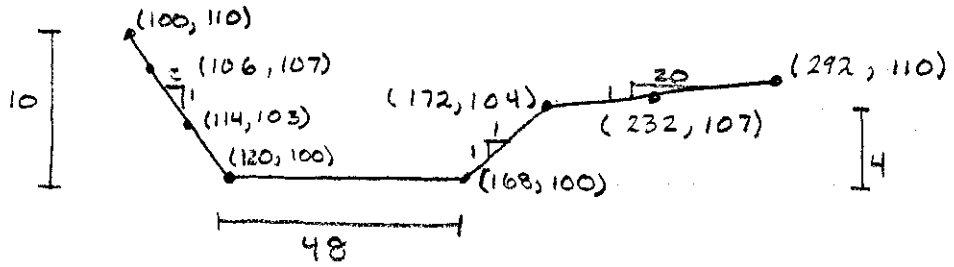
Computed By: Date: Checked By: Date:

607 608

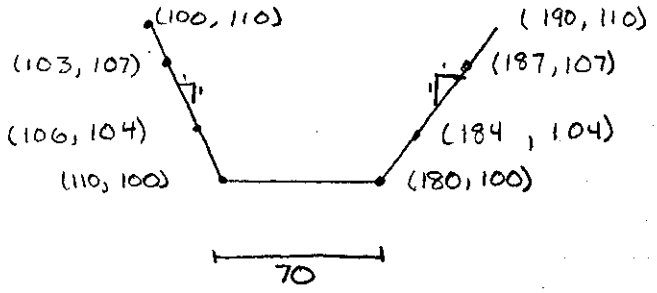
RC	.075	.03	.075	11166.71	0.0242			
RX	100	106	114	120	168	172	232	292
RY	110	107	103	100	100	104	107	110



612 613

[illegible] a bottom width from topo + assumed 1:1 sides

RC	0.05	0.035	0.05	8752	.0331			
RX	100	103	106	110	180	184	187	190
RY	110	107	104	100	100	104	107	110



Stantec

Project: North Peoria | Project Number: 82000146

Notes: | Scale:

Page of Page(s)

Computed By: STRD | Date: 5 30 00 | Checked By: | Date:

704 705

RC	.035	.045	.025	7534	.0186			
RX	100	123	159.5	162.8	186.8	205.3	206.3	207.3
RY	108.5	102.7	101.3	100.2	100	108.3	109.3	110.3

Notes: 1) X-sec info from field notes.
2) Length from ACAD dwg
3) Δ elev from Tc excel sheet

709 710

RC	.05	.035	.05	2540	.0256			
RX	100	132	163	232	268	311	353	418
RY	1500	1490	1480	1470	1470	1480	1490	1500

Notes: 1) X-sec info from CAP Plans
2) Length from ACAD dwg
3) Δ elev from Tc excel sheet

Revised, see Reach Route Data 2/5/01

711 712

RC	.05	.035	.05	1586	.0378			
RX	100	137	179	232	263	300	332	368
RY	1524	1518	1514	1508	1508	1514	1518	1524

Notes: 1) x-sec info from CAP Plans
2) Length from ACAD dwg
3) Δ elev from Tc excel sheet

Revised, see Reach Route Data 2/5/01

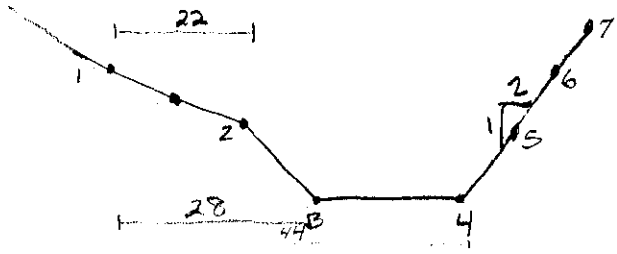
716 717

RC	.07	.045	.07	4232	0.0189			
RX	100	115	122	128	144	147	148	150.2
RY	103.1	102	101.5	100	100.3	101.5	102	103.1

Revised, see Reach Route Data 2/5/01

Notes: 1) x-sec from field notes
2) length from ACAD dwg
3) Δ elev from Tc excel sheet

	B.S.		Y	X
1	3.0	102.4	103.1	100
* 1.5			102	115
2	4.6	100.8	101.5	122
3	6.1	99.3	100	128
4	5.8	99.6	100.3	144
* 5			101.5	147
* 6			102	148
* 7			103.1	150.2



* interpulated pts

Stantec

Project:		Project Number:	
Notes:		Scale:	
		Page of Page(s)	
Computed By:	Date:	Checked By:	Date:

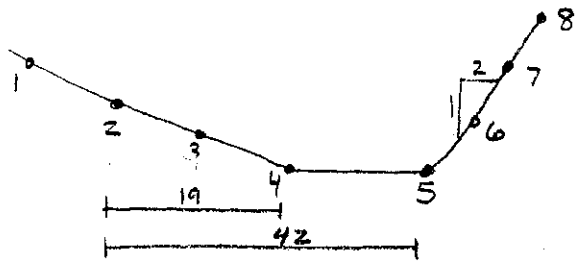
718 719
RC
RX
RY

Notes: 718719 = 717718

721.722

RC	.05	.035	.05	8812	0.0159				Revised, see
RX	100	124.32	138	143.32	166.32	168.32	171.92	178.32	Reach Route
RY	106	102.8	101	100.3	100	101	102.8	106	Data 2/5/01

Notes: 1) X-sec info from field notes
2) Length from ACAD dwg
3) Δ elev from T_c excel sheet



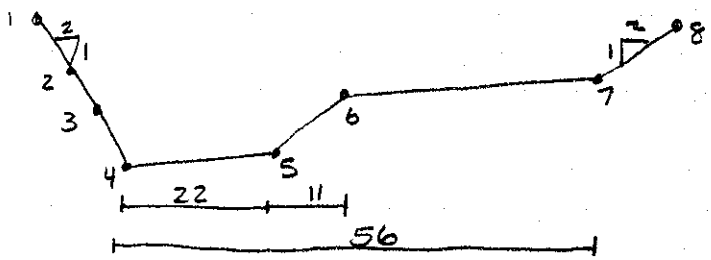
	B.S.		Y	X
* 1			106	0
2	2.9	102.5	102.8	124.32
* 3			101	138.00
4	5	100	100.3	143.32
5	5.7	99.7	100	166.32
* 6			101	168.32
* 7			102.8	171.92
* 8			106	178.32

* interpolated pts

726727

RC	.05	.035	.05	6228	.0048				Revised, see
RX	100	104.4	108.4	112	134	145	168	175.6	Reach Route Data 2/5/01
RY	106	102.2	102	100	100.9	102.	102.2	106	

Notes: 1) x-sec info from field notes
2) Length from ACAD dwg
3) Δ elev from T_c excel sheet



	BS		Y	X
* 1			106	100
* 2			102.2	104.4
* 3			102	108.4
4	6.8	98.6	100	112
5	5.9	99.5	100.9	134
6	4.8	100.6	102.0	145
7	4.6	100.8	102.2	168
* 8			106	175.6

* interpolated pts

Stantec

Project: North Peoria ADMP | Project Number: 32000146

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Computed By: MMZ | Date: 2 5 01 | Checked By: | Date:

709710

RC	0.05	0.035	0.05	2683	.0261			
RX	100	160	200	220	255	265	280	305
RY	1448	1444	1440	1436	1436	1440	1444	1448

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes.
2) Length from ACAD drawing.

711712

RC	0.05	0.035	0.05	1586	.0441			
RX	100	135	190	215	250	285	335	395
RY	1488	1484	1480	1476	1476	1480	1484	1488

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes.
2) Length from ACAD drawing.

712714

RC	0.05	0.035	0.05	2032	.0172			
RX	100	325	355	370	415	435	450	515
RY	1416	1412	1408	1404	1404	1408	1412	1408

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes
2) Length from ACAD drawing.

713714

RC	0.05	0.035	0.05	831	.0421			
RX	100	260	270	280	305	315	335	490
RY	1416	1416	1412	1408	1408	1412	1416	1420

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes.
2) Length from ACAD drawing.

716717

RC	0.05	0.035	0.05	4232	.0177			
RX	100	115	150	165	195	285	370	425
RY	1504	1500	1496	1492	1492	1496	1500	1504

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes
2) Length from ACAD drawing.

Stantec

Project: North Peoria ADMP Project Number: 82000146

Notes: Reach Route Data Scale:

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Computed By: MMZ Date: 2 5 01 Checked By: Date:

717718

RC	0.05	0.035	0.05	7146	.0105			
RX	100	235	275	325	420	455	465	530
RY	1364	1360	1356	1352	1352	1356	1360	1380
RL			0.03	1352				

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes.
2) Length from ACAD drawing.
3) Transmission loss from soils map review.

721722

RC	0.05	0.035	0.05	8812	.0170			
RX	100	125	175	200	235	250	270	595
RY	1420	1416	1412	1408	1408	1412	1420	1424

Notes: 1) X-sec info from Agua Fria FIS Workstudy maps and field notes.
2) Length from ACAD drawing.

726727

RC	0.05	0.035	0.05	6228	.0185			
RX	100	120	145	170	225	240	250	265
RY	1308	1304	1300	1296	1296	1300	1304	1308

Notes 1) X-sec info from Agua Fria FIS Workstudy maps and field notes.
2) Length from ACAD drawing.

Reach 100102 Looking Upstream

Reach 100102 Looking Downstream

Reach 101102 Looking Upstream

Reach 101102 Looking Downstream

Reach 102103 Looking Upstream

Reach 102103 Looking Downstream

Reach 103104 Looking Upstream

Reach 103104 Looking Downstream

Reach 104105 Looking Upstream

Reach 104105 Looking Downstream

Reach 200201 Looking Upstream

Reach 200201 Looking Downstream

Reach 203204 Looking Upstream

Reach 203204 Looking Downstream

Reach 204205 Looking Upstream

Reach 204205 Looking Downstream

Reach 201203 Looking Upstream

Reach 201203 Looking Downstream

Reach 202203 Looking Upstream

Reach 202203 Looking Downstream

Reach 205206 Looking Upstream

Reach 205206 Looking Downstream

Reach 206207 Looking Upstream

Reach 206207 Looking Downstream

Reach 207105 Looking Upstream

Reach 207105 Looking Downstream

Reach 300301 Looking Upstream

Reach 300301 Looking Downstream

Reach 301302 Looking Upstream

Reach 301302 Looking Downstream

Reach 302303 Looking Upstream

Reach 302303 Looking Downstream

Reach 500501 Looking Upstream

Reach 500501 Looking Downstream

Reach 501502 Looking Upstream

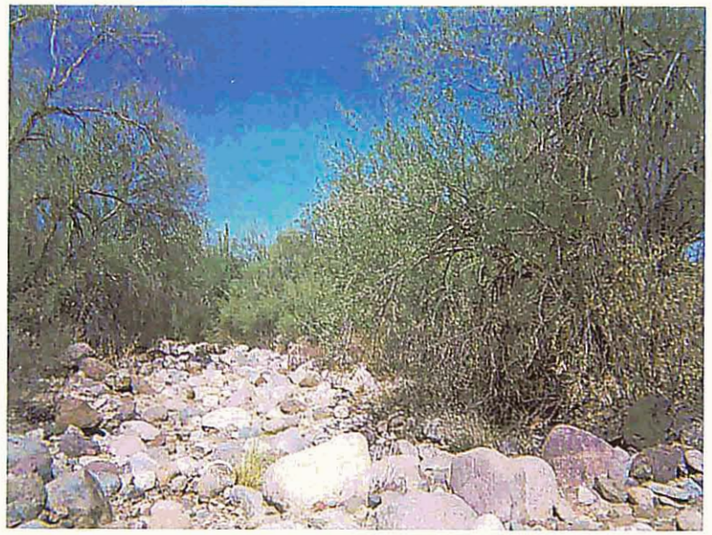
Reach 501502 Looking Downstream

Reach 607608 Looking Upstream

Reach 607608 Looking Downstream

Reach 716717 Looking Upstream

Reach 716717 Looking Downstream



Reach 717718 Looking Upstream

Reach 717718 Looking Downstream

Reach 721722 Looking Upstream

Reach 721722 Looking Downstream

Table D-1

Summary of the normal depth reach route hydraulic data for the existing condition 100-year, 6-hour storm

Routing Reach	Reach				Manning's Equation						Computed Using HEC-1 Summary Data					NSTEPS from HEC-1 Input File
	Slope in ft/ft	Length in feet	Average n value	Average Q in cfs	Channel Base Width in feet	Flow Area in sf	Flow Top Width in feet	Flow Depth in feet	Froude Number	Average Velocity in fps	Wave Celerity in fps	Velocity Range in fps Min.	Velocity Range in fps Max.	Travel Time in hrs	Travel NSTEPS Computed	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
100102	0.014	6535	0.046	724	12.3	112.6	75.1	3.3	0.96	6.7	7.8	4.1	6.8	0.2333	7	7
101102	0.014	7254	0.040	529	14.0	71.0	30.1	3.2	0.88	7.7	8.6	4.5	7.6	0.2333	6	7
102103	0.012	8068	0.047	1747	17.6	221.0	97.5	4.4	0.95	8.1	9.6	5.0	8.4	0.2333	7	7
103104	0.016	8625	0.053	2651	22.0	257.4	55.5	6.9	0.86	10.5	14.4	7.2	13.5	0.1667	4	5
104105	0.012	6956	0.053	2873	21.8	414.1	116.2	5.8	0.66	7.1	9.7	5.0	8.7	0.2000	6	6
200201	0.023	3952	0.031	1362	21.0	92.5	31.6	3.5	1.55	15.1	33.0	9.9	49.5	0.0333	1	1
201203	0.016	3233	0.048	1649	32.1	225.2	102.1	3.3	0.89	7.5	13.5	5.4	20.3	0.0667	2	2
202203	0.017	2353	0.035	269	32.1	45.2	55.0	1.4	1.23	6.4	6.5	2.9	7.4	0.1000	3	3
203204	0.015	1325	0.048	2622	32.1	308.3	105.5	4.1	0.90	8.7	11.1	3.3	16.6	0.0333	1	1
204205	0.014	5007	0.045	2898	29.8	312.9	106.5	5.0	0.97	9.5	10.4	5.0	10.5	0.1333	4	4
205206	0.006	11893	0.044	3809	33.4	503.5	130.8	6.7	0.69	7.7	9.9	5.4	8.3	0.3333	10	10
206207	0.031	4972	0.045	4308	35.4	286.0	86.9	4.7	1.49	15.4	20.7	8.3	31.2	0.0667	2	2
207105	0.017	7176	0.044	4497	29.5	280.1	47.7	7.3	1.18	16.2	29.9	11.9	45.0	0.0667	2	2
300301	0.014	5117	0.044	1648	37.0	192.3	48.3	4.5	0.77	8.7	14.2	6.4	16.0	0.1000	3	3
301302	0.009	8124	0.047	1950	27.0	268.7	138.4	5.1	0.94	7.4	6.8	3.7	5.7	0.3333	10	10
302303	0.019	7304	0.050	2192	40.8	220.7	65.9	4.6	0.97	10.1	15.2	7.3	15.3	0.1333	4	4
400401	0.010	7424	0.040	499	7.8	114.2	48.9	4.1	0.52	4.5	6.9	3.7	5.8	0.3000	9	9
401402	0.011	8029	0.043	904	22.2	157.7	76.3	3.6	0.73	5.9	7.4	4.0	6.3	0.3000	9	9
402403	0.005	6138	0.044	1274	8.7	320.3	150.6	5.4	0.49	4.1	4.6	2.6	3.8	0.3667	11	11
403404	0.016	4256	0.045	1565	12.4	205.0	77.4	4.7	0.84	7.8	11.8	5.3	13.3	0.1000	3	3
500501	0.013	5972	0.037	908	22.0	105.3	47.9	3.3	1.06	8.9	12.4	6.0	12.5	0.1333	4	4
501502	0.016	5021	0.035	1243	29.0	116.3	36.1	3.6	1.07	10.9	20.9	8.4	31.5	0.0667	2	2
502505	0.009	8775	0.040	1968	86.0	311.3	118.3	3.7	0.71	6.5	10.4	5.5	9.2	0.2333	7	7
503505	0.012	9136	0.047	96	3.4	35.2	18.5	3.5	0.36	2.8	5.1	2.8	4.1	0.5000	15	15
504505	0.013	7754	0.043	93	54.4	35.7	33.4	2.1	0.47	2.8	5.9	3.2	4.9	0.3667	11	11
505509	0.006	6213	0.047	2486	150.9	553.2	216.7	3.2	0.51	4.6	6.5	3.4	5.6	0.2667	8	8
506508	0.015	4023	0.045	93	10.3	27.1	19.9	2.7	0.55	3.6	5.6	2.9	5.0	0.2000	6	6
507508	0.011	5400	0.045	98	10.9	35.0	28.1	2.1	0.47	3.0	5.6	3.0	4.8	0.2667	8	8
508509	0.008	10349	0.041	579	14.8	119.5	57.1	4.2	0.61	5.0	6.2	3.4	5.0	0.4667	14	14
509510	0.010	1958	0.044	3183	26.3	541.7	300.6	5.0	0.79	6.0	5.4	2.4	6.1	0.1000	3	3
510511	0.007	6722	0.045	3450	14.4	627.9	360.5	7.4	0.75	5.6	5.6	3.0	4.7	0.3333	10	10
511512	0.008	9226	0.044	3745	19.5	625.2	213.0	6.7	0.63	6.1	8.5	4.6	7.2	0.3000	9	9
600601	0.033	3463	0.035	1833	20.0	164.4	74.3	4.3	1.36	11.5	14.4	5.8	21.7	0.0667	2	2
601602	0.027	6017	0.035	2611	90.0	234.0	105.0	2.4	1.36	11.5	16.7	7.5	18.9	0.1000	3	3
602603	0.017	7614	0.035	4336	257.0	528.8	266.6	2.0	1.06	8.5	9.1	4.7	8.0	0.2333	7	7
603604	0.019	7830	0.035	6459	275.0	672.0	287.3	2.4	1.14	9.9	16.3	7.8	16.4	0.1333	4	4
604605	0.007	1543	0.035	6979	85.0	760.6	155.7	6.3	0.74	9.3	12.9	3.8	19.3	0.0333	1	1
605606	0.020	5520	0.042	7091	33.0	634.3	295.2	4.9	1.38	11.5	15.3	6.9	17.3	0.1000	3	3
606608	0.018	1141	0.035	7691	87.0	597.9	161.1	4.8	1.20	13.1	9.5	2.8	14.3	0.0333	1	1
607608	0.024	11167	0.030	1018	48.0	97.7	53.8	1.9	1.42	10.9	18.6	9.3	17.5	0.1667	5	5
608609	0.012	6518	0.035	8758	42.0	774.5	199.3	6.4	1.03	11.5	13.6	6.5	13.6	0.1333	4	4
609611	0.003	6519	0.035	9045	180.0	1324.0	259.1	6.0	0.54	6.9	9.1	4.6	8.2	0.2000	5	6
610611	0.010	7981	0.035	1300	9.0	159.4	27.4	8.8	0.60	8.2	13.3	6.6	12.5	0.1667	5	5
611613	0.038	4445	0.035	9775	88.0	511.9	135.0	4.6	1.76	19.4	37.1	11.1	55.7	0.0333	2	1
612613	0.033	8752	0.035	1364	70.0	131.4	73.7	1.8	1.42	10.8	18.2	8.7	18.3	0.1333	4	4
613614	0.011	5557	0.035	10371	80.0	787.5	123.0	7.8	0.93	13.3	15.4	6.9	17.4	0.1000	3	3
614615	0.014	7995	0.035	10302	45.0	706.4	126.1	8.3	1.10	14.8	16.7	8.0	16.7	0.1333	3	4

Table D-1

Summary of the normal depth reach route hydraulic data for the existing condition 100-year, 6-hour storm

Routing Reach	Reach				Manning's Equation						Computed Using HEC-1 Summary Data					NSTEPS from HEC-1 Input File
			Average									Velocity Range in fps		Travel		
	Slope in ft/ft	Length in feet	n value	Q in cfs	Channel Base Width in feet	Flow Area in sf	Flow Top Width in feet	Flow Depth in feet	Froude Number	Average Velocity in fps	Wave Celerity in fps	Min.	Max.	Time in hrs	NSTEPS Computed	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
704705	0.019	7534	0.040	713	24.0	111.6	70.6	2.8	0.93	6.7	9.0	4.7	7.9	0.2333	7	7
705OAF	0.008	2254	0.045	689	156.4	299.9	417.4	1.1	0.52	2.5	3.8	1.9	3.5	0.1667	8	5
709710	0.026	2683	0.035	411	35.0	58.2	45.8	1.4	1.17	7.5	11.2	4.5	16.8	0.0667	2	2
711712	0.044	1586	0.035	181	35.0	31.9	46.7	0.8	1.35	6.3	13.2	4.0	19.9	0.0333	1	1
712714	0.017	2032	0.035	245	45.0	52.1	54.2	1.1	0.91	5.0	8.5	3.4	12.7	0.0667	2	2
713714	0.042	831	0.035	179	25.0	27.2	30.0	1.0	1.33	7.2	6.9	2.1	10.4	0.0333	1	1
716717	0.018	4232	0.035	618	30.0	101.2	78.8	1.9	1.00	6.4	8.8	4.2	8.8	0.1333	4	4
717718	0.011	7146	0.045	833	95.0	200.1	132.4	1.8	0.62	4.4	5.4	3.0	4.5	0.3667	11	11
721722	0.017	8812	0.035	252	35.0	50.6	47.3	1.2	0.91	5.4	8.2	4.4	6.9	0.3000	9	9
726727	0.019	6228	0.035	816	55.0	114.5	72.9	1.8	1.05	7.5	10.4	5.2	9.8	0.1667	5	5

Table D-2

Summary of the normal depth reach route hydraulic data for the existing condition 100-year, 24-hour storm

Routing Reach	Reach				Manning's Equation						Computed Using HEC-1 Summary Data					NSTEPS from HEC-1 Input File
	Slope in ft/ft	Length in feet	Average n value	Average Q in cfs	Channel Base Width in feet	Flow Area in sf	Flow Top Width in feet	Flow Depth in feet	Froude Number	Average Velocity in fps	Wave Celerity in fps	Velocity Range in fps Min.	Velocity Range in fps Max.	Travel Time in hrs	Travel NSTEPS Computed	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
100102	0.014	6535	0.045	500	12.3	84.5	65.4	2.9	0.96	6.2	6.8	3.6	5.8	0.2667	8	8
101102	0.014	7254	0.040	353	14.0	54.7	27.3	2.7	0.83	6.7	10.1	5.2	9.1	0.2000	6	6
102103	0.012	8068	0.047	1450	17.6	190.1	89.8	4.0	0.95	7.8	9.6	5.0	8.4	0.2333	7	7
103104	0.016	8625	0.053	2409	22.0	241.0	53.9	6.6	0.85	10.1	12.0	6.1	10.8	0.2000	6	6
104105	0.012	6956	0.053	2663	21.8	393.3	115.2	5.6	0.66	6.9	8.3	4.3	7.3	0.2333	7	7
200201	0.023	3952	0.030	1058	21.0	79.2	30.3	3.1	1.49	13.7	33.0	9.9	49.5	0.0333	1	1
201203	0.016	3233	0.048	1385	32.1	200.8	101.0	3.1	0.89	7.1	9.0	4.0	10.1	0.1000	3	3
202203	0.017	2353	0.030	158	32.1	31.6	38.3	1.1	1.06	5.5	9.8	3.9	14.7	0.0667	2	2
203204	0.015	1325	0.048	2582	32.1	305.1	105.4	4.1	0.90	8.7	0.0	0.0	0.0	0.0000	1	1
204205	0.014	5007	0.045	2879	29.8	310.8	106.4	5.0	0.97	9.4	13.9	6.2	15.7	0.1000	3	3
205206	0.006	11893	0.044	3899	33.4	511.4	131.1	6.7	0.69	7.7	9.9	5.4	8.3	0.3333	10	10
206207	0.031	4972	0.045	4397	35.4	290.4	87.2	4.7	1.49	15.5	20.7	8.3	31.2	0.0667	2	2
207105	0.017	7176	0.044	4607	29.5	284.8	47.9	7.4	1.18	16.3	29.9	11.9	45.0	0.0667	2	2
300301	0.014	5117	0.044	1417	37.0	175.1	47.4	4.2	0.76	8.3	14.2	6.4	16.0	0.1000	3	3
301302	0.009	8124	0.046	1748	27.0	239.9	123.5	4.9	0.94	7.4	7.5	4.1	6.4	0.3000	9	9
302303	0.019	7304	0.050	2030	40.8	209.6	64.8	4.4	0.97	9.9	15.2	7.3	15.3	0.1333	4	4
400401	0.010	7424	0.040	453	7.8	106.9	47.4	4.0	0.51	4.3	6.9	3.7	5.8	0.3000	9	9
401402	0.011	8029	0.043	799	22.2	144.5	71.6	3.4	0.71	5.7	6.1	3.3	5.0	0.3667	11	11
402403	0.005	6138	0.043	1096	8.7	281.2	128.5	5.1	0.48	4.0	5.1	2.8	4.3	0.3333	10	10
403404	0.016	4256	0.045	1357	12.4	185.4	73.7	4.4	0.83	7.5	11.8	5.3	13.3	0.1000	3	3
500501	0.013	5972	0.036	725	22.0	91.1	43.3	3.0	1.00	8.2	12.4	6.0	12.5	0.1333	4	4
501502	0.016	5021	0.035	1035	29.0	104.1	35.5	3.2	1.05	10.2	20.9	8.4	31.5	0.0667	2	2
502505	0.009	8775	0.040	1815	86.0	296.0	117.2	3.6	0.70	6.3	10.4	5.5	9.2	0.2333	7	7
503505	0.012	9136	0.047	88	3.4	33.4	18.0	3.4	0.36	2.7	5.1	2.8	4.1	0.5000	15	15
504505	0.013	7754	0.043	84	54.4	33.4	32.3	2.1	0.47	2.7	5.0	2.8	4.0	0.4333	13	13
505509	0.006	6213	0.047	2394	150.9	540.2	215.4	3.1	0.51	4.6	5.2	2.8	4.3	0.3333	10	10
506508	0.015	4023	0.045	87	10.3	25.9	19.5	2.7	0.54	3.5	5.6	2.9	5.0	0.2000	6	6
507508	0.011	5400	0.045	95	10.9	34.2	27.8	2.0	0.46	2.9	5.0	2.7	4.2	0.3000	9	9
508509	0.008	10349	0.041	478	14.8	104.6	53.5	3.9	0.59	4.7	5.4	3.0	4.3	0.5333	16	16
509510	0.010	1958	0.044	3153	26.3	538.7	300.2	5.0	0.79	6.0	5.4	2.4	6.1	0.1000	3	3
510511	0.007	6722	0.045	3417	14.4	624.3	358.8	7.3	0.75	5.6	5.1	2.8	4.2	0.3667	11	11
511512	0.008	9226	0.044	3700	19.5	618.8	210.7	6.7	0.63	6.1	7.7	4.2	6.4	0.3333	10	10
600601	0.033	3463	0.035	1791	20.0	162.2	74.1	4.2	1.36	11.4	14.4	5.8	21.7	0.0667	2	2
601602	0.027	6017	0.035	2669	90.0	237.2	105.2	2.4	1.36	11.6	16.7	7.5	18.9	0.1000	3	3
602603	0.017	7614	0.035	4665	257.0	552.8	267.0	2.1	1.07	8.7	9.1	4.7	8.0	0.2333	7	7
603604	0.019	7830	0.035	7211	275.0	718.0	288.2	2.6	1.15	10.3	13.0	6.5	12.3	0.1667	4	5
604605	0.007	1543	0.035	7795	85.0	820.6	160.0	6.7	0.75	9.6	12.9	3.8	19.3	0.0333	1	1
605606	0.020	5520	0.042	7900	33.0	690.5	296.7	5.1	1.36	11.7	15.3	6.9	17.3	0.1000	3	3
606608	0.018	1141	0.035	8528	87.0	642.0	165.3	5.1	1.21	13.5	0.0	0.0	0.0	0.0000	1	1
607608	0.024	11167	0.030	681	48.0	77.0	52.6	1.5	1.36	9.4	15.5	8.0	14.0	0.2000	6	6
608609	0.012	6518	0.035	9794	42.0	839.6	207.1	6.7	1.04	11.8	13.6	6.5	13.6	0.1333	4	4
609611	0.003	6519	0.035	10158	180.0	1428.7	264.4	6.4	0.55	7.2	10.9	5.4	10.2	0.1667	5	5
610611	0.010	7981	0.035	1014	9.0	136.6	25.6	7.9	0.57	7.5	13.3	6.6	12.5	0.1667	5	5
611613	0.038	4445	0.035	11024	88.0	554.3	138.2	4.9	1.78	20.3	37.1	11.1	55.7	0.0333	1	1
612613	0.033	8752	0.035	1024	70.0	110.9	73.1	1.6	1.38	9.7	14.6	7.3	13.7	0.1667	5	5
613614	0.011	5557	0.035	11707	80.0	852.2	125.8	8.3	0.94	13.9	23.1	9.2	34.8	0.0667	2	2
614615	0.014	7995	0.035	11667	45.0	769.4	130.9	8.8	1.12	15.3	22.2	10.0	25.0	0.1000	4	3

Table D-2
Summary of the normal depth reach route hydraulic data for the existing condition 100-year, 24-hour storm

Routing Reach	Reach				Manning's Equation						Computed Using HEC-1 Summary Data					
			Average									Velocity Range in fps		Travel		
	Slope in ft/ft	Length in feet	n value	Q in cfs	Channel Base Width in feet	Flow Area in sf	Flow Top Width in feet	Flow Depth in feet	Froude Number	Average Velocity in fps	Wave Celerity in fps	Min.	Max.	Time in hrs	NSTEPS Computed	NSTEPS from HEC-1 Input File
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
704705	0.019	7534	0.041	455	24.0	80.4	60.2	2.4	0.90	5.9	9.0	4.7	7.9	0.2333	7	7
705OAF	0.008	2254	0.045	622	156.4	283.4	407.8	1.1	0.51	2.4	3.1	1.6	2.8	0.2000	8	6
709710	0.026	2683	0.035	362	35.0	53.6	45.1	1.3	1.15	7.1	7.5	3.3	8.4	0.1000	3	3
711712	0.044	1586	0.035	156	35.0	29.1	45.8	0.7	1.33	6.0	6.6	2.6	9.9	0.0667	1	2
712714	0.017	2032	0.035	206	45.0	47.2	53.4	1.0	0.89	4.8	8.5	3.4	12.7	0.0667	3	2
713714	0.042	831	0.035	131	25.0	22.5	29.2	0.8	1.28	6.4	6.9	2.1	10.4	0.0333	1	1
716717	0.018	4232	0.035	572	30.0	95.8	77.0	1.8	0.99	6.3	8.8	4.2	8.8	0.1333	4	4
717718	0.011	7146	0.045	705	95.0	180.5	129.2	1.6	0.61	4.1	5.4	3.0	4.5	0.3667	11	11
721722	0.017	8812	0.035	213	35.0	45.5	46.2	1.1	0.90	5.0	8.2	4.4	6.9	0.3000	9	9
726727	0.019	6228	0.035	469	55.0	81.3	68.2	1.3	0.99	6.2	10.4	5.2	9.8	0.1667	5	5

HEC-1 CHECK

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* 100102 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
4118. TO 4667.
* 202203 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
1910. TO 3727.
* 203204 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
12770. TO 15813.
* S207 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 400401 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
5005. TO 193231.
* S401 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 401402 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
15863. TO 919917.
* 402403 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
6881. TO 511412.
* 403404 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
64483. TO 432672.
* 502505 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
23083. TO 182576.
* 503505 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
1027. TO 98338.
* 504505 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
1520. TO 164318.
* 505509 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
45849. TO 572689.
* 506508 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* 507508 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
2108. TO 30487.
* 508509 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
19698. TO 177453.
* 509510 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
7901. TO 268850.
* 510511 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
34833. TO 364677.
* 511512 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
41187. TO 572482.
* 600601 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
6356. TO 389265.
* 601602 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
13467. TO 237658.
* S602 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 602603 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
6742. TO 1117119.
* S605 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* S604 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 603604 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
48313. TO 371758.
* 604605 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
34078. TO 2539363.
* 605606 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
53627. TO 119567.
* 606608 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
10208. TO 1030445.
* S611 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 608609 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
36748. TO 191252.
* 609611 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
165877. TO 268954.
* 610611 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
9328. TO 138214.
* 611613 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
18341. TO 1534125.
* 612613 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
8763. TO 26670.
* 613614 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
34955. TO 1622281.
* 614615 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
121520. TO 861110.
* 704705 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
3765. TO 15743.
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* 705OAF *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
2296. TO 17960.
* C709O *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
600. TO 5653.
* 709710 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
2602. TO 29912.
* C710O *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
600. TO 4517.
* C711O *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
480. TO 33329.
* 711712 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
4065. TO 57371.
* C712O *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
540. TO 810.
* 712714 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
2682. TO 35234.
* C713O *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
420. TO 6028.
* 713714 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
335. TO 37009.
* 716717 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
4411. TO 47347.
* 717718 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
4867. TO 233540.
* 721722 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
2789. TO 53584.
* S722 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* S726 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
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4581. TO 33289.
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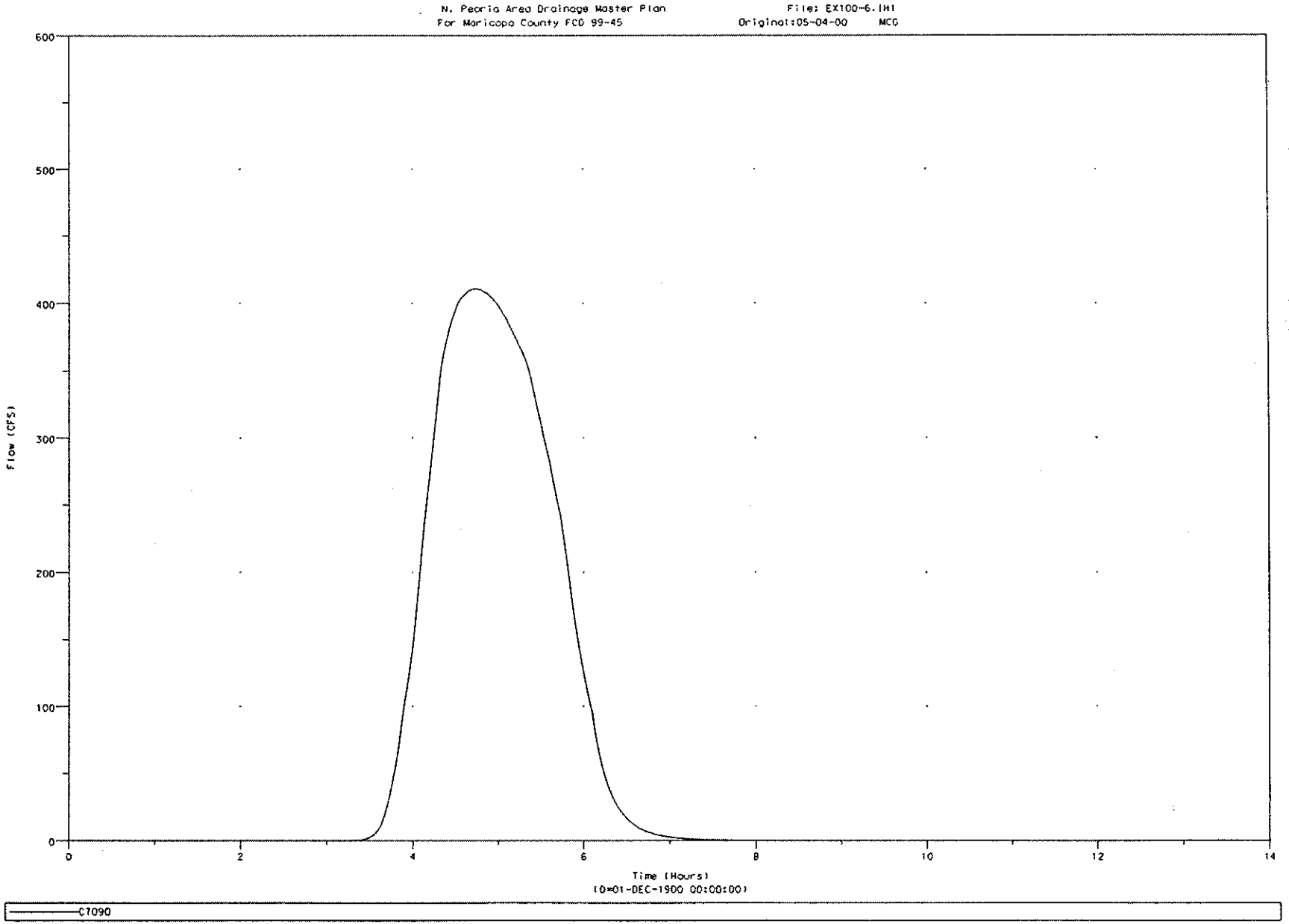

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For Maricopa County FCD 99-45

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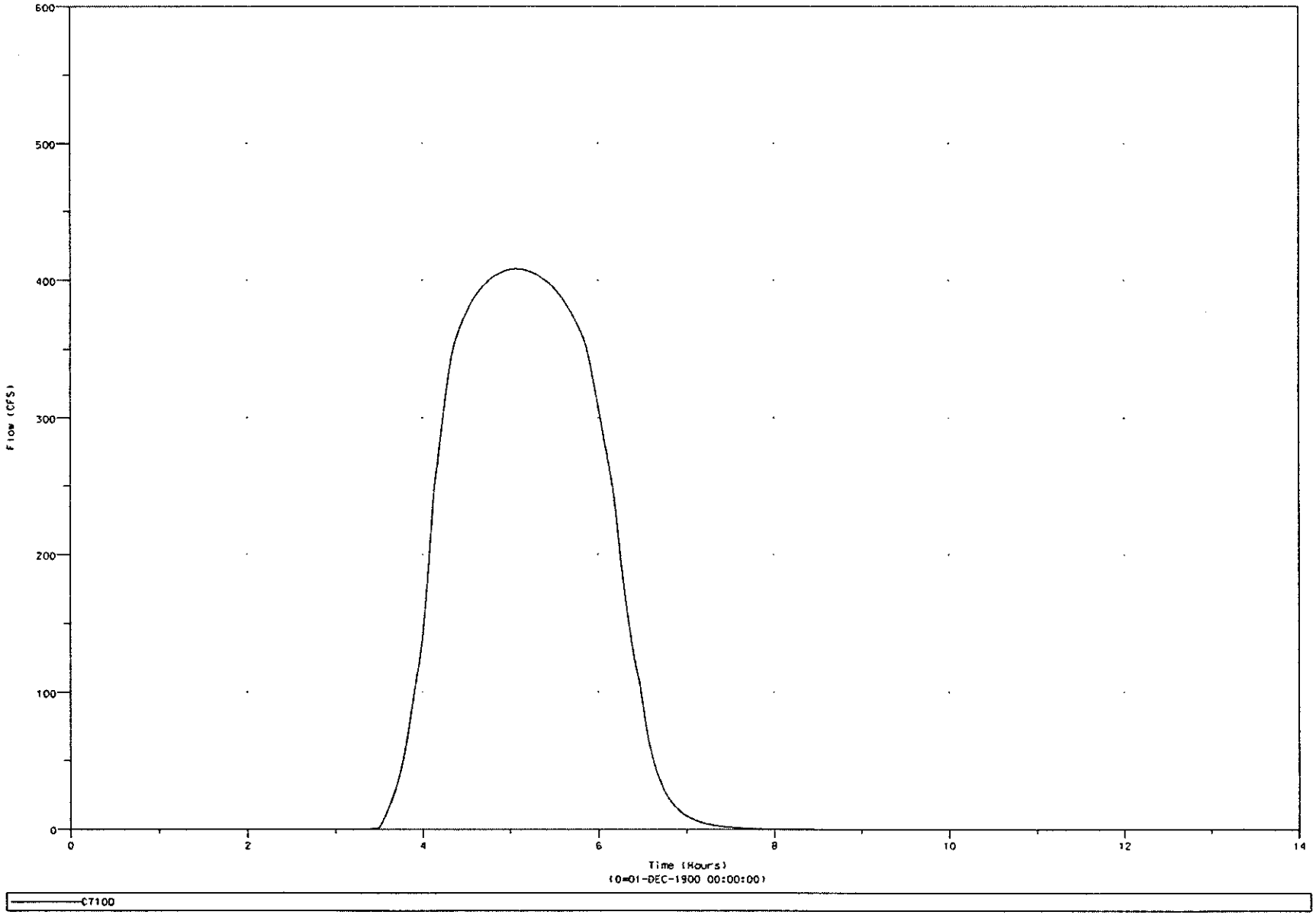

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For Maricopa County FCD 99-45

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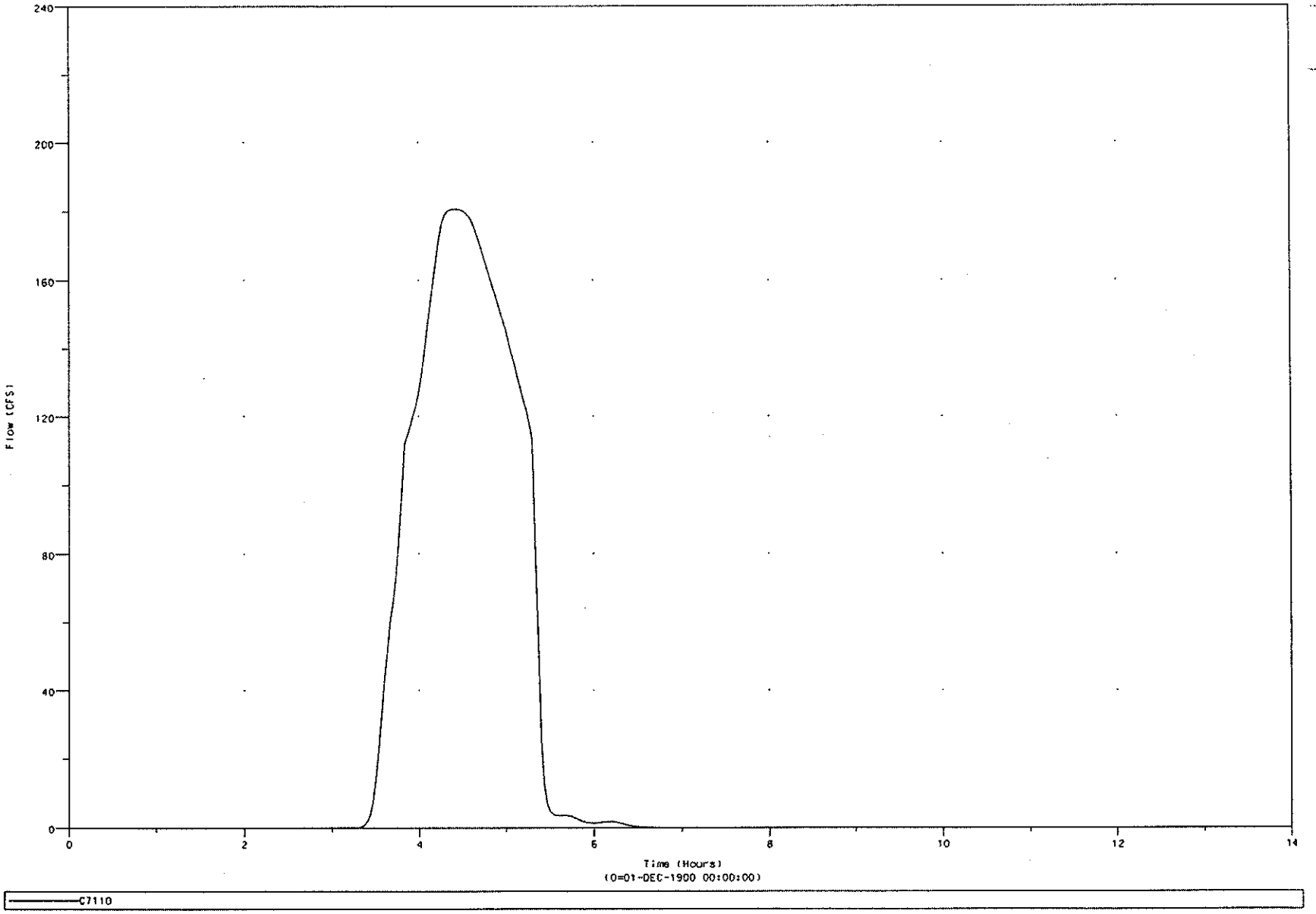

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For Maricopa County FCD 99-45

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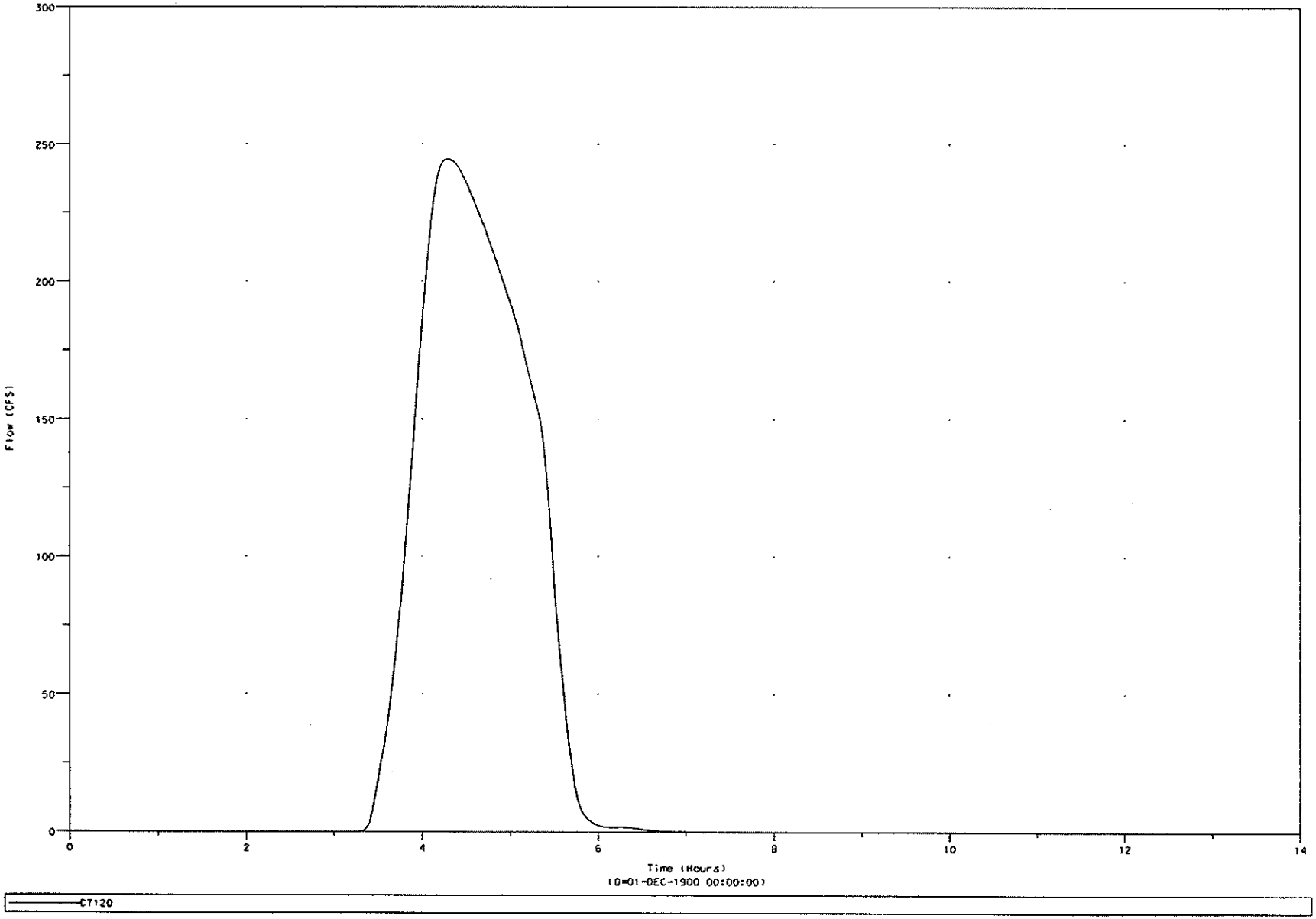

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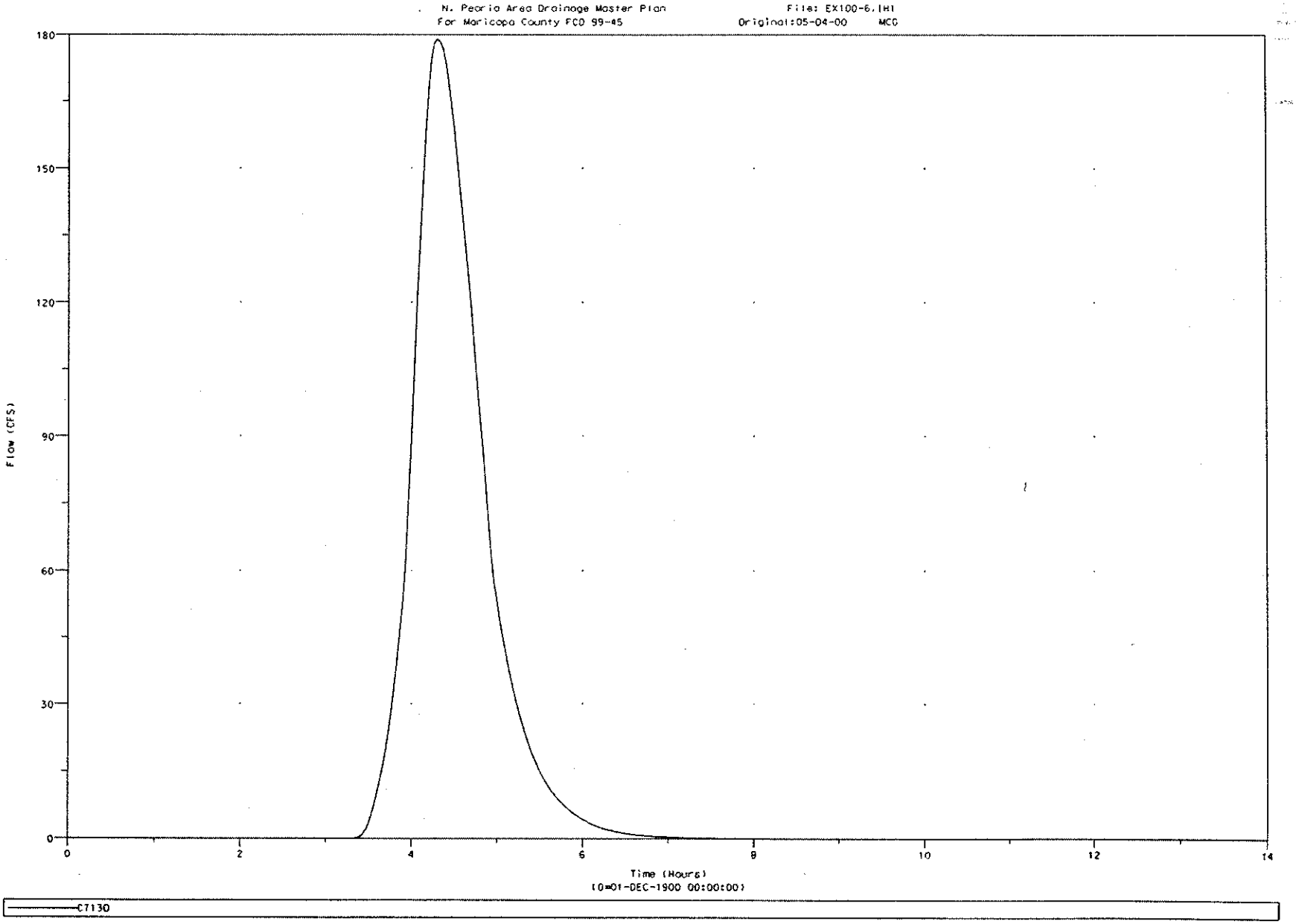

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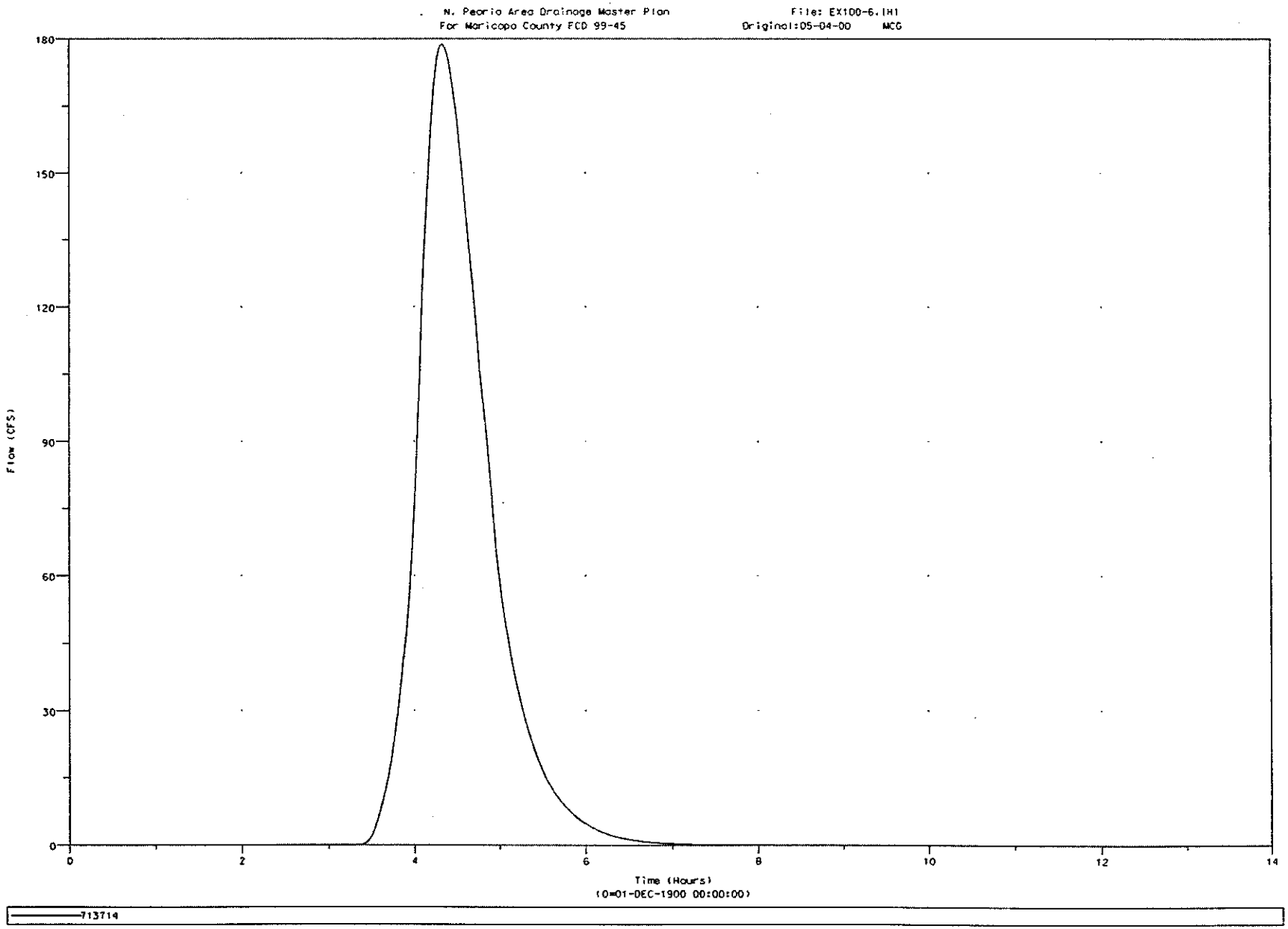

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* 203204 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
12770. TO 15813.
* S208 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 400401 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
5005. TO 193231.
* 401402 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
15863. TO 919917.
* S402 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 402403 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
13450. TO 511412.
* 403404 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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8775. TO 177453.
* 509510 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
7901. TO 268850.
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* 600601 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
6356. TO 389265.
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13467. TO 237658.
* 602603 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
6742. TO 1117119.
* 603604 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
48313. TO 371758.
* 604605 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
34078. TO 2539363.
* 605606 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
53627. TO 119567.
* 606608 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
10208. TO 1030445.
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36748. TO 191252.
* 609611 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* 611613 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* 612613 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
4731. TO 26670.
* 613614 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* 614615 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
38126. TO 861110.
* 704705 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
3765. TO 15743.
* 705OAF *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
2296. TO 17960.
* C709O *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
600. TO 5653.
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* 709710 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
752. TO 29912.
* C7100 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
600. TO 4517.
* C7110 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
480. TO 33329.
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* C7120 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
540. TO 810.
* 712714 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* C7130 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
420. TO 6028.
* 713714 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
335. TO 37009.
* S714 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 716717 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
4411. TO 47347.
* 717718 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* S719 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* S721 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 721722 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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* S722 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
 WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO   WARNING EXCESS AT
PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* S725 *   WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
* 726727 *   *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN
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N. Peoria Area Drainage Master Plan
For Maricopa County FCD 99-45

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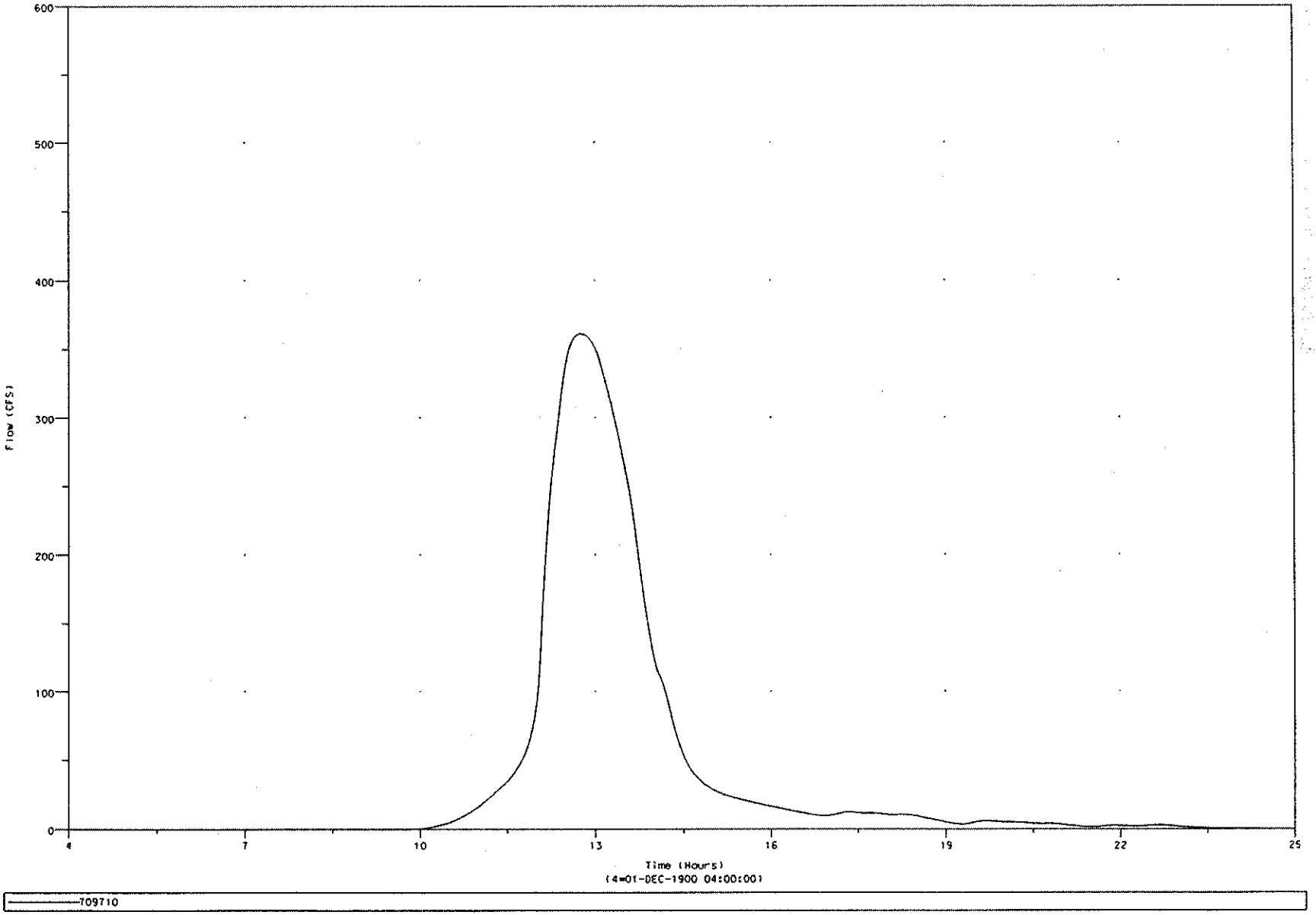

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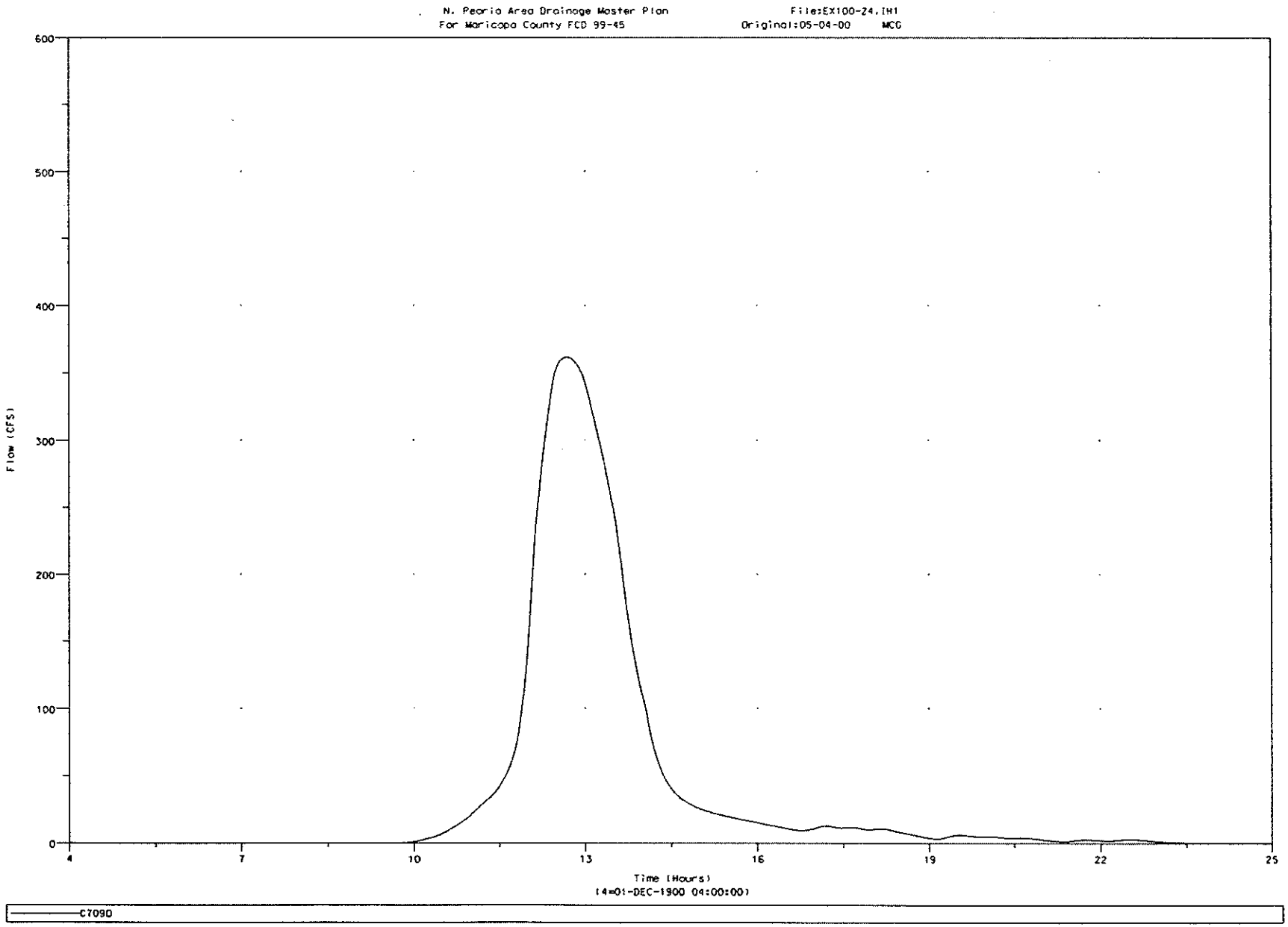

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N. Peoria Area Drainage Master Plan
For Maricopa County FCD 99-45

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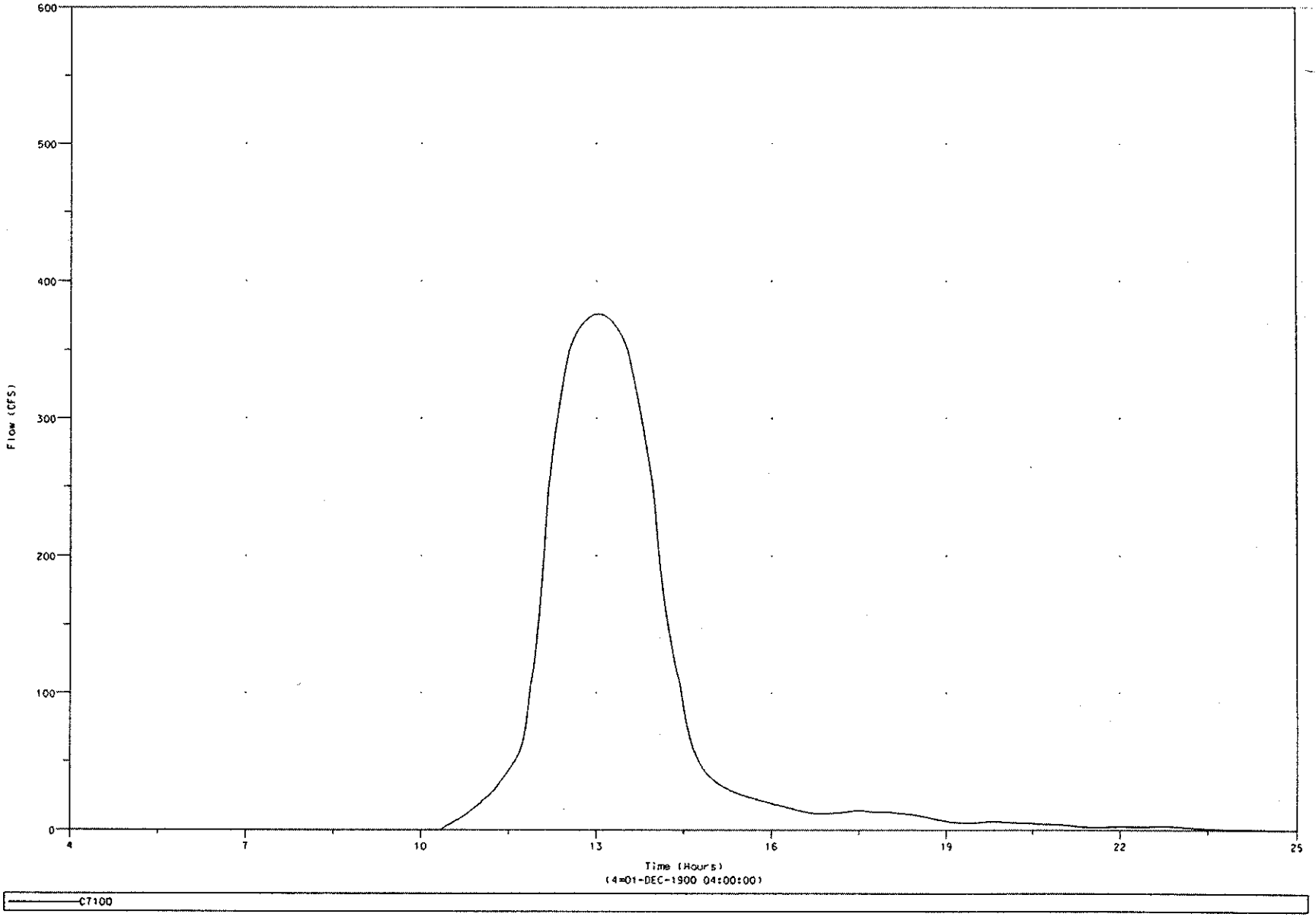

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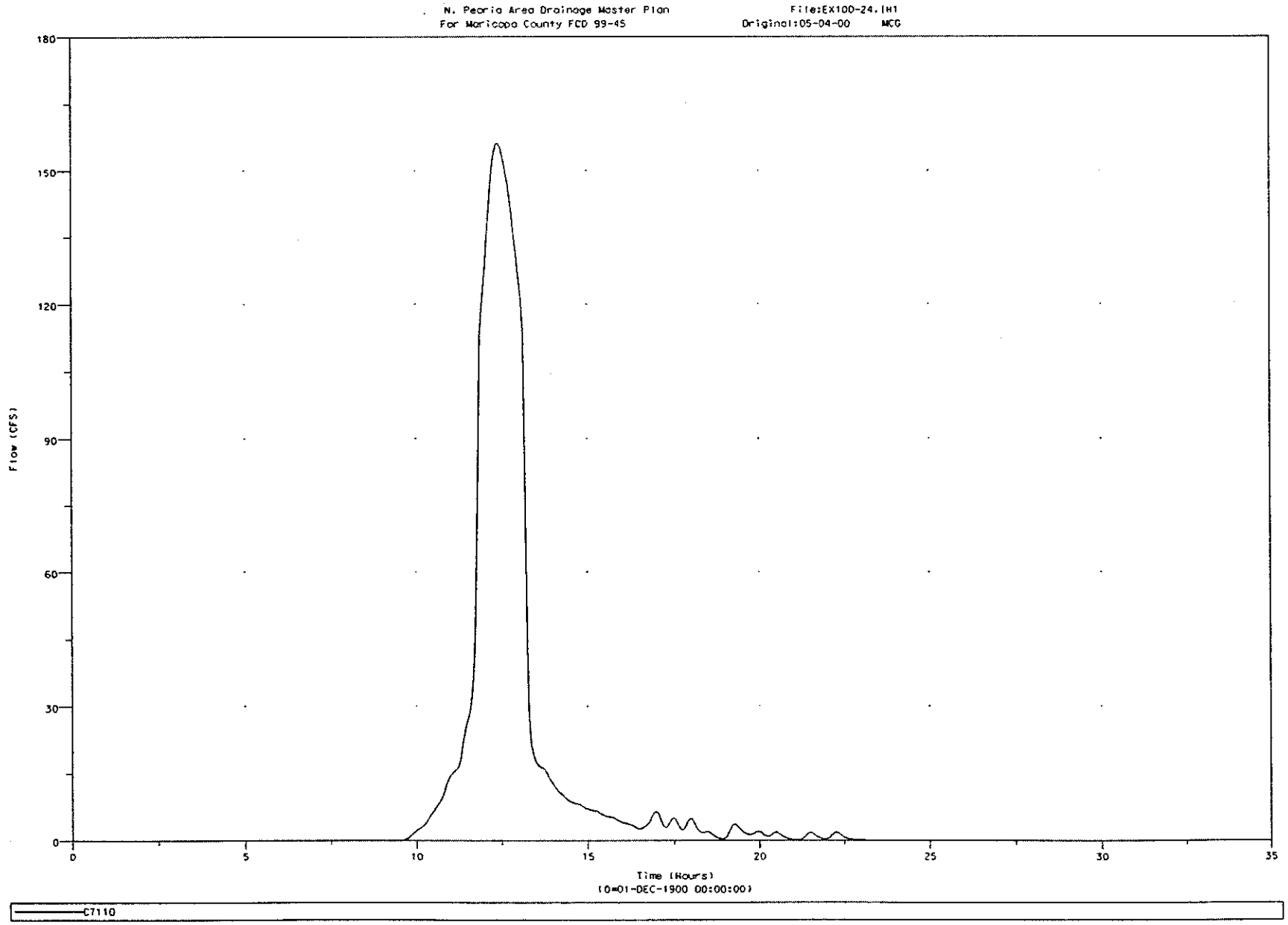

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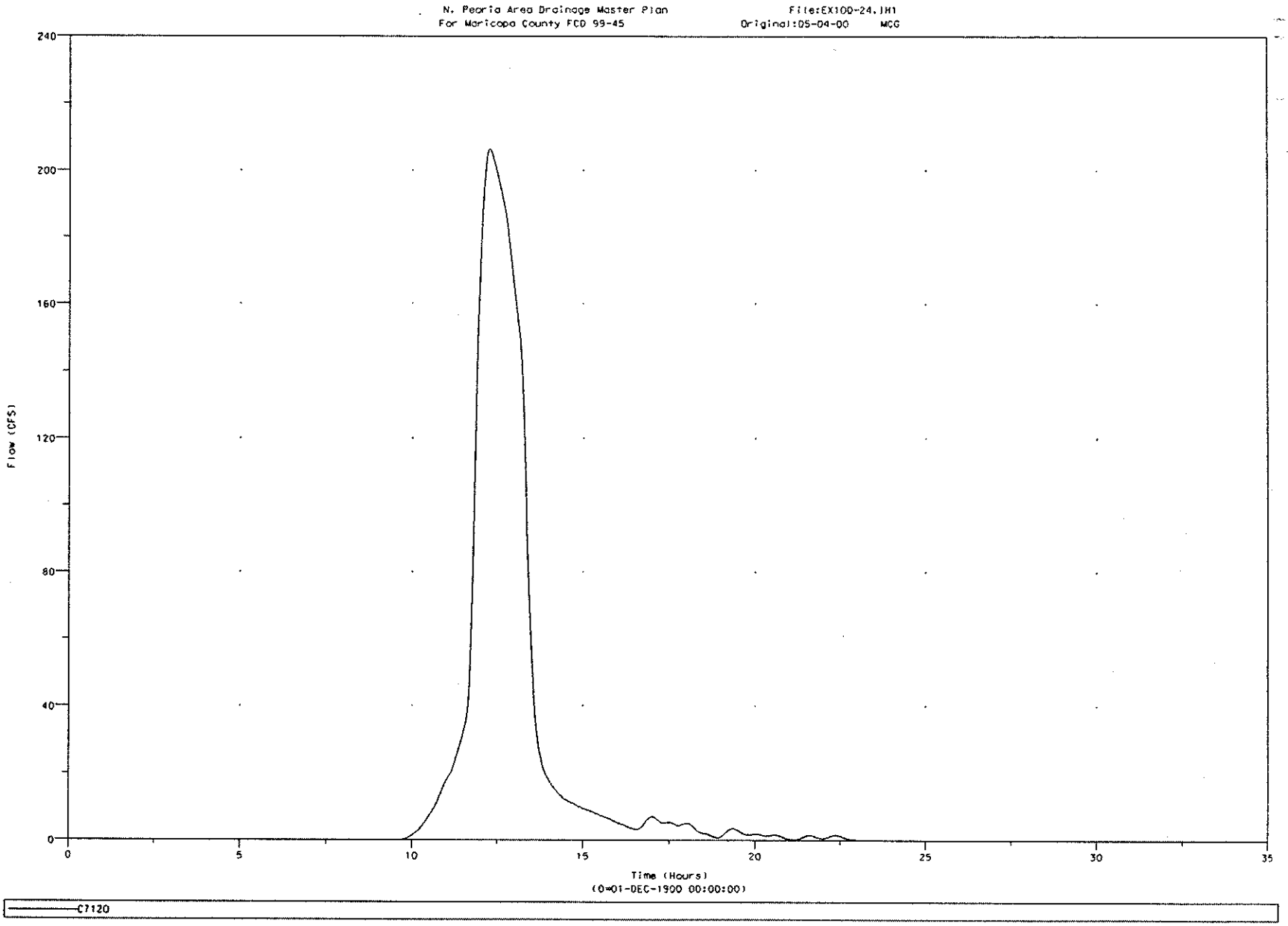

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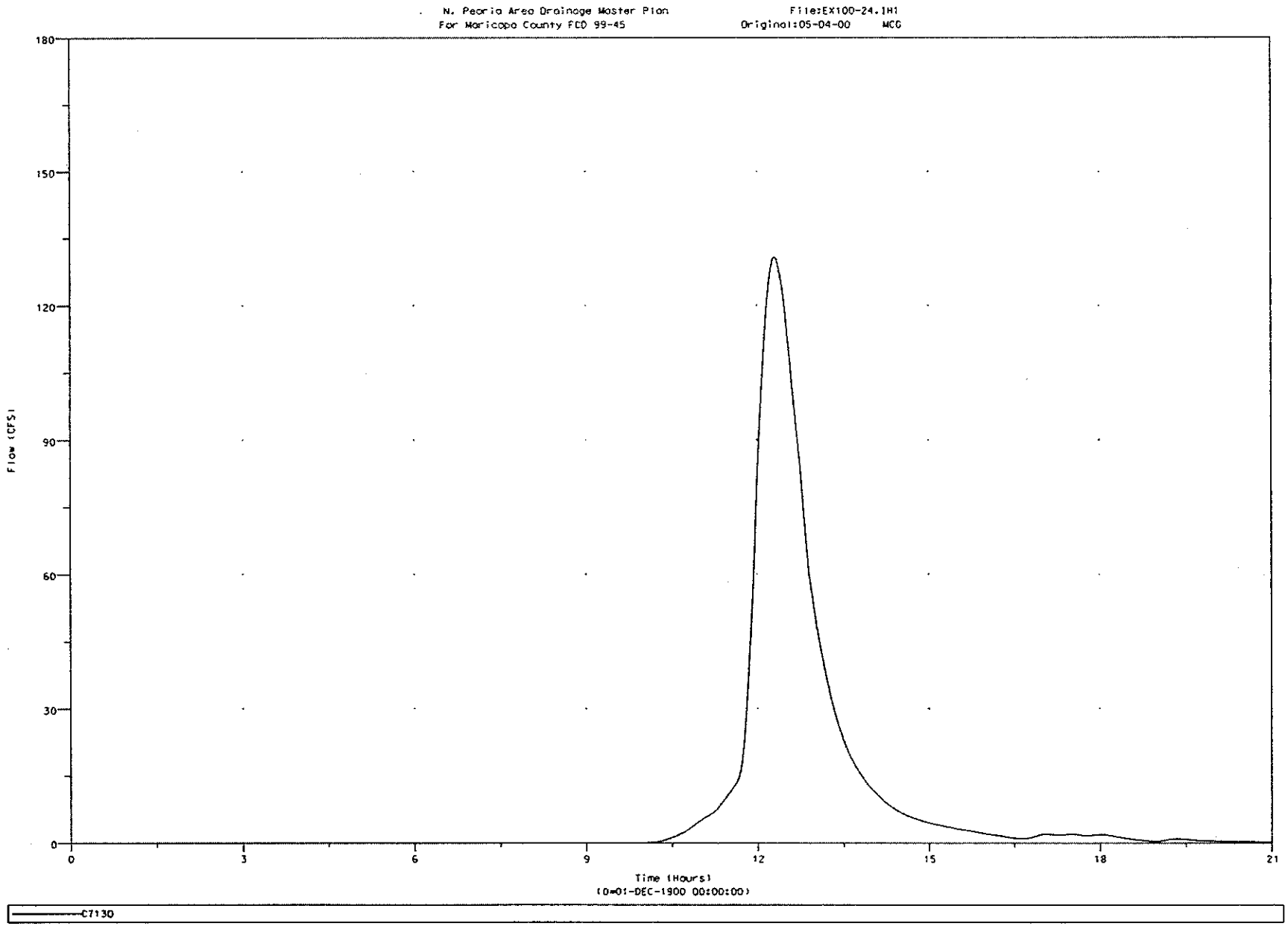
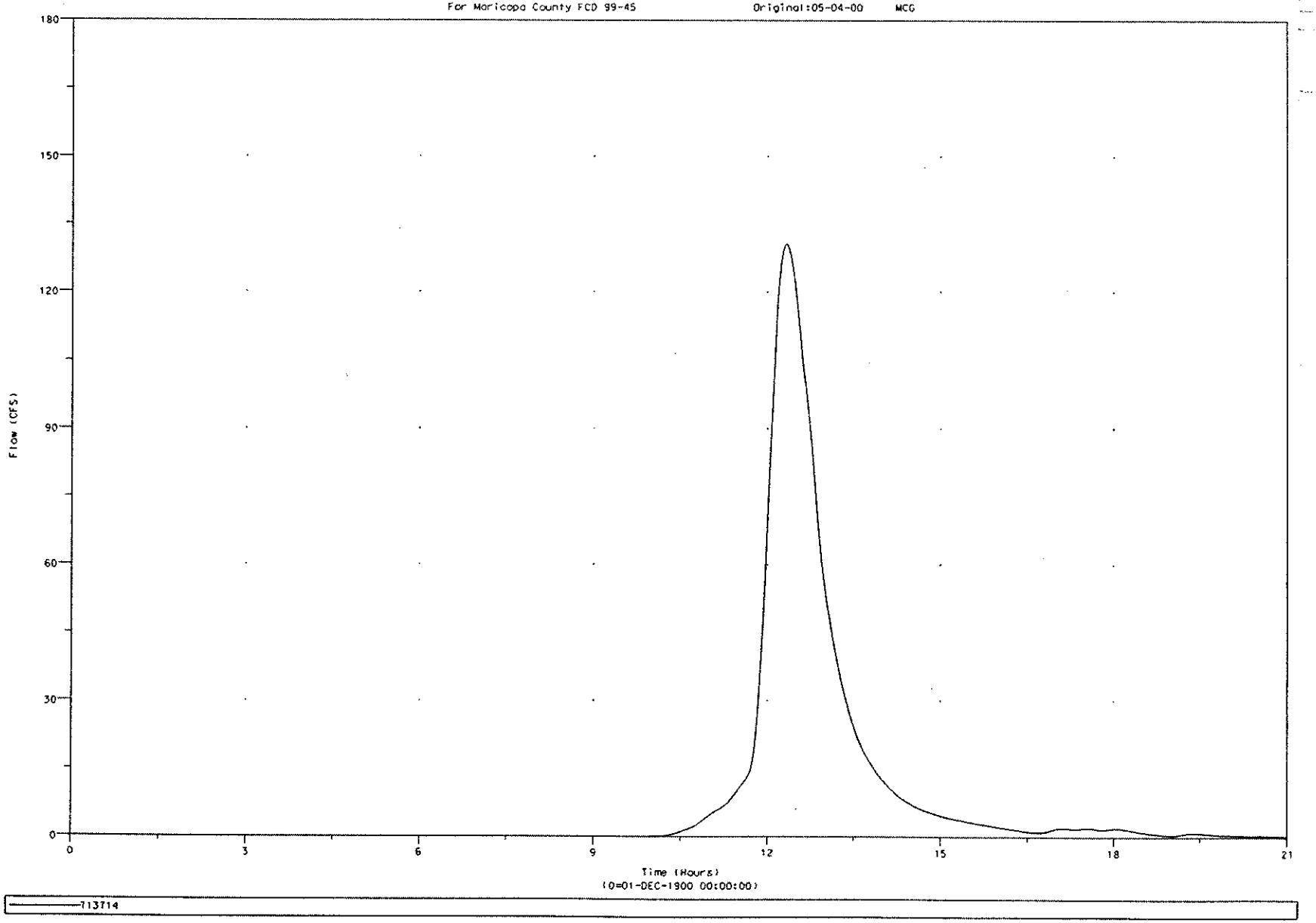


...\Hydrographs\c713o-24.dgn Feb. 05, 2001 09:57:57

N. Peoria Area Drainage Master Plan
For Maricopa County FCD 99-45

File:EX100-24.IH1
Original:05-04-00 MCG



...\Hydrographs\71371424.dgn Feb. 05, 2001 10:00:07

Data Summary Descriptions for Tables D-4 and D-5

Column 1: Reach name consisting of top and bottom concentration point numbers.

Column 2: Average slope of reach, in ft/ft.

Column 3: Length of the reach, in feet.

Column 4: Average Manning's n value for the reach cross section. Weighting for averaging calculations are based on the horizontal width of the left and right overbanks and channel.

Column 5: Average discharge for the reach, in cfs. Value is a numeric average of the peak discharge entering(pre-route) and exiting(post-route) discharges reported by HEC-1.

Column 6: Channel base width, in feet.

Column 7: Average cross sectional flow area for the reach, in square feet. Flow area is calculated using Manning's equation, the channel slope in column 2, the average discharge from column 5, and the average n value for the left and right overbanks and channel.

Column 8: Flow top width, in feet. Calculated using the cross section geometry and flow depth from column 9.

Column 9: Flow depth, in feet. Calculated using Manning's equation, the channel slope in column 2, the average discharge from column 5, and the average n value for the left and right overbanks and channel.

Column 10: Froude number, calculated as follows:

$$[10] = [11] / (32.2 * [7] / [8])^{0.5}$$

Column 11: Average velocity, in fps. Calculated by dividing column 5 by column 7. This value is compared to the velocity ranges calculated in columns 13 and 14, to check reasonableness of routing operational timing.

Column 12: Wave celerity, in fps. Calculated by dividing the column 3 by column 15 and converting the units appropriately. This wave celerity is considered to be accurate within plus or minus one HEC-1 computational time step.

Column 13: Minimum check velocity, in fps. This value is calculated using the reach length, HEC-1 calculated travel time, HEC-1 computational time step and a factor relating maximum wave celerity to average velocity. The formula is as follows:

$$[13] = [3] / ([15] + NMIN)(3600)(1.67))$$

where: NMIN is the HEC-1 computational time step;

3600 is the conversion factor from hours to seconds; and

1.67 is the factor relating maximum wave celerity to average velocity.

NOTE: If the HEC-1 travel time from column 15 is zero, the minimum average velocity is set to zero.

Column 14: Maximum check velocity, in fps. This value is calculated using the reach length, HEC-1 calculated travel time, HEC-1 computational time step and a factor relating minimum wave celerity to average velocity.

$$[14] = [3] / ([15] - NMIN)(3600)(1.33))$$

where: NMIN is the HEC-1 computational time step;

3600 is the conversion factor from hours to seconds; and

1.33 is the factor relating minimum wave celerity to average velocity.

NOTE: If the HEC-1 travel time from column 15 is zero, the maximum average velocity is set to zero. If the HEC-1 travel time is equal to the HEC-1 computational time step, one-half NMIN is used.

Column 15: Travel time through the reach, in hours. Calculated by subtracting the time to peak reported by HEC-1 at the end of the routing from the time to peak reported by HEC-1 at the beginning of the routing.

Column 16: Value of NSTEPS from the HEC-1 output file is calculated as follows:

$$[16] = [15] / NMIN$$

If the HEC-1 travel time from column 15 is zero, NSTEPS is set to one.

Column 17: NSTEPS value coded in RS record of the HEC-1 input model.

APPENDIX E: STORAGE ROUTING PARAMETERS

Table E-1
Total rating curve for C400O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1508.00	0.00	1508.00	0.00
1511.00	62.00	1516.00	5.20
1514.00	200.00	1520.00	18.60
1520.00	400.00	1524.00	40.70
1526.00	540.00	1528.00	71.70
1532.00	625.00	1532.00	115.50
1540.00	**750.00**	**1536.00**	**178.10**
		1540.00	**266.30**

Note: The crest elevation of the C.A.P. Canal is 1535.5.
Data taken directly from the CAP Overchute study, "EACAP".

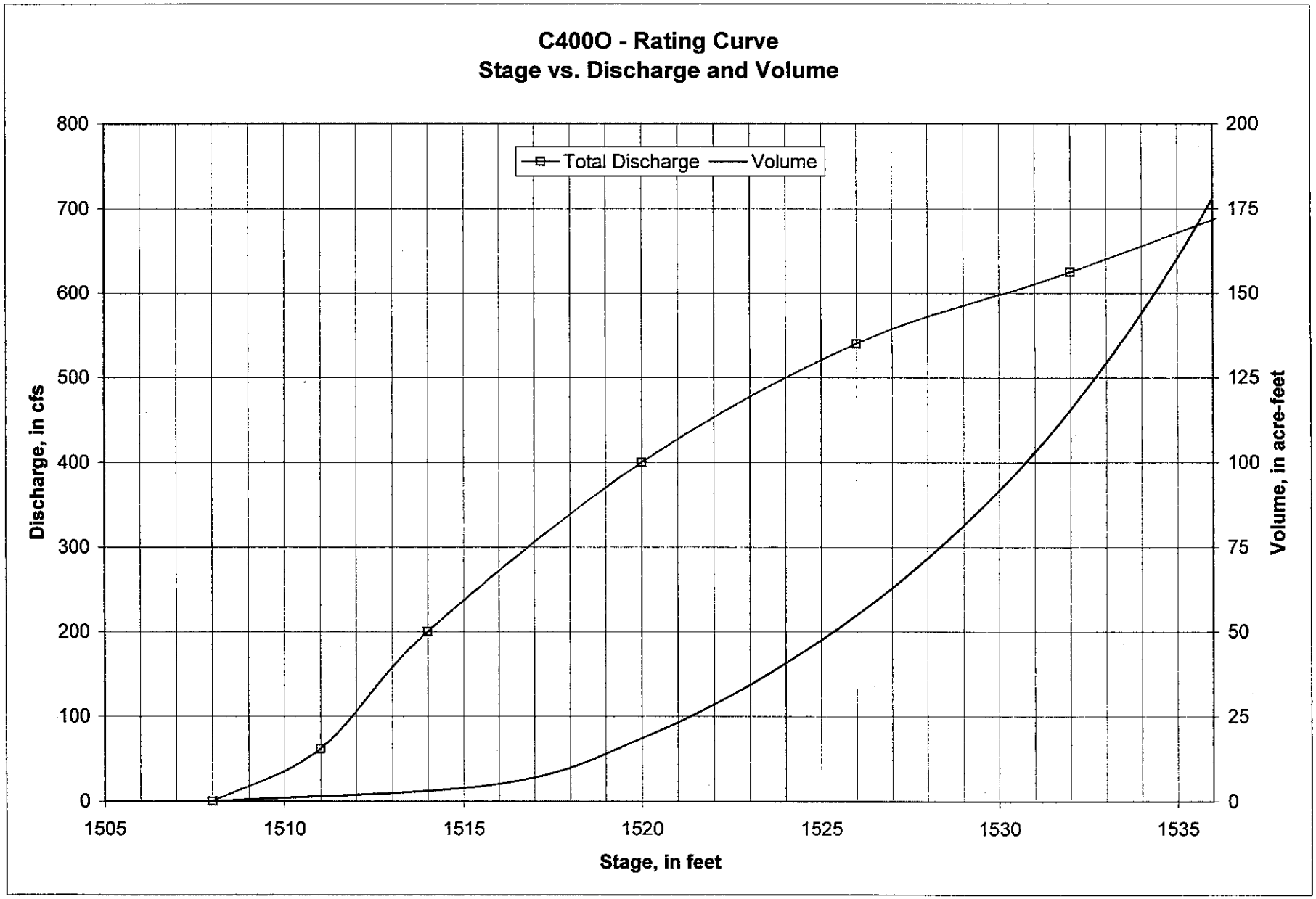

C400O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
100
200
300
400
500
600
700
800
0
25
50
75
100
125
150
175
200
1505
1510
1515
1520
1525
1530
1535

Table E-2
Total rating curve for C502O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1500.00	0.00	1500.00	0.00
1503.00	248.00	1508.00	2.37
1506.00	800.00	1512.00	9.23
1512.00	1600.00	1516.00	20.95
1518.00	2160.00	1520.00	37.67
1524.00	2500.00	1528.00	122.58
1530.00	2900.00	1532.00	212.70
1536.00	3200.00	**1540.00**	**516.24**

Note: The crest elevation of the C.A.P. Canal is 1536.1.
Data taken directly from the CAP Overchute study, "CCAP".

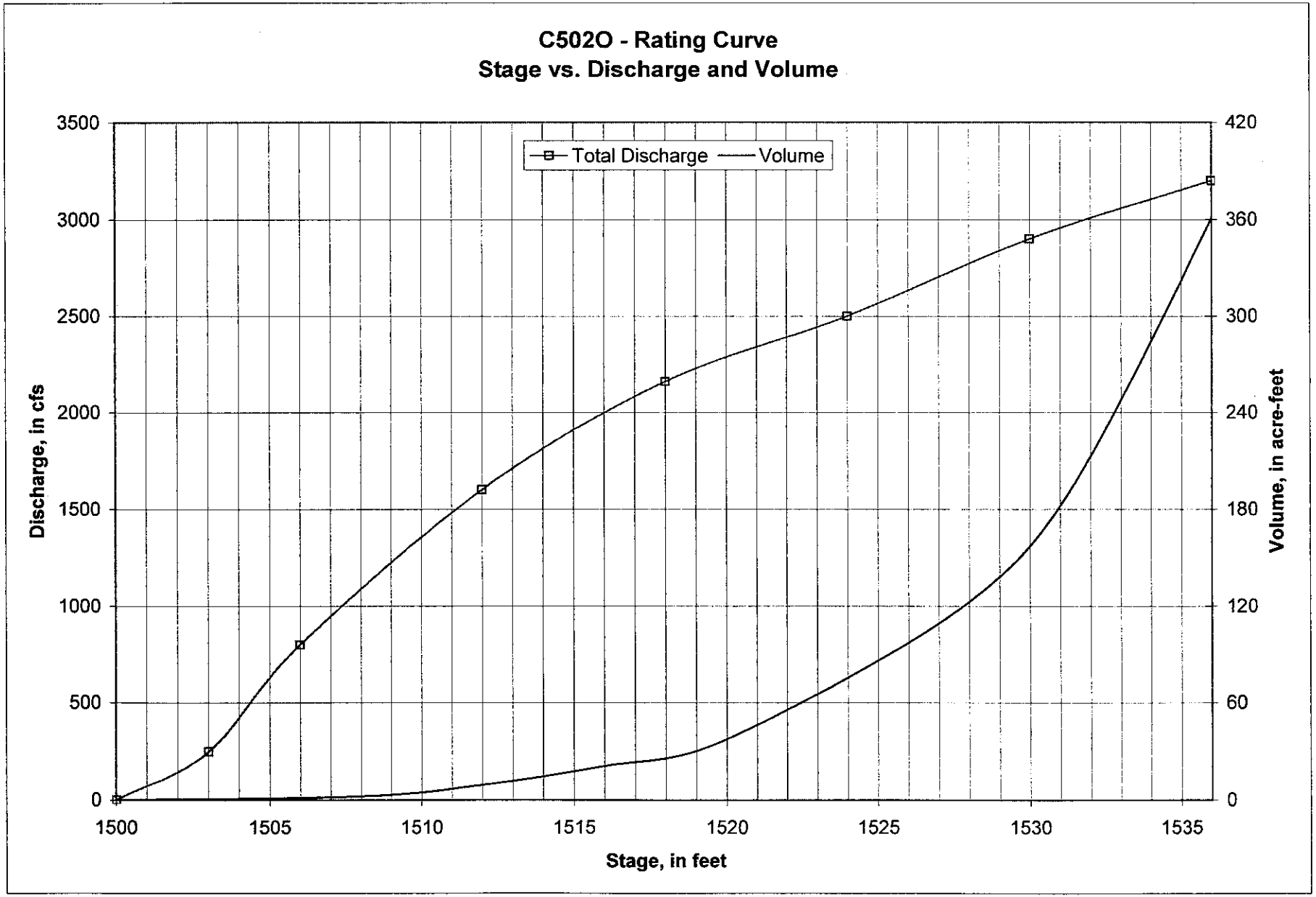

C502O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
500
1000
1500
2000
2500
3000
3500
0
60
120
180
240
300
360
420
1500
1505
1510
1515
1520
1525
1530
1535

Table E-3
Total rating curve for C503O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1519.00	0.00	1519.00	0.00
1520.25	7.50	1528.00	0.61
1521.50	22.00	1532.00	2.78
1524.00	45.00	**1536.00**	**8.03**
1529.00	71.00	**1540.00**	**18.24**
1534.00	93.00		
1540.00	**110.00**		

Note: The crest elevation of the C.A.P. Canal is 1535.7.
Data taken directly from the CAP Overchute study, "PCAP".

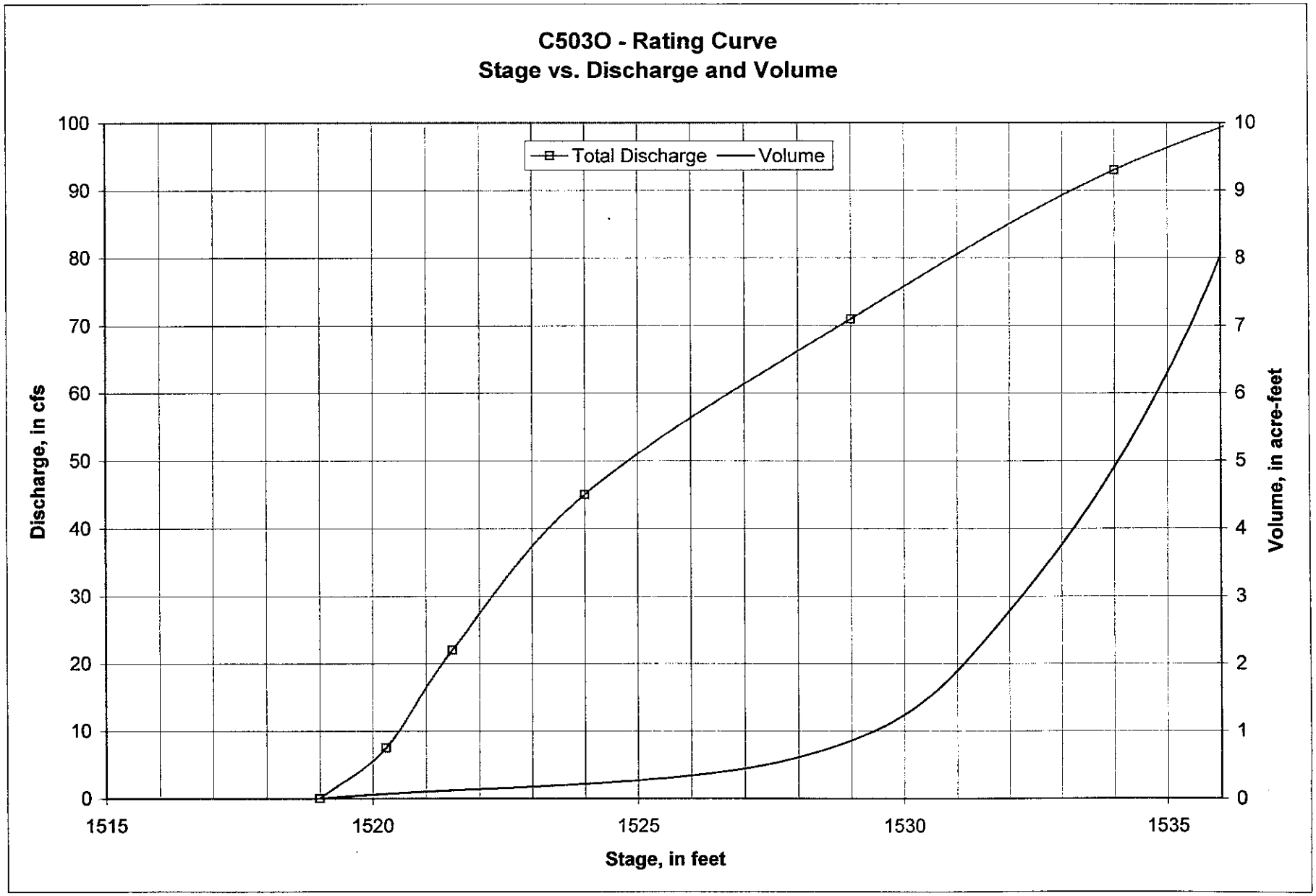

C503O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
1515
1520
1525
1530
1535

Table E-4
Total rating curve for C504O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1513.90	0.00	1513.90	0.00
1515.20	7.50	1517.80	0.10
1516.40	22.00	1520.00	0.18
1520.20	52.00	1524.00	1.89
1524.20	72.00	1528.00	5.34
1528.20	90.00	1532.00	11.99
1532.20	103.00	**1536.00**	**24.05**
1540.00	**115.00**	**1540.00**	**43.40**

Note: The crest elevation of the C.A.P. Canal is 1535.6.
Data taken directly from the CAP Overchute study, "QCAP".

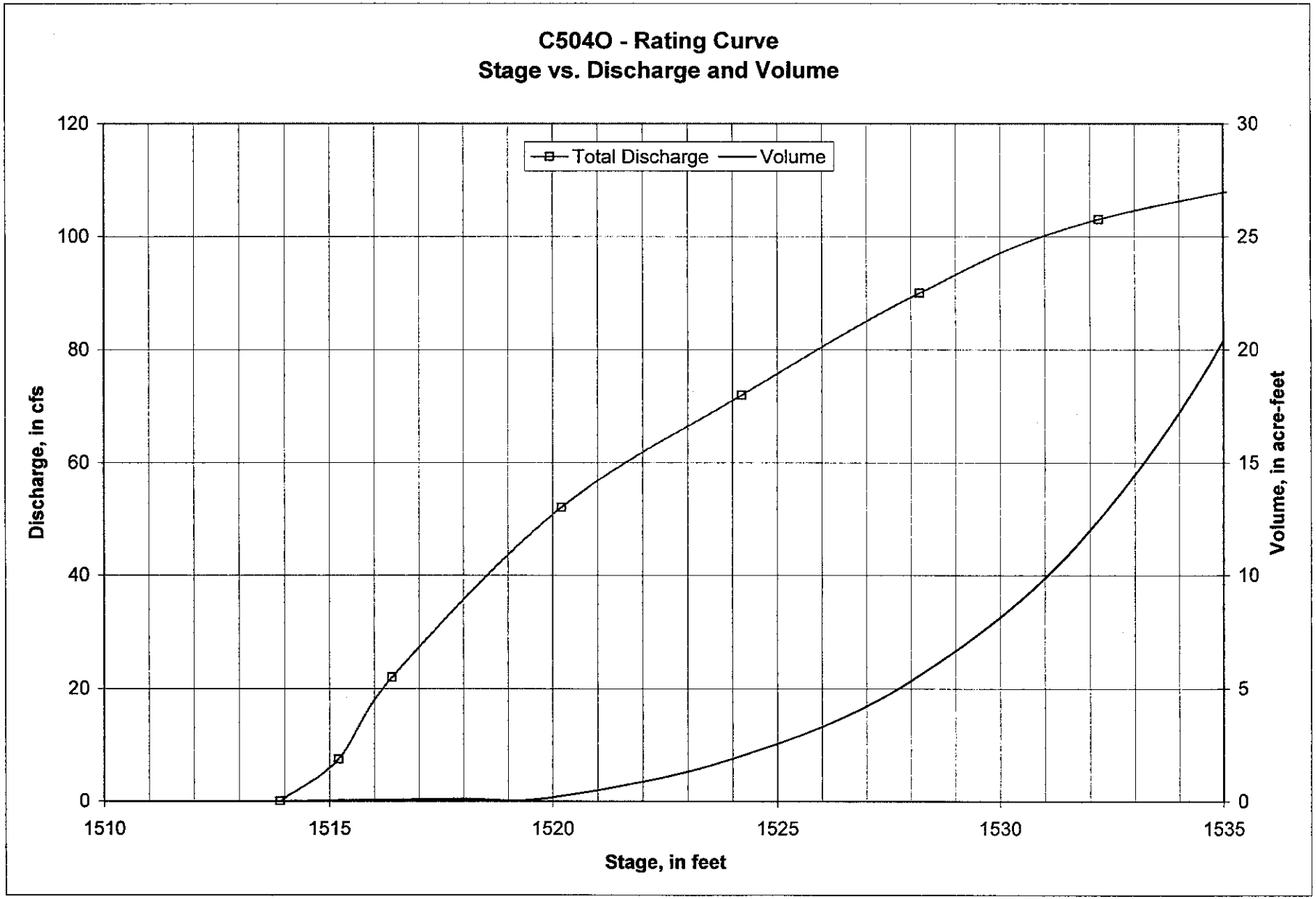

C504O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
20
40
60
80
100
120
0
5
10
15
20
25
30
1510
1515
1520
1525
1530
1535

Table E-5
Total rating curve for C506O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1519.00	0.00	1519.00	0.00
1520.25	7.50	1528.00	0.77
1521.50	22.00	1532.00	4.36
1524.00	45.00	1536.00	15.19
1529.00	71.00	**1540.00**	**35.89**
1534.00	93.00		
1540.00	**110.00**		

Note: The crest elevation of the C.A.P. Canal is 1536.3.
Data taken directly from the CAP Overchute study, "GCAP".

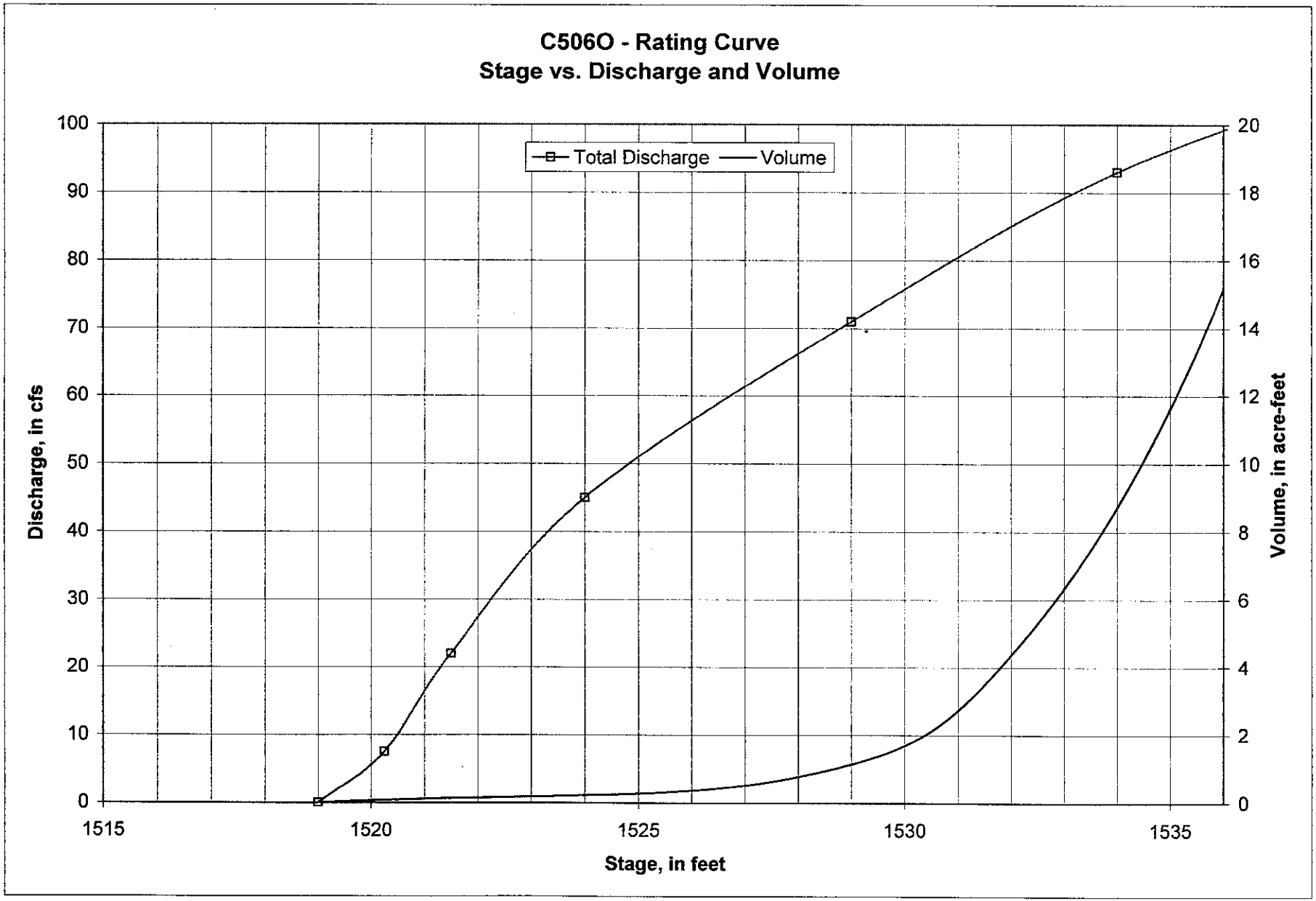

C506O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
10
20
30
40
50
60
70
80
90
100
0
2
4
6
8
10
12
14
16
18
20
1515
1520
1525
1530
1535

Table E-6
Total rating curve for C507O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1516.00	0.00	1520.00	0.00
1517.25	7.50	1524.00	0.78
1518.50	22.00	1528.00	4.47
1521.00	45.00	1532.00	19.99
1526.00	71.00	1536.00	60.85
1531.00	93.00	**1540.00**	**133.63**
1536.00	108.00		
1540.00	**115.00**		

Note: The crest elevation of the C.A.P. Canal is 1536.1.
Data taken directly from the CAP Overchute study, "FCAP".

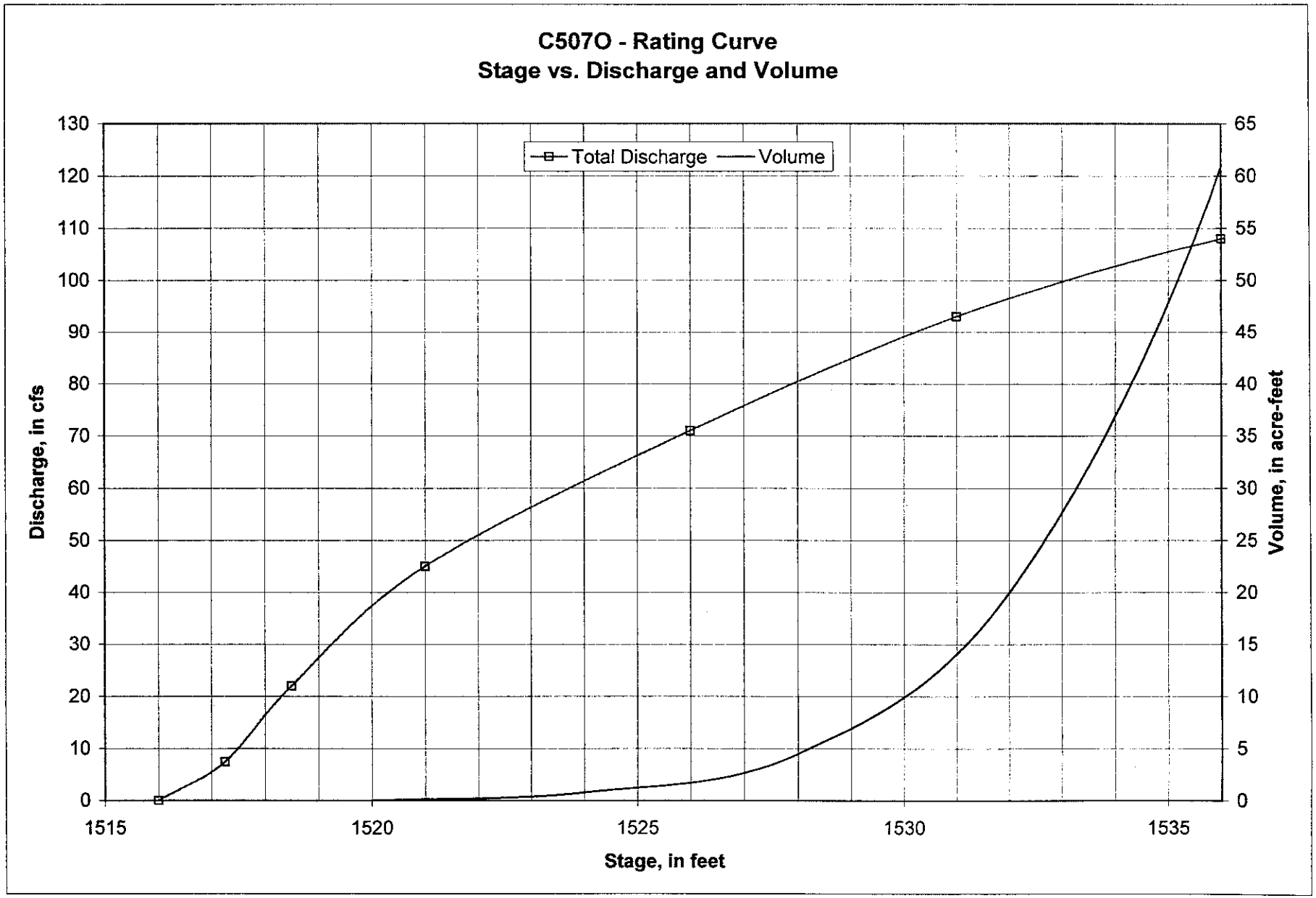
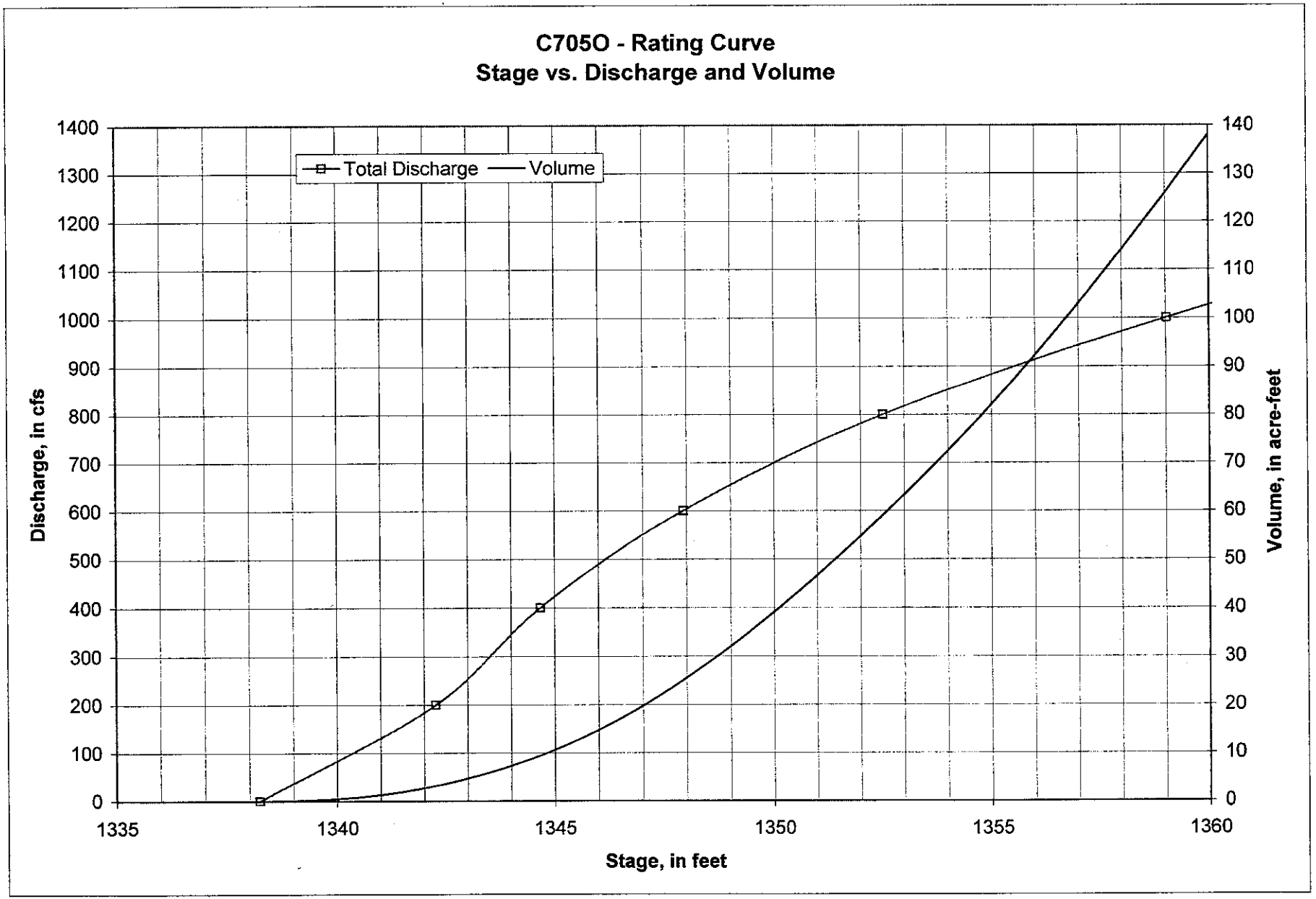

C507O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
130
120
110
100
90
80
70
60
50
40
30
20
10
0
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1515
1520
1525
1530
1535

Table E-7
Total rating curve for C705O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1338.24	0.00	1338.24	0.00
1342.26	200.00	1339.00	0.08
1344.68	400.00	1340.00	0.46
1347.93	600.00	1341.00	1.29
1352.52	**800.00**	1342.00	2.71
1359.03	**1000.00**	1343.00	4.72
1367.08	**1200.00**	1344.00	7.32
1376.59	**1400.00**	1345.00	10.63
1377.62	**1420.00**	1346.00	14.77
1400.00	**1800.00**	1347.00	19.75
1413.90	**2000.00**	1348.00	25.57
		1349.00	32.07
		1350.00	39.09
		1351.00	46.63
		1352.00	54.70
		1353.00	**63.28**
		1354.00	**72.40**
		1355.00	**82.03**
		1356.00	**92.19**
		1357.00	**102.87**
		1358.00	**114.07**
		1359.00	**125.79**
		1360.00	**138.04**

Note: The crest elevation of the Beardsley Canal is 1352.


C705O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
1335
1340
1345
1350
1355
1360

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 12:53:29 FILE NAME: C705-C

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1338.24	1338.00	120.00	2 RCB	5.00	5.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C705-C DATE: 11-30-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1338.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1342.26	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1344.68	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1347.93	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1352.52	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1359.03	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1367.08	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1376.59	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1377.62	1420.0	1420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1400.00	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1413.90	2000.0	2000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1420.00	2081.6	2081.6	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C705-C DATE: 11-30-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1338.24	0.000	0.00	0.00	0.00
1342.26	0.000	200.00	0.00	0.00
1344.68	0.000	400.00	0.00	0.00
1347.93	0.000	600.00	0.00	0.00
1352.52	0.000	800.00	0.00	0.00
1359.03	0.000	1000.00	0.00	0.00
1367.08	0.000	1200.00	0.00	0.00
1376.59	0.000	1400.00	0.00	0.00
1377.62	0.000	1420.00	0.00	0.00
1400.00	0.000	1800.00	0.00	0.00
1413.90	0.000	2000.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 12:53:29 FILE NAME: C705-C

PERFORMANCE CURVE FOR CULVERT 1 - 2(5.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1338.24	0.00	0.00	0-NF	0.00	0.00	0.00	-6.00	0.00	0.00
200.00	1342.26	3.92	4.02	2-M2c	3.50	2.32	2.32	-3.86	8.62	5.51
400.00	1344.68	6.44	6.36	2-M2c	5.00	3.68	3.68	-3.24	10.86	6.54
600.00	1347.93	9.69	9.41	2-M2c	5.00	4.83	4.83	-2.78	12.43	7.24
800.00	1352.52	14.28	13.03	6-S2n	5.00	5.00	4.90	-2.41	16.33	7.78
1000.00	1359.03	20.79	17.69	6-S2n	5.00	5.00	4.90	-2.10	20.41	8.23
1200.00	1367.08	28.84	23.38	6-S2n	5.00	5.00	4.90	-1.30	24.49	2.53
1400.00	1376.59	38.35	30.10	6-S2n	5.00	5.00	4.90	-1.03	28.57	3.15
1420.00	1377.62	39.38	30.83	6-S2n	5.00	5.00	4.90	-1.00	28.98	3.21
1800.00	1400.00	61.76	46.65	6-S2n	5.00	5.00	4.90	-0.54	36.73	4.13
2000.00	1413.90	75.66	56.47	6-S2n	5.00	5.00	4.90	-0.31	40.82	4.54

El. inlet face invert 1338.24 ft El. outlet invert 1338.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1338.24 ft
OUTLET STATION	220.00 ft
OUTLET ELEVATION	1338.00 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0020
CULVERT LENGTH ALONG SLOPE	120.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	5.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (90-45 DEG.)
INLET DEPRESSION	NONE

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 12:53:29 FILE NAME: C705-C

****
********** TAILWATER **********
****

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: C705-TW
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 11-29-00
LEFT CHANNEL BOUNDARY 2
RIGHT CHANNEL BOUNDARY 4
MANNING n LEFT OVER BANK 0.025
MANNING n MAIN CHANNEL 0.035
MANNING n RIGHT OVER BANK 0.050
SLOPE OF CHANNEL 0.0156 ft/ft

CROSS-SECTION COORD. NO.	X (ft)	Y (ft)
1	0.00	1340.00
2	11.15	1336.00
3	51.42	1332.00
4	75.27	1336.00
5	89.78	1338.00

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1332.00	0.000	-6.00	0.00	0.00
200.00	1334.14	0.940	-3.86	5.51	1.03
400.00	1334.76	0.981	-3.24	6.54	1.33
600.00	1335.22	1.006	-2.78	7.24	1.55
800.00	1335.59	1.024	-2.41	7.78	1.73
1000.00	1335.90	1.039	-2.10	8.23	1.88
1200.00	1336.70	0.754	-1.30	2.53	0.32
1400.00	1336.97	0.796	-1.03	3.15	0.45
1420.00	1337.00	0.800	-1.00	3.21	0.46
1800.00	1337.46	0.851	-0.54	4.13	0.67
2000.00	1337.69	0.872	-0.31	4.54	0.77

Note: Shear stress was calculated using R.

****
********** ROADWAY OVERTOPPING DATA **********
****

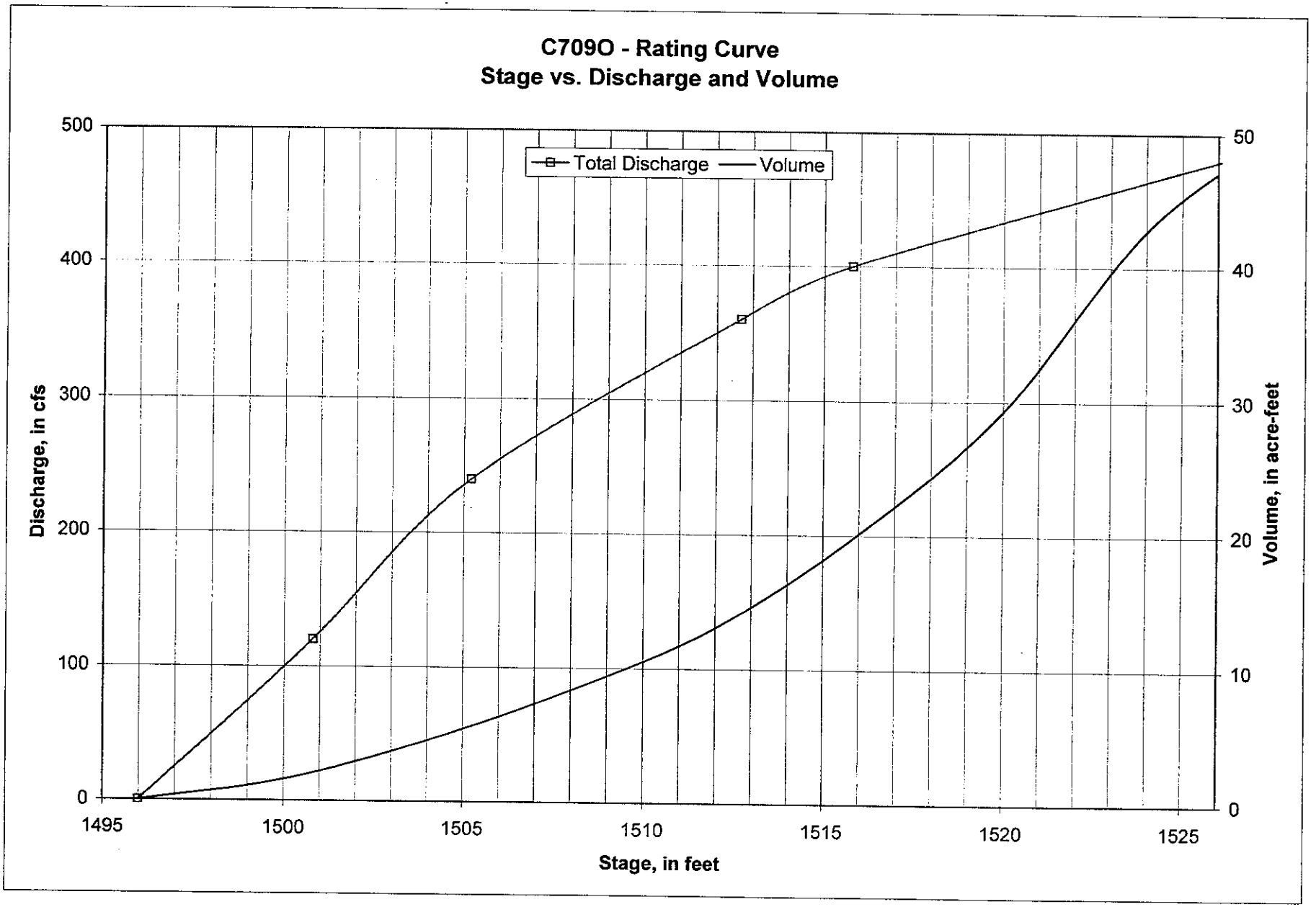
WEIR COEFFICIENT 2.70
EMBANKMENT TOP WIDTH 40.00 ft
CREST LENGTH 608.54 ft
OVERTOPPING CREST ELEVATION 1420.00 ft

****

Table E-8
Total rating curve for C709O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1496.00	0.00	1496.00	0.00
1500.80	120.00	1500.00	1.59
1505.20	240.00	1504.00	4.55
1512.68	360.00	1508.00	8.36
1515.80	400.00	1512.00	13.04
1539.80	**600.00**	1516.00	20.12
1540.12	**720.00**	1520.00	29.31
1540.18	**840.00**	1524.00	42.75
1540.24	**960.00**	**1528.00**	**51.34**
1540.29	**1080.00**	**1532.00**	**63.40**
1540.34	**1200.00**	**1536.00**	**78.92**
		1540.00	**97.91**

Note: The crest elevation of the C.A.P. Canal is 1525.
Data calculated from the Agua Fria FIS topo.


C709O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
500
400
300
200
100
0
50
40
30
20
10
0
1495
1500
1505
1510
1515
1520
1525

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:18:39 FILE NAME: C709O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS	SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1496.00	1492.00	270.03	1	RCP	5.00	5.00	.015	CONVENTIONAL
2									
3									
4									
5									
6									

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C709O DATE: 08-11-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1496.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1500.80	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1505.20	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1512.68	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1515.80	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1539.80	600.0	597.8	0.0	0.0	0.0	0.0	0.0	0.00	26
1540.12	720.0	599.4	0.0	0.0	0.0	0.0	0.0	116.61	11
1540.18	840.0	599.8	0.0	0.0	0.0	0.0	0.0	232.96	5
1540.24	960.0	600.0	0.0	0.0	0.0	0.0	0.0	355.43	5
1540.29	1080.0	600.3	0.0	0.0	0.0	0.0	0.0	472.26	4
1540.34	1200.0	600.5	0.0	0.0	0.0	0.0	0.0	593.52	4
1540.00	598.8	598.8	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C709O DATE: 08-11-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1496.00	0.000	0.00	0.00	0.00
1500.80	0.000	120.00	0.00	0.00
1505.20	0.000	240.00	0.00	0.00
1512.68	0.000	360.00	0.00	0.00
1515.80	0.000	400.00	0.00	0.00
1539.80	1.000	600.00	2.20	0.37
1540.12	-0.003	720.00	3.96	0.55
1540.18	-0.004	840.00	7.28	0.87
1540.24	-0.003	960.00	4.53	0.47
1540.29	-0.005	1080.00	7.47	0.69
1540.34	-0.004	1200.00	5.96	0.50

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:18:39 FILE NAME: C709O

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1496.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
120.00	1500.80	4.80	4.80	1-S2n	2.30	3.12	2.22	0.75	14.22	4.07
240.00	1505.20	9.20	9.20	5-S2n	3.62	4.33	3.67	1.11	15.58	5.18
360.00	1512.68	16.68	15.66	6-S2n	5.00	5.00	4.90	1.40	18.53	5.92
400.00	1515.80	19.80	19.10	6-S2n	5.00	5.00	4.90	1.49	20.59	6.13
597.80	1539.80	43.80	41.42	6-S2n	5.00	5.00	4.90	1.86	30.77	6.97
599.42	1540.12	44.12	41.64	6-S2n	5.00	5.00	4.90	2.06	30.85	7.38
599.76	1540.18	44.18	41.69	6-S2n	5.00	5.00	4.90	2.24	30.87	7.73
600.04	1540.24	44.24	41.73	6-S2n	5.00	5.00	4.90	2.41	30.88	8.05
600.27	1540.28	44.28	41.76	6-S2n	5.00	5.00	4.90	2.57	30.89	8.34
600.52	1540.33	44.33	41.79	6-S2n	5.00	5.00	4.90	2.72	30.91	8.61

El. inlet face invert 1496.00 ft El. outlet invert 1492.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1496.00 ft
OUTLET STATION	370.00 ft
OUTLET ELEVATION	1492.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0148
CULVERT LENGTH ALONG SLOPE	270.03 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:18:39 FILE NAME: C709O

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	35.00 ft
SIDE SLOPE H/V (X:1)	6.0
CHANNEL SLOPE V/H (ft/ft)	0.026
MANNING'S n (.01-0.1)	0.045
CHANNEL INVERT ELEVATION	1492.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1492.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1492.00	0.000	0.00	0.00	0.00
120.00	1492.75	0.831	0.75	4.07	1.22
240.00	1493.11	0.865	1.11	5.18	1.81
360.00	1493.40	0.881	1.40	5.92	2.28
400.00	1493.49	0.885	1.49	6.13	2.42
600.00	1493.86	0.899	1.86	6.97	3.04
720.00	1494.06	0.905	2.06	7.38	3.36
840.00	1494.24	0.910	2.24	7.73	3.65
960.00	1494.41	0.914	2.41	8.05	3.93
1080.00	1494.57	0.917	2.57	8.34	4.18
1200.00	1494.72	0.920	2.72	8.61	4.43

****
********** ROADWAY OVERTOPPING DATA **********
****

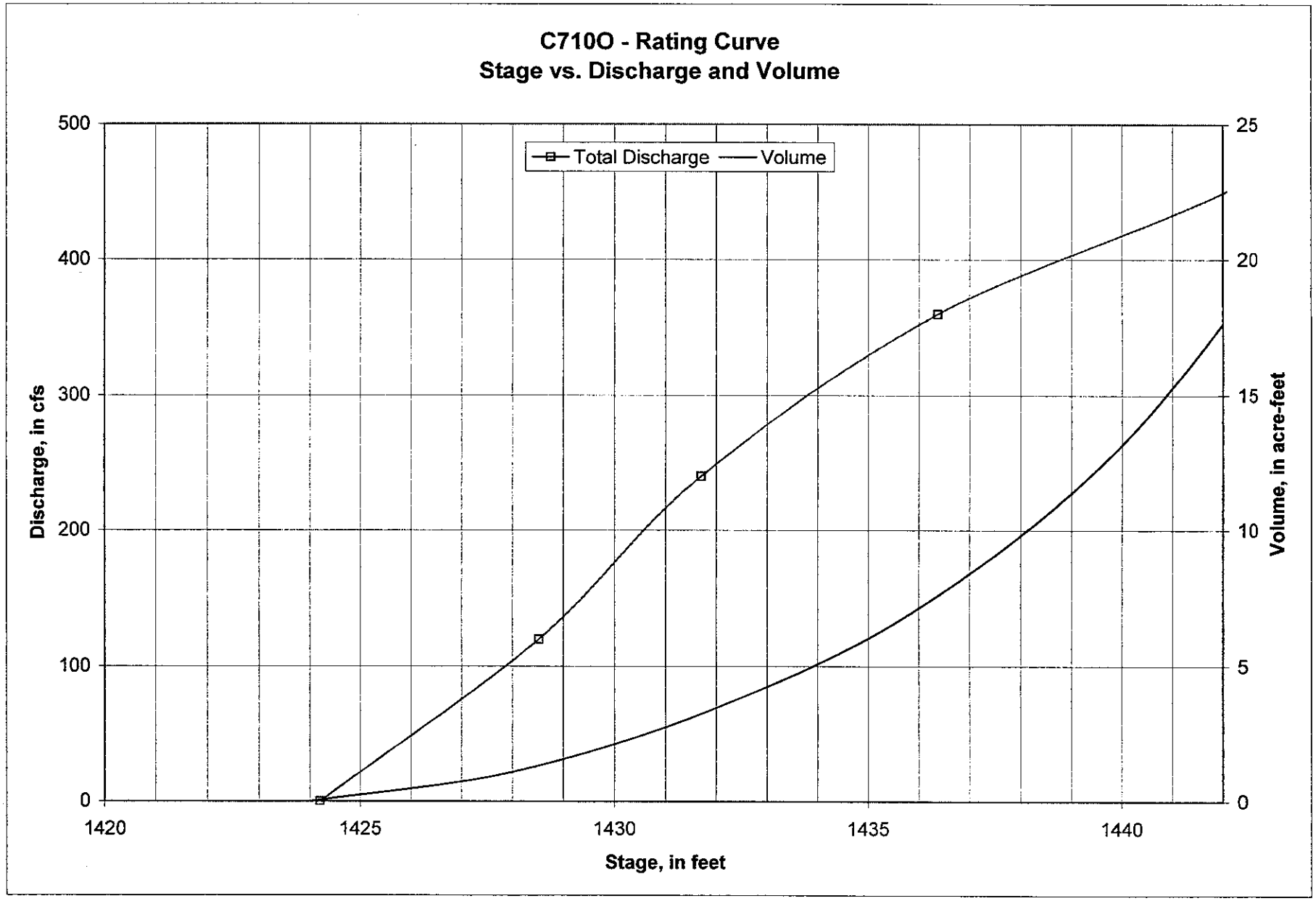
ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	1000.00 ft
OVERTOPPING CREST ELEVATION	1540.00 ft

****

Table E-9
Total rating curve for C710O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1424.20	0.00	1424.00	0.00
1428.52	120.00	1428.00	1.08
1431.70	240.00	1432.00	3.46
1436.37	360.00	1436.00	7.13
1443.41	**480.00**	1440.00	13.17
1444.11	**600.00**	**1444.00**	**22.51**
1444.18	**720.00**		
1444.24	**840.00**		
1444.29	**960.00**		
1444.33	**1058.00**		
1444.38	**1200.00**		

Note: The crest elevation of the Beardsley Canal is 1442.2.
Data calculated from the Agua Fria FIS topo.


C710O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
500
400
300
200
100
0
25
20
15
10
5
0
1420
1425
1430
1435
1440

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:19:37 FILE NAME: C710O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1424.20	1420.00	100.09	1 RCB	5.00	5.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C710O DATE: 08-11-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1424.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1428.52	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1431.70	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1436.37	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1443.41	480.0	480.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1444.11	600.0	489.9	0.0	0.0	0.0	0.0	0.0	107.10	11
1444.18	720.0	490.8	0.0	0.0	0.0	0.0	0.0	225.73	6
1444.24	840.0	491.6	0.0	0.0	0.0	0.0	0.0	344.08	5
1444.29	960.0	492.3	0.0	0.0	0.0	0.0	0.0	460.00	4
1444.33	1058.0	492.9	0.0	0.0	0.0	0.0	0.0	559.65	4
1444.38	1200.0	493.6	0.0	0.0	0.0	0.0	0.0	700.72	4
1444.00	488.3	488.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C710O DATE: 08-11-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1424.20	0.000	0.00	0.00	0.00
1428.52	0.000	120.00	0.00	0.00
1431.70	0.000	240.00	0.00	0.00
1436.37	0.000	360.00	0.00	0.00
1443.41	0.000	480.00	0.00	0.00
1444.11	-0.004	600.00	3.04	0.51
1444.18	-0.002	720.00	3.44	0.48
1444.24	-0.003	840.00	4.29	0.51
1444.29	-0.005	960.00	7.68	0.80
1444.33	-0.004	1058.00	5.48	0.52
1444.38	-0.004	1200.00	5.69	0.47

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:19:37 FILE NAME: C710O

****

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCB

****

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1424.20	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
120.00	1428.52	4.32	4.32	1-S2n	1.30	2.62	1.42	0.51	16.89	7.53
240.00	1431.70	7.50	7.50	5-S2n	2.14	4.16	2.46	0.78	19.51	9.79
360.00	1436.37	12.17	7.19	6-S2n	2.90	5.00	3.40	0.99	21.18	11.39
480.00	1443.41	19.21	12.16	6-S2n	3.63	5.00	4.19	1.17	22.91	12.66
489.86	1444.10	19.90	12.63	6-S2n	3.69	5.00	4.24	1.34	23.11	13.73
490.83	1444.17	19.97	12.68	6-S2n	3.70	5.00	4.24	1.49	23.15	14.65
491.63	1444.23	20.03	12.72	6-S2n	3.70	5.00	4.25	1.63	23.14	15.48
492.33	1444.28	20.08	12.75	6-S2n	3.70	5.00	4.25	1.77	23.17	16.23
492.87	1444.32	20.12	12.78	6-S2n	3.71	5.00	4.25	1.87	23.19	16.79
493.59	1444.37	20.17	12.82	6-S2n	3.71	5.00	4.26	2.01	23.17	17.54

****

El. inlet face invert 1424.20 ft El. outlet invert 1420.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

****

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1424.20 ft
OUTLET STATION	200.00 ft
OUTLET ELEVATION	1420.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0420
CULVERT LENGTH ALONG SLOPE	100.09 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	5.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (90-45 DEG.)
INLET DEPRESSION	NONE

****

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:19:37 FILE NAME: C710O

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	30.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.133
MANNING'S n (.01-0.1)	0.045
CHANNEL INVERT ELEVATION	1420.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1420.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1420.00	0.000	0.00	0.00	0.00
120.00	1420.51	1.851	0.51	7.53	4.27
240.00	1420.78	1.958	0.78	9.79	6.46
360.00	1420.99	2.019	0.99	11.39	8.22
480.00	1421.17	2.060	1.17	12.66	9.75
600.00	1421.34	2.091	1.34	13.73	11.13
720.00	1421.49	2.116	1.49	14.65	12.39
840.00	1421.63	2.136	1.63	15.48	13.57
960.00	1421.77	2.153	1.77	16.23	14.68
1058.00	1421.87	2.165	1.87	16.79	15.54
1200.00	1422.01	2.179	2.01	17.54	16.73

****
********** ROADWAY OVERTOPPING DATA **********
****

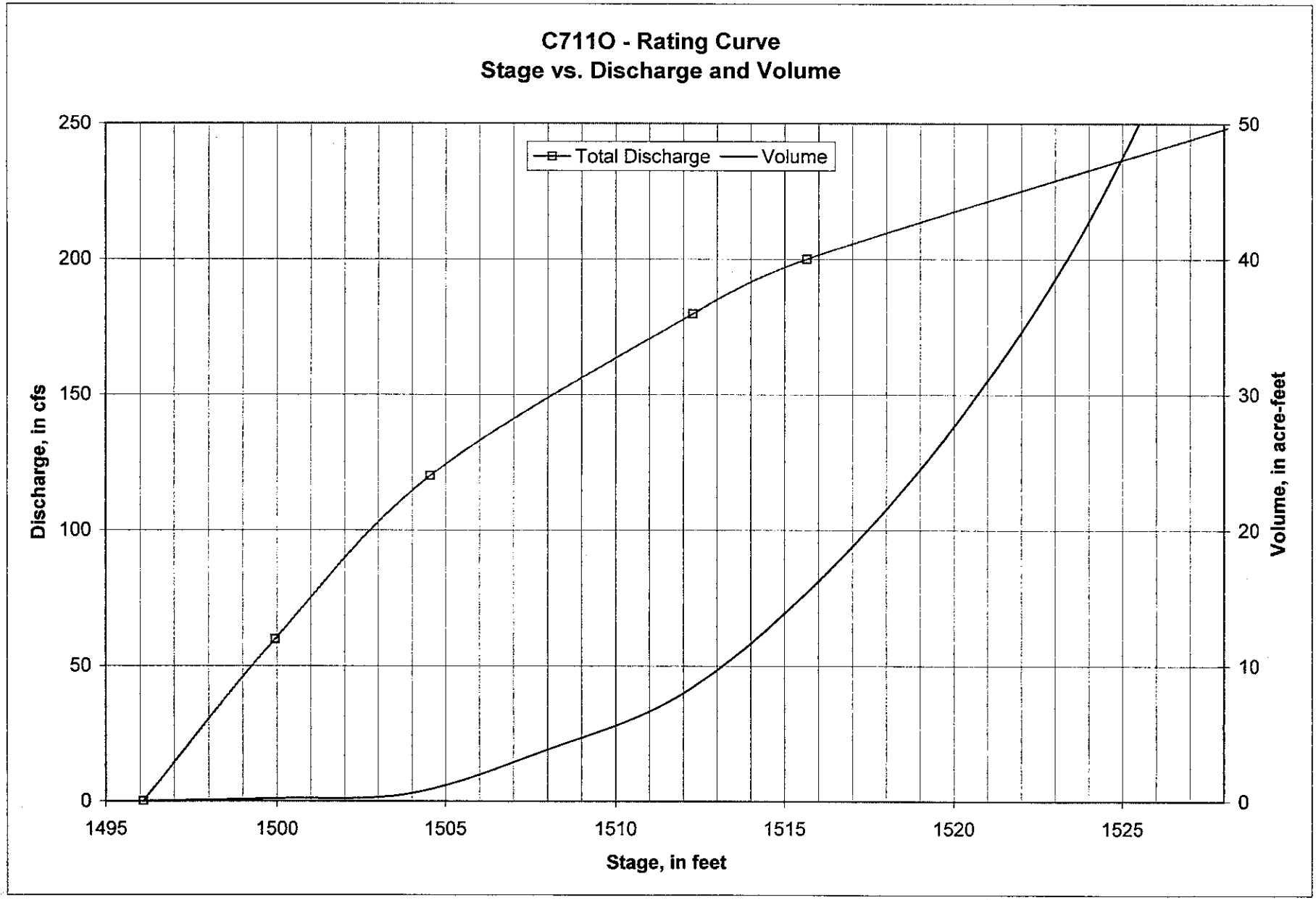
ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	1000.00 ft
OVERTOPPING CREST ELEVATION	1444.00 ft

****

Table E-10
Total rating curve for C711O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1496.10	0.00	1496.10	0.00
1499.96	60.00	1500.00	0.20
1504.55	120.00	1504.00	0.59
1512.28	180.00	1508.00	3.79
1515.65	200.00	1512.00	7.98
1539.71	**300.00**	1516.00	16.27
1540.09	**360.00**	1520.00	27.64
1540.13	**420.00**	1524.00	42.75
1540.17	**480.00**	**1528.00**	**63.25**
1540.20	**540.00**		
1540.23	**600.00**		

Note: The crest elevation of the Waddell Canal is 1525.
Data calculated from the Agua Fria FIS topo.


C711O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
250
200
150
100
50
0
50
40
30
20
10
0
1495
1500
1505
1510
1515
1520
1525

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:42:20 FILE NAME: C711O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

C U L V NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1496.10	1488.00	245.13	1 RCP	3.50	3.50	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C711O DATE: 08-11-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1496.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1499.95	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1504.55	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1512.28	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1515.65	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1539.71	300.0	274.8	0.0	0.0	0.0	0.0	0.0	0.00	30
1540.09	360.0	275.5	0.0	0.0	0.0	0.0	0.0	81.95	15
1540.13	420.0	275.5	0.0	0.0	0.0	0.0	0.0	141.20	6
1540.17	480.0	275.6	0.0	0.0	0.0	0.0	0.0	200.26	5
1540.20	540.0	275.6	0.0	0.0	0.0	0.0	0.0	261.21	5
1540.23	600.0	275.7	0.0	0.0	0.0	0.0	0.0	318.62	4
1540.00	275.3	275.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C711O DATE: 08-11-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1496.10	0.000	0.00	0.00	0.00
1499.95	0.000	60.00	0.00	0.00
1504.55	0.000	120.00	0.00	0.00
1512.28	0.000	180.00	0.00	0.00
1515.65	0.000	200.00	0.00	0.00
1539.71	-0.015	300.00	25.21	8.40
1540.09	-0.002	360.00	2.59	0.72
1540.13	-0.002	420.00	3.26	0.78
1540.17	-0.002	480.00	4.14	0.86
1540.20	-0.002	540.00	3.15	0.58
1540.23	-0.004	600.00	5.68	0.95

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:42:20 FILE NAME: C711O

PERFORMANCE CURVE FOR CULVERT 1 - 1(3.50 (ft) BY 3.50 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1496.10	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
60.00	1499.96	3.86	3.86	5-S2n	1.49	2.42	1.42	0.42	16.32	3.61
120.00	1504.55	8.45	8.45	5-S2n	2.28	3.30	2.30	0.63	17.89	4.58
180.00	1512.28	16.18	13.94	6-S2n	3.50	3.50	3.40	0.79	18.99	5.23
200.00	1515.65	19.55	18.29	6-S2n	3.50	3.50	3.40	0.84	21.10	5.41
274.79	1539.71	43.61	38.61	6-S2n	3.50	3.50	3.40	1.05	28.99	6.16
275.46	1540.09	43.99	38.82	6-S2n	3.50	3.50	3.40	1.16	29.06	6.51
275.53	1540.13	44.03	38.84	6-S2n	3.50	3.50	3.40	1.26	29.07	6.83
275.59	1540.16	44.06	38.86	6-S2n	3.50	3.50	3.40	1.35	29.08	7.11
275.65	1540.19	44.09	38.88	6-S2n	3.50	3.50	3.40	1.44	29.08	7.37
275.70	1540.22	44.12	38.89	6-S2n	3.50	3.50	3.40	1.53	29.09	7.60

El. inlet face invert 1496.10 ft El. outlet invert 1488.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1496.10 ft
OUTLET STATION	345.00 ft
OUTLET ELEVATION	1488.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0331
CULVERT LENGTH ALONG SLOPE	245.13 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	3.50 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:42:20 FILE NAME: C711O

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	35.00 ft
SIDE SLOPE H/V (X:1)	%11.0
CHANNEL SLOPE V/H (ft/ft)	0.044
MANNING'S n (.01-0.1)	0.045
CHANNEL INVERT ELEVATION	1488.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1488.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1488.00	0.000	0.00	0.00	0.00
60.00	1488.42	0.980	0.42	3.61	1.15
120.00	1488.63	1.019	0.63	4.58	1.72
180.00	1488.79	1.039	0.79	5.23	2.16
200.00	1488.84	1.043	0.84	5.41	2.30
300.00	1489.05	1.060	1.05	6.16	2.88
360.00	1489.16	1.067	1.16	6.51	3.18
420.00	1489.26	1.073	1.26	6.83	3.46
480.00	1489.35	1.077	1.35	7.11	3.71
540.00	1489.44	1.081	1.44	7.37	3.96
600.00	1489.53	1.085	1.53	7.60	4.19

****
********** ROADWAY OVERTOPPING DATA **********
****

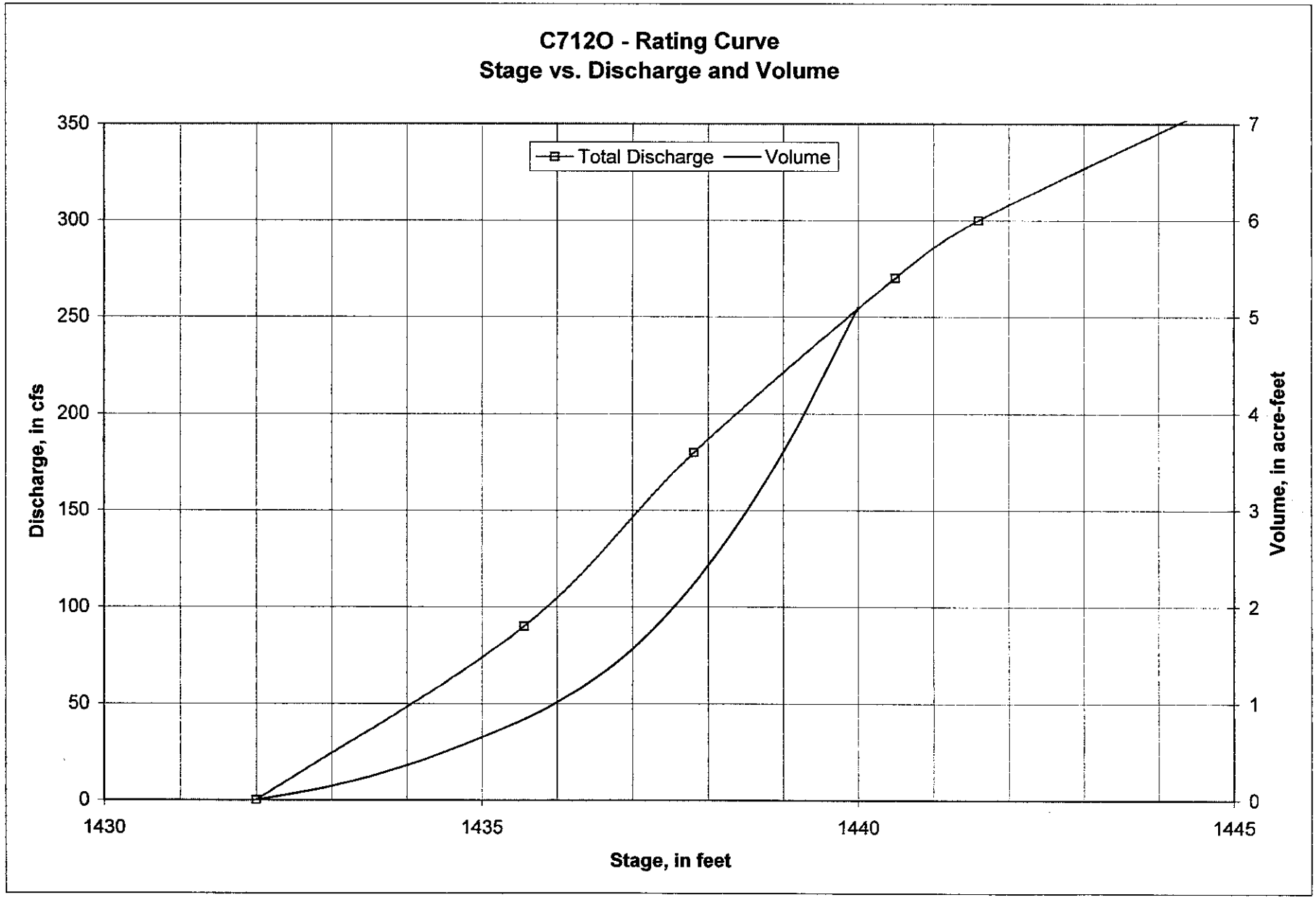
ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	120.00 ft
CREST LENGTH	1000.00 ft
OVERTOPPING CREST ELEVATION	1540.00 ft

****

Table E-11
Total rating curve for C712O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1432.00	0.00	1432.00	0.00
1435.56	90.00	1433.00	0.14
1437.81	180.00	1434.00	0.36
1440.49	270.00	1435.00	0.65
1441.60	300.00	1436.00	1.02
1449.19	**450.00**	1437.00	1.56
1450.09	**540.00**	1438.00	2.43
1450.14	**630.00**	1439.00	3.61
1450.19	**720.00**	1440.00	5.10
1450.23	**810.00**		
1450.27	**900.00**		

Note: The crest elevation of the Beardsley Canal is 1442.
Data calculated from the Agua Fria FIS topo.


C712O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
350
300
250
200
150
100
50
0
7
6
5
4
3
2
1
0
1430
1435
1440
1445

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 16:11:38 FILE NAME: C712O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1432.00	1428.00	100.08	1 RCB	5.00	5.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****
SUMMARY OF CULVERT FLOWS (cfs) FILE: C712O DATE: 08-11-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1432.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1435.56	90.0	90.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1437.81	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1440.49	270.0	270.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1441.60	300.0	300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1449.19	450.0	450.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1450.09	540.0	463.4	0.0	0.0	0.0	0.0	0.0	73.88	8
1450.14	630.0	464.3	0.0	0.0	0.0	0.0	0.0	161.74	6
1450.19	720.0	465.0	0.0	0.0	0.0	0.0	0.0	250.06	5
1450.23	810.0	465.6	0.0	0.0	0.0	0.0	0.0	336.32	4
1450.27	900.0	466.2	0.0	0.0	0.0	0.0	0.0	426.79	4
1450.00	462.1	462.1	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****
SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C712O DATE: 08-11-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1432.00	0.000	0.00	0.00	0.00
1435.56	0.000	90.00	0.00	0.00
1437.81	0.000	180.00	0.00	0.00
1440.49	0.000	270.00	0.00	0.00
1441.60	0.000	300.00	0.00	0.00
1449.19	0.000	450.00	0.00	0.00
1450.09	-0.008	540.00	2.71	0.50
1450.14	-0.002	630.00	3.99	0.63
1450.19	-0.003	720.00	4.96	0.69
1450.23	-0.005	810.00	8.09	1.00
1450.27	-0.005	900.00	7.03	0.78

****
<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000
****

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 16:11:38 FILE NAME: C712O

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1432.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
90.00	1435.56	3.56	3.56	1-S2n	1.08	2.16	1.16	0.61	15.47	2.91
180.00	1437.81	5.81	5.81	5-S2n	1.77	3.43	2.00	0.91	17.96	3.70
270.00	1440.49	8.49	8.49	5-S2n	2.38	4.50	2.77	1.15	19.49	4.24
300.00	1441.60	9.60	9.60	5-S2n	2.58	4.83	3.02	1.22	19.88	4.39
450.00	1449.19	17.19	10.99	6-S2n	3.52	5.00	4.07	1.53	22.11	4.99
463.40	1450.08	18.08	11.59	6-S2n	3.60	5.00	4.15	1.69	22.33	5.29
464.27	1450.14	18.14	11.63	6-S2n	3.61	5.00	4.15	1.84	22.37	5.55
464.98	1450.19	18.19	11.66	6-S2n	3.61	5.00	4.16	1.98	22.35	5.78
465.59	1450.23	18.23	11.69	6-S2n	3.61	5.00	4.16	2.11	22.38	5.99
466.17	1450.27	18.27	11.72	6-S2n	3.62	5.00	4.16	2.24	22.41	6.18

El. inlet face invert 1432.00 ft El. outlet invert 1428.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1432.00 ft
OUTLET STATION	200.00 ft
OUTLET ELEVATION	1428.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0400
CULVERT LENGTH ALONG SLOPE	100.08 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	5.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (90-45 DEG.)
INLET DEPRESSION	NONE

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 16:11:38 FILE NAME: C712O

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	45.00 ft
SIDE SLOPE H/V (X:1)	9.0
CHANNEL SLOPE V/H (ft/ft)	0.017
MANNING'S n (.01-0.1)	0.045
CHANNEL INVERT ELEVATION	1428.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1428.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1428.00	0.000	0.00	0.00	0.00
90.00	1428.61	0.655	0.61	2.91	0.66
180.00	1428.91	0.682	0.91	3.70	0.98
270.00	1429.15	0.696	1.15	4.24	1.24
300.00	1429.22	0.699	1.22	4.39	1.31
450.00	1429.53	0.711	1.53	4.99	1.64
540.00	1429.69	0.716	1.69	5.29	1.82
630.00	1429.84	0.720	1.84	5.55	1.98
720.00	1429.98	0.723	1.98	5.78	2.13
810.00	1430.11	0.726	2.11	5.99	2.27
900.00	1430.24	0.728	2.24	6.18	2.40

****
********** ROADWAY OVERTOPPING DATA **********
****

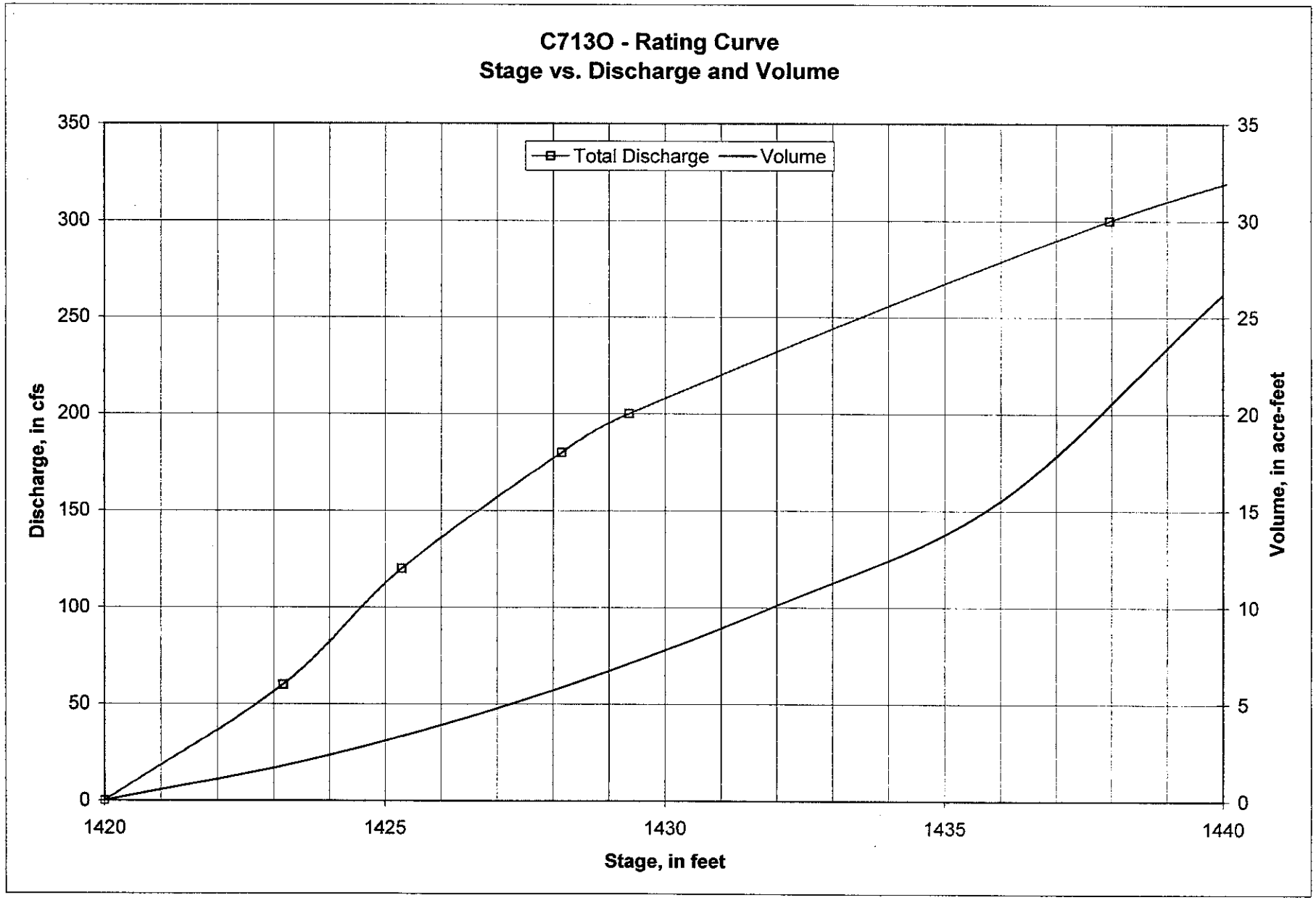
ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	120.00 ft
CREST LENGTH	1000.00 ft
OVERTOPPING CREST ELEVATION	1450.00 ft

****

Table E-12
Total rating curve for C713O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1420.00	0.00	1420.00	0.00
1423.17	60.00	1424.00	2.35
1425.30	120.00	1428.00	5.72
1428.15	180.00	1432.00	10.11
1429.36	200.00	1436.00	15.52
1437.97	300.00	**1440.00**	**26.19**
1444.99	**360.00**		
1450.04	**420.00**		
1450.09	**480.00**		
1450.13	**540.00**		
1450.17	**600.00**		

Note: The crest elevation of the Beardsley Canal is 1438.
Data calculated from the Agua Fria FIS topo.


C713O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
350
300
250
200
150
100
50
0
35
30
25
20
15
10
5
0
1420
1425
1430
1435
1440

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:21:06 FILE NAME: C713O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS	SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1420.00	1416.00	120.07	1	RCB	4.00	4.00	.015	CONVENTIONAL
2									
3									
4									
5									
6									

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C713O DATE: 08-11-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1420.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1423.17	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1425.30	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1428.15	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1429.36	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1437.97	300.0	300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1444.99	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1450.04	420.0	397.5	0.0	0.0	0.0	0.0	0.0	18.60	15
1450.09	480.0	397.9	0.0	0.0	0.0	0.0	0.0	77.72	7
1450.13	540.0	398.2	0.0	0.0	0.0	0.0	0.0	138.43	6
1450.17	600.0	398.4	0.0	0.0	0.0	0.0	0.0	197.15	5
1450.00	397.3	397.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C713O DATE: 08-11-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1420.00	0.000	0.00	0.00	0.00
1423.17	0.000	60.00	0.00	0.00
1425.30	0.000	120.00	0.00	0.00
1428.15	0.000	180.00	0.00	0.00
1429.36	0.000	200.00	0.00	0.00
1437.97	0.000	300.00	0.00	0.00
1444.99	0.000	360.00	0.00	0.00
1450.04	-0.002	420.00	3.90	0.93
1450.09	-0.002	480.00	4.39	0.91
1450.13	-0.002	540.00	3.38	0.63
1450.17	-0.002	600.00	4.42	0.74

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:21:06 FILE NAME: C713O

PERFORMANCE CURVE FOR CULVERT 1 - 1(4.00 (ft) BY 4.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1420.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
60.00	1423.17	3.17	3.17	1-S2n	1.05	1.92	1.09	0.46	13.81	4.97
120.00	1425.30	5.30	5.30	5-S2n	1.74	3.04	1.84	0.69	16.29	6.43
180.00	1428.15	8.15	8.15	5-S2n	2.36	3.99	2.56	0.88	17.61	7.45
200.00	1429.36	9.36	5.54	6-S2n	2.55	4.00	2.78	0.93	17.99	7.73
300.00	1437.97	17.97	12.47	6-S2n	3.52	4.00	3.74	1.18	20.05	8.91
360.00	1444.99	24.99	17.95	6-S2n	4.00	4.00	3.90	1.31	23.08	9.49
397.50	1450.03	30.03	21.88	6-S2n	4.00	4.00	3.90	1.43	25.48	10.00
397.89	1450.08	30.09	21.93	6-S2n	4.00	4.00	3.90	1.55	25.51	10.46
398.18	1450.13	30.13	21.96	6-S2n	4.00	4.00	3.90	1.66	25.52	10.88
398.43	1450.16	30.16	21.99	6-S2n	4.00	4.00	3.90	1.76	25.54	11.27

El. inlet face invert 1420.00 ft El. outlet invert 1416.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1420.00 ft
OUTLET STATION	220.00 ft
OUTLET ELEVATION	1416.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0333
CULVERT LENGTH ALONG SLOPE	120.07 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	4.00 ft
BARREL RISE	4.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (90-45 DEG.)
INLET DEPRESSION	NONE

CURRENT DATE: 08-11-2000 FILE DATE: 08-11-2000
CURRENT TIME: 15:21:06 FILE NAME: C713O

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	25.00 ft
SIDE SLOPE H/V (X:1)	3.0
CHANNEL SLOPE V/H (ft/ft)	0.042
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	1416.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1416.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1416.00	0.000	0.00	0.00	0.00
60.00	1416.46	1.296	0.46	4.97	1.20
120.00	1416.69	1.365	0.69	6.43	1.81
180.00	1416.88	1.402	0.88	7.45	2.29
200.00	1416.93	1.412	0.93	7.73	2.44
300.00	1417.18	1.446	1.18	8.91	3.09
360.00	1417.31	1.460	1.31	9.49	3.44
420.00	1417.43	1.472	1.43	10.00	3.76
480.00	1417.55	1.481	1.55	10.46	4.06
540.00	1417.66	1.491	1.66	10.88	4.34
600.00	1417.76	1.498	1.76	11.27	4.61

****
********** ROADWAY OVERTOPPING DATA **********
****

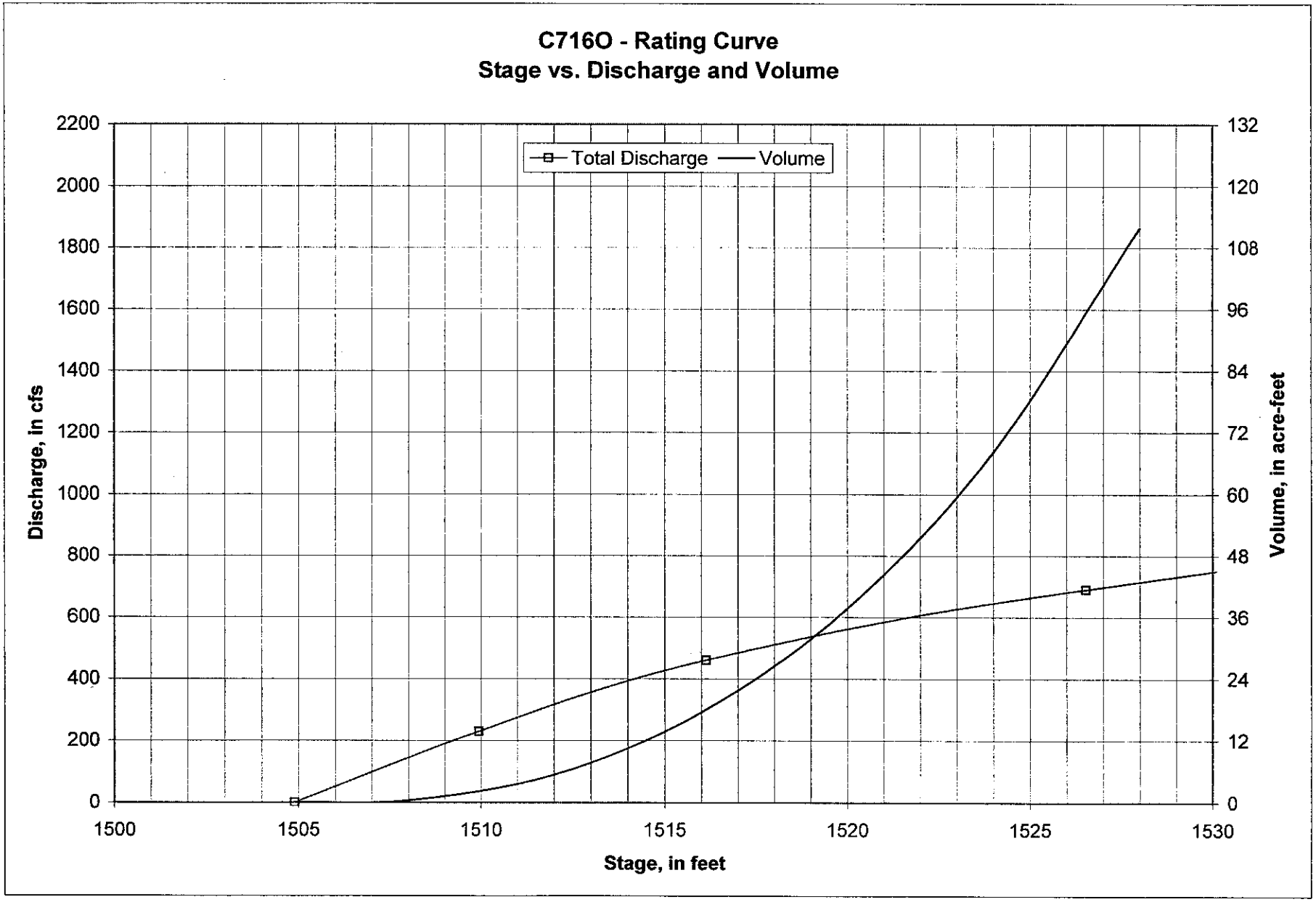
ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	120.00 ft
CREST LENGTH	1000.00 ft
OVERTOPPING CREST ELEVATION	1450.00 ft

****

Table E-13
Total rating curve for C716O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1504.90	0.00	1504.90	0.00
1509.94	230.00	1508.00	0.40
1516.13	460.00	1512.00	5.42
1526.53	690.00	1516.00	17.50
1544.42	**920.00**	1520.00	37.71
1592.19	**1150.00**	1524.00	68.23
1729.99	**1380.00**	1528.00	111.87
2074.29	**1610.00**		
2108.01	**1625.00**		
4241.67	**2070.00**		
6746.91	**2300.00**		

Note: The crest elevation of the Waddell Canal is 1528.


C716O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
0
12
24
36
48
60
72
84
96
108
120
132
1500
1505
1510
1515
1520
1525
1530

CURRENT DATE: 11-30-2000
CURRENT TIME: 13:57:41

FILE DATE: 11-30-2000
FILE NAME: C716O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1504.90	1496.00	252.16	2 RCP	4.50	4.50	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C716O DATE: 11-30-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1504.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1509.94	230.0	230.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1516.13	460.0	460.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1526.53	690.0	690.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1544.42	920.0	920.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1592.19	1150.0	1150.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1729.99	1380.0	1380.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2074.29	1610.0	1610.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2108.01	1625.0	1625.0	0.0	0.0	0.0	0.0	0.0	0.00	1
4241.67	2070.0	2070.0	0.0	0.0	0.0	0.0	0.0	0.00	1
6746.91	2300.0	2300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
6750.00	2300.2	2300.2	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C716O DATE: 11-30-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1504.90	0.000	0.00	0.00	0.00
1509.94	0.000	230.00	0.00	0.00
1516.13	0.000	460.00	0.00	0.00
1526.53	0.000	690.00	0.00	0.00
1544.42	0.000	920.00	0.00	0.00
1592.19	0.000	1150.00	0.00	0.00
1729.99	0.000	1380.00	0.00	0.00
2074.29	0.000	1610.00	0.00	0.00
2108.01	0.000	1625.00	0.00	0.00
4241.67	0.000	2070.00	0.00	0.00
6746.91	0.000	2300.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 13:57:41 FILE NAME: C716O

PERFORMANCE CURVE FOR CULVERT 1 - 2(4.50 (ft) BY 4.50 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1504.90	0.00	0.00	0-NF	0.00	0.00	0.00	-4.00	0.00	0.00
230.00	1509.94	5.04	5.04	5-S2n	1.86	3.16	1.90	-2.93	18.06	4.91
460.00	1516.13	11.23	11.23	5-S2n	2.82	4.29	2.92	-2.46	21.06	5.99
690.00	1526.53	21.63	16.83	6-S2n	4.50	4.50	4.40	-2.12	21.95	6.70
920.00	1544.42	39.52	33.35	6-S2n	4.50	4.50	4.40	-1.82	29.26	7.26
1150.00	1592.19	87.29	54.59	6-S2n	4.50	4.50	4.40	-1.58	36.58	7.70
1380.00	1729.99	225.09	80.54	6-S2n	4.50	4.50	4.40	-1.36	43.89	8.09
1610.00	2074.29	569.39	111.21	6-S2n	4.50	4.50	4.40	-1.16	51.21	8.42
1625.00	2108.01	603.11	113.38	6-S2n	4.50	4.50	4.40	-1.14	51.68	8.45
2070.00	4241.67	0.00	186.71	6-S2n	4.50	4.50	4.40	-0.80	65.84	9.00
2300.00	6746.91	0.00	231.54	6-S2n	4.50	4.50	4.40	-0.64	73.15	9.25

El. inlet face invert 1504.90 ft El. outlet invert 1496.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1504.90 ft
OUTLET STATION	352.00 ft
OUTLET ELEVATION	1496.00 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0353
CULVERT LENGTH ALONG SLOPE	252.16 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.50 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 13:57:41 FILE NAME: C716O

****
********** TAILWATER **********
****

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: C716OTW
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 11-30-00

LEFT CHANNEL BOUNDARY	3
RIGHT CHANNEL BOUNDARY	6
MANNING n LEFT OVER BANK	0.050
MANNING n MAIN CHANNEL	0.035
MANNING n RIGHT OVER BANK	0.050
SLOPE OF CHANNEL	0.0177 ft/ft

CROSS-SECTION COORD. NO.	X (ft)	Y (ft)
1	100.00	1504.00
2	115.00	1500.00
3	150.00	1496.00
4	165.00	1492.00
5	195.00	1492.00
6	285.00	1496.00
7	370.00	1500.00
8	425.00	1504.00

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1492.00	0.000	-4.00	0.00	0.00
230.00	1493.07	0.960	-2.93	4.91	0.89
460.00	1493.54	1.008	-2.46	5.99	1.21
690.00	1493.88	1.037	-2.12	6.70	1.43
920.00	1494.18	1.058	-1.82	7.26	1.61
1150.00	1494.42	1.073	-1.58	7.70	1.76
1380.00	1494.64	1.087	-1.36	8.09	1.89
1610.00	1494.84	1.098	-1.16	8.42	2.01
1625.00	1494.86	1.098	-1.14	8.45	2.02
2070.00	1495.20	1.116	-0.80	9.00	2.22
2300.00	1495.36	1.124	-0.64	9.25	2.32

Note: Shear stress was calculated using R.

****
********** ROADWAY OVERTOPPING DATA **********
****

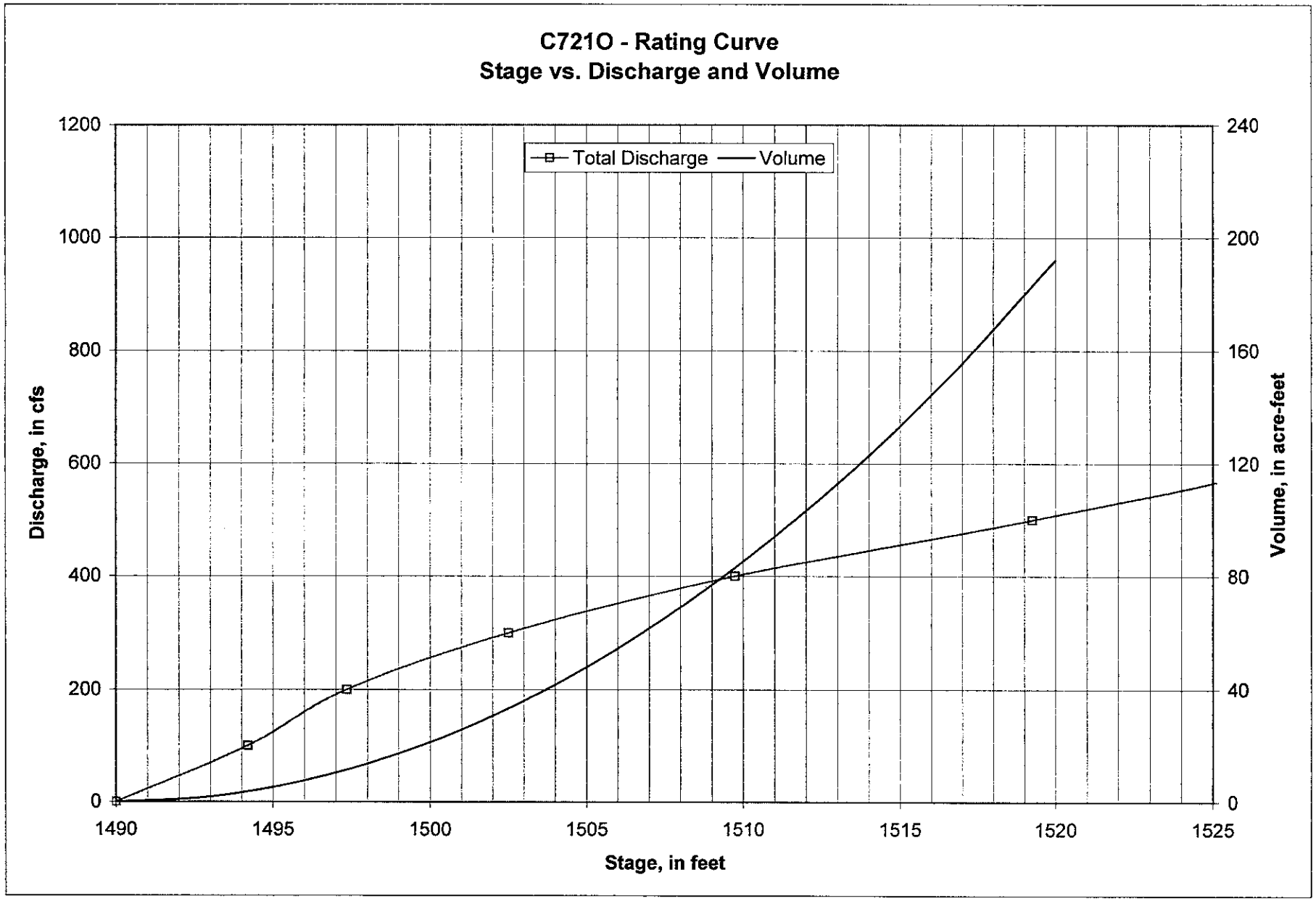
WEIR COEFFICIENT	2.70
EMBANKMENT TOP WIDTH	170.00 ft
CREST LENGTH	1360.00 ft
OVERTOPPING CREST ELEVATION	6750.00 ft

****

Table E-14
Total rating curve for C721O

Stage feet (1)	Discharge cfs (2)	Stage feet (3)	Volume ac-ft (4)
1490.00	0.00	1490.00	0.00
1494.20	100.00	1493.00	1.83
1497.36	200.00	1496.00	7.58
1502.51	300.00	1499.00	17.18
1509.74	400.00	1502.00	30.63
1519.26	500.00	1505.00	47.92
1527.05	**600.00**	1508.00	69.05
1527.13	**700.00**	1511.00	94.03
1527.18	**800.00**	1514.00	122.85
1527.22	**866.00**	1517.00	155.51
1527.28	**1000.00**	1520.00	192.02

Note: The crest elevation of the Waddell Canal is 1527.


C721O - Rating Curve
Stage vs. Discharge and Volume
Total Discharge
Volume
Discharge, in cfs
Volume, in acre-feet
Stage, in feet
0
200
400
600
800
1000
1200
0
40
80
120
160
200
240
1490
1495
1500
1505
1510
1515
1520
1525

CURRENT DATE: 12-07-2000 FILE DATE: 12-07-2000
CURRENT TIME: 08:46:15 FILE NAME: C721O-C

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

C U L V NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1490.00	1480.00	260.19	1 RCP	5.00	5.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C721O-C DATE: 12-07-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1490.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1494.74	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1499.14	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1506.62	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1517.09	480.0	480.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1534.17	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1572.06	720.0	720.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1662.33	840.0	840.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1693.69	866.0	866.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2254.60	1080.0	1080.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2968.52	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
3000.00	1204.0	1204.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C721O-C DATE: 12-07-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1490.00	0.000	0.00	0.00	0.00
1494.74	0.000	120.00	0.00	0.00
1499.14	0.000	240.00	0.00	0.00
1506.62	0.000	360.00	0.00	0.00
1517.09	0.000	480.00	0.00	0.00
1534.17	0.000	600.00	0.00	0.00
1572.06	0.000	720.00	0.00	0.00
1662.33	0.000	840.00	0.00	0.00
1693.69	0.000	866.00	0.00	0.00
2254.60	0.000	1080.00	0.00	0.00
2968.52	0.000	1200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 12-07-2000 FILE DATE: 12-07-2000
CURRENT TIME: 08:46:15 FILE NAME: C721O-C

PERFORMANCE CURVE FOR CULVERT 1 - 1(5.00 (ft) BY 5.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1490.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
120.00	1494.74	4.74	4.74	1-S2n	1.76	3.12	1.72	0.74	19.96	4.24
240.00	1499.14	9.14	9.14	5-S2n	2.62	4.33	2.72	1.10	22.02	5.40
360.00	1506.62	16.62	9.41	6-S2n	3.42	5.00	3.58	1.39	23.96	6.20
480.00	1517.09	27.09	20.62	6-S2n	5.00	5.00	4.90	1.64	24.70	6.82
600.00	1534.17	44.17	35.03	6-S2n	5.00	5.00	4.90	1.85	30.88	7.32
720.00	1572.06	82.06	52.65	6-S2n	5.00	5.00	4.90	2.05	37.05	7.76
840.00	1662.33	172.33	73.46	6-S2n	5.00	5.00	4.90	2.24	43.23	8.15
866.00	1693.69	203.69	78.39	6-S2n	5.00	5.00	4.90	2.28	44.57	8.23
1080.00	2254.60	764.60	124.70	6-S2n	5.00	5.00	4.90	2.57	55.58	8.81
1200.00	2968.52	0.00	155.13	6-S2n	5.00	5.00	4.90	2.72	61.76	9.09

El. inlet face invert 1490.00 ft El. outlet invert 1480.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1490.00 ft
OUTLET STATION	360.00 ft
OUTLET ELEVATION	1480.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0385
CULVERT LENGTH ALONG SLOPE	260.19 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 12-07-2000 FILE DATE: 12-07-2000
CURRENT TIME: 08:46:15 FILE NAME: C721O-C

****
********** TAILWATER **********
****

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: 721722
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 12-7-00
LEFT CHANNEL BOUNDARY 3
RIGHT CHANNEL BOUNDARY 6
MANNING n LEFT OVER BANK 0.050
MANNING n MAIN CHANNEL 0.035
MANNING n RIGHT OVER BANK 0.050
SLOPE OF CHANNEL 0.0170 ft/ft

CROSS-SECTION COORD. NO.	X (ft)	Y (ft)
1	100.00	1492.00
2	125.00	1488.00
3	175.00	1484.00
4	200.00	1480.00
5	235.00	1480.00
6	250.00	1484.00
7	270.00	1492.00
8	595.00	1496.00

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1480.00	0.000	0.00	0.00	0.00
120.00	1480.74	0.911	0.74	4.24	0.71
240.00	1481.10	0.967	1.10	5.40	1.02
360.00	1481.39	1.001	1.39	6.20	1.26
480.00	1481.64	1.024	1.64	6.82	1.45
600.00	1481.85	1.042	1.85	7.32	1.61
720.00	1482.05	1.057	2.05	7.76	1.76
840.00	1482.24	1.070	2.24	8.15	1.89
866.00	1482.28	1.073	2.28	8.23	1.92
1080.00	1482.57	1.091	2.57	8.81	2.13
1200.00	1482.72	1.099	2.72	9.09	2.23

Note: Shear stress was calculated using R.

****
********** ROADWAY OVERTOPPING DATA **********
****

WEIR COEFFICIENT 2.70
EMBANKMENT TOP WIDTH 270.00 ft
CREST LENGTH 1000.00 ft
OVERTOPPING CREST ELEVATION 3000.00 ft

****

Table E-15
Summary of storage routing locations

Storage Routing ID (1)	Location (2)	Structure # (3)
C400O *	Downstream end of S509, northside of the C.A.P.; sta. 561+40.	78
C502O *	Downstream end of S502 and S503 confluence, C502, northside of the C.A.P.; sta. 492+30.	81
C503O *	Downstream end of S505, northside of the C.A.P.; sta. 538+25.	94
C504O *	Downstream end of S506, northside of the C.A.P.; sta. 549+00.	93
C506O *	Downstream end of S509, northside of the C.A.P.; sta. 459+30.	84
C507O *	Downstream end of S511, northside of the C.A.P.; sta. 480+90.	82
C705O #	Downstream end of S705, northwest side of the Beardsley Canal.	63
C709O +	Downstream end of S709 and north of SR74, eastside of the Waddell Canal; sta. 189+80.	95
C710O +	Downstream end of S710 at C710, eastside of the Beardsley Canal.	58
C711O +	Downstream end of S711, eastside of the Waddell Canal; sta. 149+20.	71
C712O +	Downstream end of S712 at C712, eastside of the Beardsley Canal.	60
C713O +	Downstream end of S713 at C713, eastside of the Beardsley Canal.	59
C716O #	Downstream end of S716, eastside of the Waddell Canal.	74
C721O #	Downstream end of S721, eastside of the Waddell Canal.	75

* Data directly from the C.A.P. Overchute Study.

\+ Data directly from the Waddell Study and the Agua Fria FIS.

\# Data from the Waddell Study, Agua Fria FIS, and Cooper topography (4 ft. contour intervals).

APPENDIX F: INDIRECT VERIFICATION OF RESULTS

Table F-1
Summary of selected HEC-1 model results for comparison with indirect verification methods

HEC-1 ID (1)	Drainage Area sq. mi. (2)	Average Elevation feet (3)	100-Year Peak Controlling Discharge cfs (4)	Unit Peak Controlling Discharge cfs/sq. mi. (5)
C103	3.54	1739	2671	755
C105	12.75	1759	7297	572
C206	6.09	1856	4421	726
C303	3.60	1670	2567	713
C601	2.92	2774	2687	920
C602	5.47	2578	4746	868
C605	11.76	2479	7954	676
C606	13.17	2403	8535	648
C615	22.90	2081	11824	516
C718	1.86	1526	1158	623
S400	1.05	1637	1212	1154
S402	0.74	1483	951	1285
S500	1.05	1838	914	870
S512	0.21	1490	306	1430
S515	1.10	1374	1268	1153
S614	1.08	1951	1033	956
S708	0.71	1616	1336	1882
S716	1.13	1584	1625	1438
S718	0.44	1408	476	1082
S724	1.16	1413	1788	1541
S725	1.16	1400	1153	994

FIGURE 10-1

PEAK DISCHARGE RELATIONS AND ENVELOPE CURVES

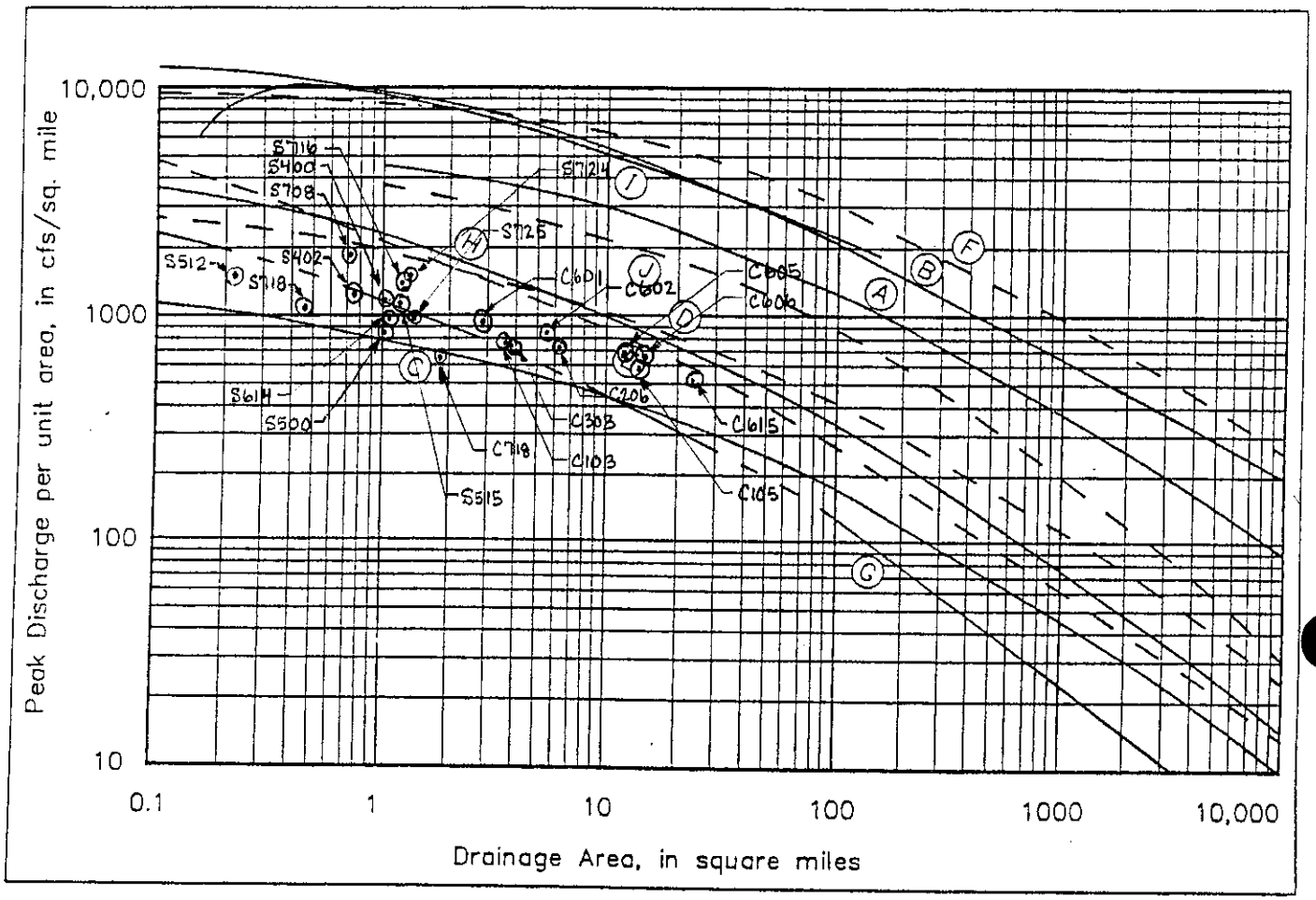
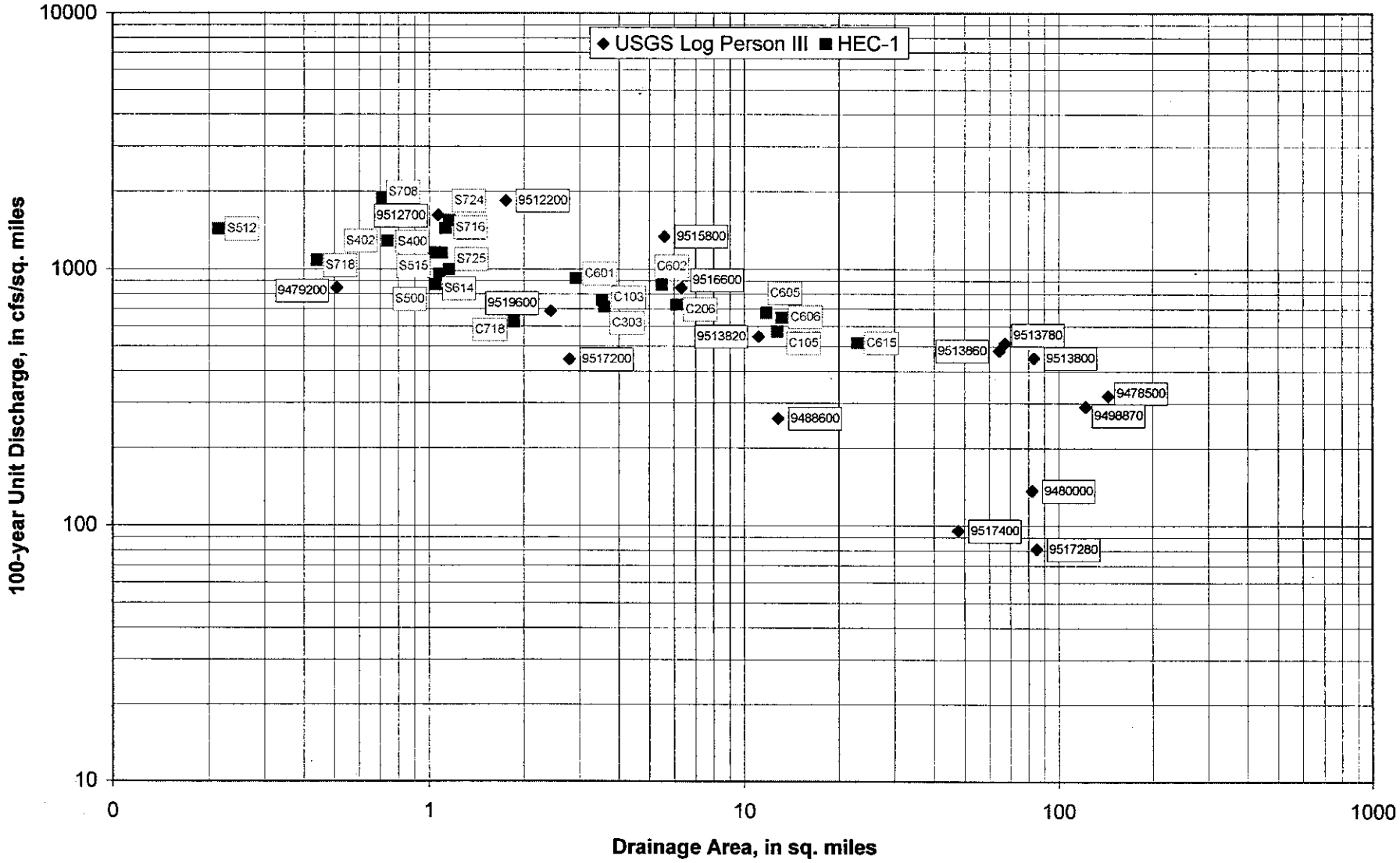


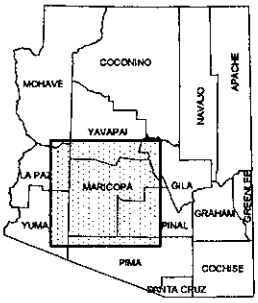
Table F-2
USGS gage data for representative watersheds

Station No.	Station Name	Drainage Area	Mean Basin Elevation	Record Length	QMax	Log Pearson Type III 100-Year Discharge	
						Peak	Unit Peak
		sq. mi.	feet	years	cfs	cfs	cfs/sq. mi.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
9478500	Queen C At Whitlow Damsite N Superior Ariz.	144.0	3180	11	42900	46100	320
9479200	Queen C Trib A Apache Junc Ariz	0.5	1760	18	262	431	845
9480000	Santa Cruz River Near Lochiel, Ariz.	82.2	5150	20	12000	11200	136
9488600	Silver Reef Wash Near Casa Grande, Ariz.	12.8	1620	12	1400	3340	261
9498870	Rye Creek Nr Gisela, Ariz.	122.0	4390	22	44400	35400	290
9512200	Salt River Trib. In S. Mnt. Park, Phoenix, Ariz.	1.8	1730	14	670	3220	1840
9512700	Agua Fria River Trib #2 Nr Rock Springs, Ariz	1.1	2140	17	1200	1730	1617
9513780	New River Nr Rock Springs, Ariz.	67.3	3970	13	18600	34600	514
9513800	New River At New River, Ariz.	83.3	3600	10	19500	37500	450
9513820	Deadman Wash Near New River, Ariz.	11.1	1980	19	1850	6070	547
9513860	Skunk Creek Near Phoenix, Ariz.	64.6	2180	14	11500	31000	480
9515800	Hartman Wash Near Wickenburg, Ariz.	5.6	2690	15	860	7450	1338
9516600	Ox Wash Near Morristown, Ariz.	6.3	2290	19	2900	5330	845
9517200	Centennial Wash Tributary Near Wenden, Ariz.	2.8	2480	16	720	1240	444
9517280	Tiger Wash Near Aguila, Ariz.	85.2	2590	16	4550	6910	81
9517400	Winters Wash Near Tonopah, Ariz.	47.8	1630	17	3640	4560	95
9519600	Rainbow Wash Trib Near Buckeye, Ariz.	2.4	950	16	1430	1670	687

FIGURE F-1
HEC-1 model results comparison with USGS gage Data



YAVAPAI COUNTY
MARICOPA COUNTY
LA PAZ COUNTY
YUMA COUNTY
PINAL COUNTY
PIMA COUNTY
PEORIA
PHOENIX
9515800
9516600
9517200
9517280
9517400
9519600
9512700
9513780
9513800
9513820
9513860
9479200
9512200
9488600
Centennial Wash
Hassayampa River
Agua Fria River
New River
Skunk Creek
Cave Creek
Salt River
Verde River
Sycamore Creek
Waterman Wash
Gila River
Santa Rosa Wash



LOCATION MAP

N
W E
S

10 0 10 20 Miles

Legend
- USGS Gages
- Interstate Highways
- Streams
- Watershed
- County Line
- City of Peoria
- Cities

FIGURE F-2

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FIGURE 10-3

100-YEAR PEAK DISCHARGE BY LP3 ANALYSIS (LP3 Q100) AND MAXIMUM RECORDED DISCHARGE (Q_M RECORD) vs. DRAINAGE AREA FOR 0.1 TO 2.0 SQUARE MILES

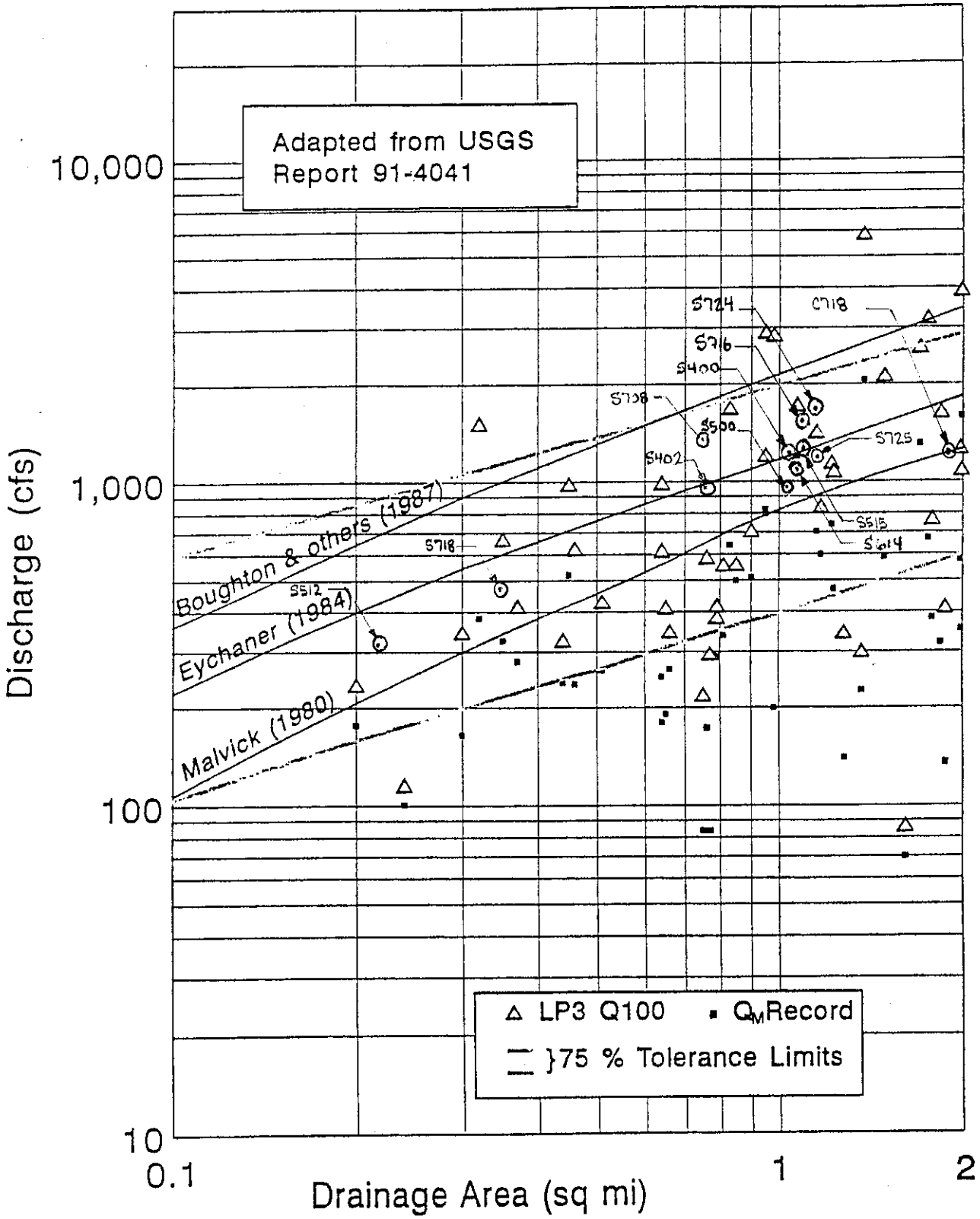


FIGURE 10-4

100-YEAR PEAK DISCHARGE BY LP3 ANALYSIS (LP3 Q100) AND MAXIMUM RECORDED DISCHARGE (Q_M RECORD) vs. DRAINAGE AREA FOR 1 TO 20 SQUARE MILES

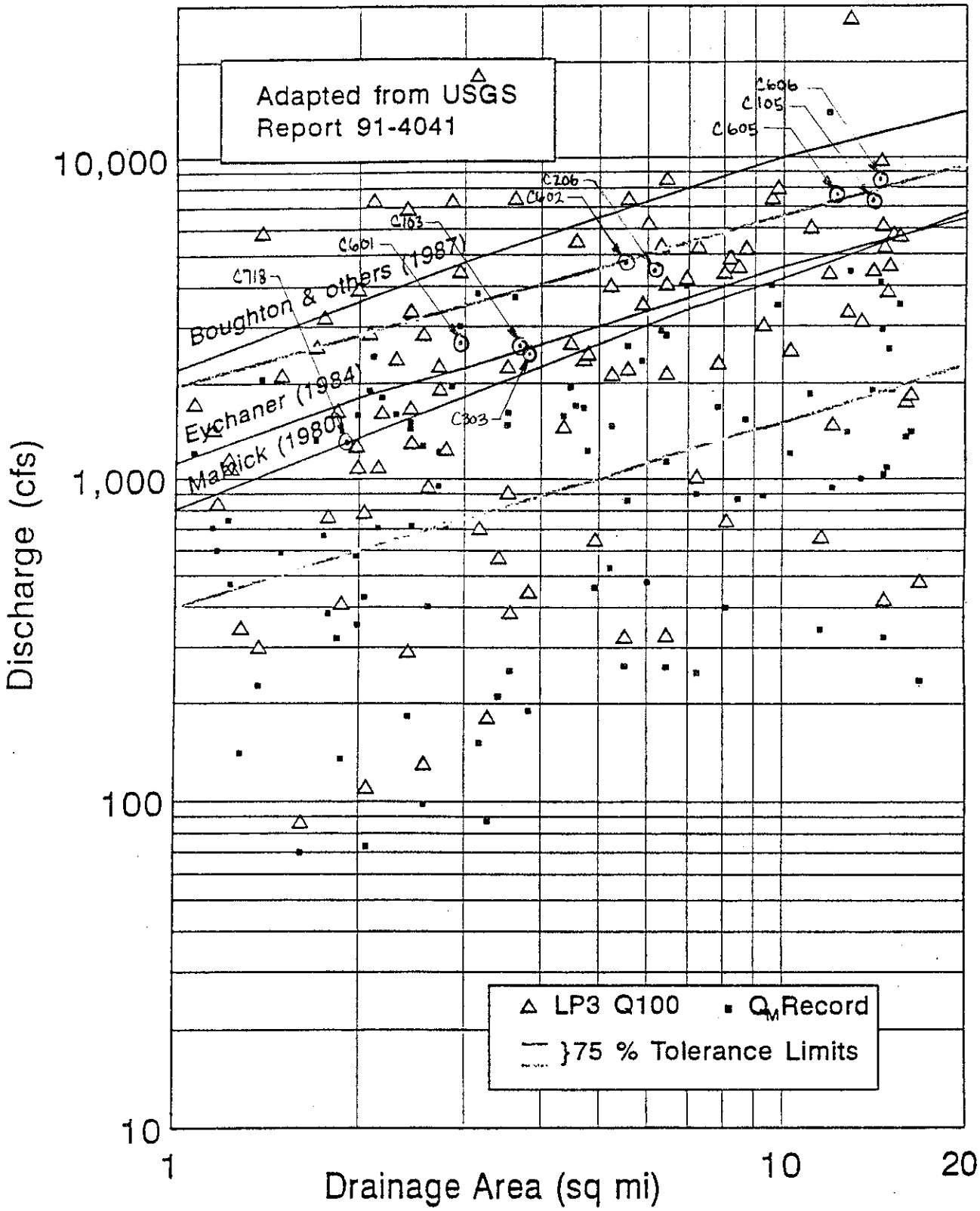


FIGURE 10-5

100-YEAR PEAK DISCHARGE BY LP3 ANALYSIS (LP3 Q100) AND MAXIMUM RECORDED DISCHARGE (Q_M RECORD) vs. DRAINAGE AREA FOR 10 TO 200 SQUARE MILES

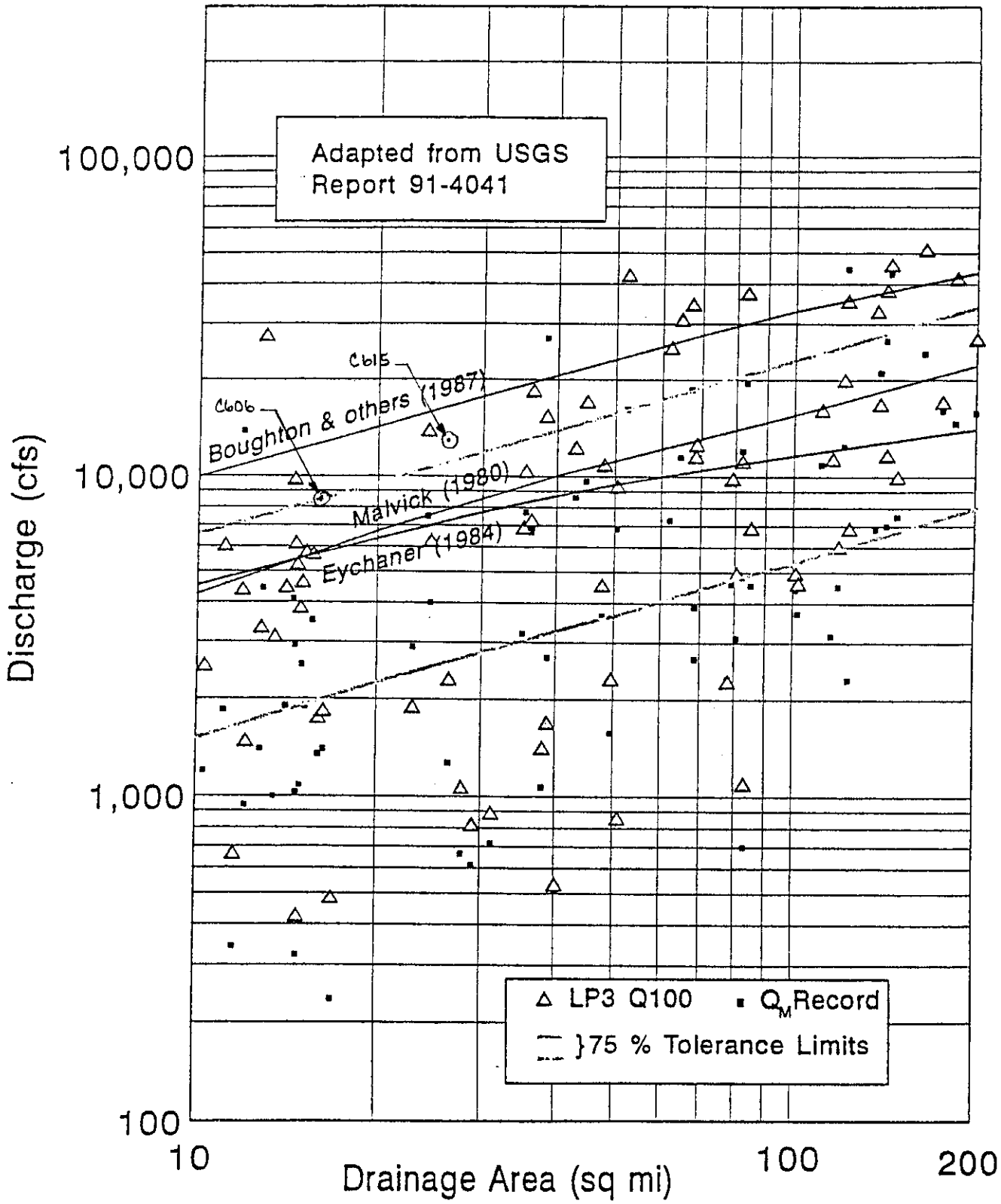


Table F-3
Summary of indirect method results for Method 3

HEC-1 ID	Drainage Area sq. mi.	Average Elevation feet	100-Year Peak Discharge		Estimated Average Standard Error (+/- 31%)	
			HEC-1 cfs	USGS Regression Eqn. cfs	Lower Limit cfs	Upper limit cfs
(1)	(2)	(3)	(4)	(5)	(6)	(7)
C103	3.54	1739	2671	4813	3321	6305
C105	12.75	1759	7297	11037	7615	14458
C206	6.09	1856	4421	6751	4658	8844
C303	3.60	1670	2567	4960	3423	6498
C601	2.92	2774	2687	3399	2345	4452
C602	5.47	2578	4746	5417	3738	7096
C605	11.76	2479	7954	8991	6204	11778
C606	13.17	2403	8535	9769	6741	12797
C615	22.90	2081	11824	14426	9954	18898
C718	1.86	1526	1158	3205	2212	4199
S400	1.05	1637	1212	1994	1376	2613
S402	0.74	1483	951	1569	1082	2055
S500	1.05	1838	914	1892	1306	2479
S512	0.21	1490	306	519	358	680
S515	1.10	1374	1268	2241	1546	2936
S614	1.08	1951	1033	1883	1300	2467
S708	0.71	1616	1336	1458	1006	1910
S716	1.13	1584	1625	2146	1481	2811
S718	0.44	1408	476	1030	711	1350
S724	1.16	1413	1788	2308	1592	3023
S725	1.16	1400	1153	2317	1599	3036

FIGURE 10-20

SCATTER DIAGRAM OF INDEPENDENT VARIABLES FOR R12 REGRESSION EQUATION

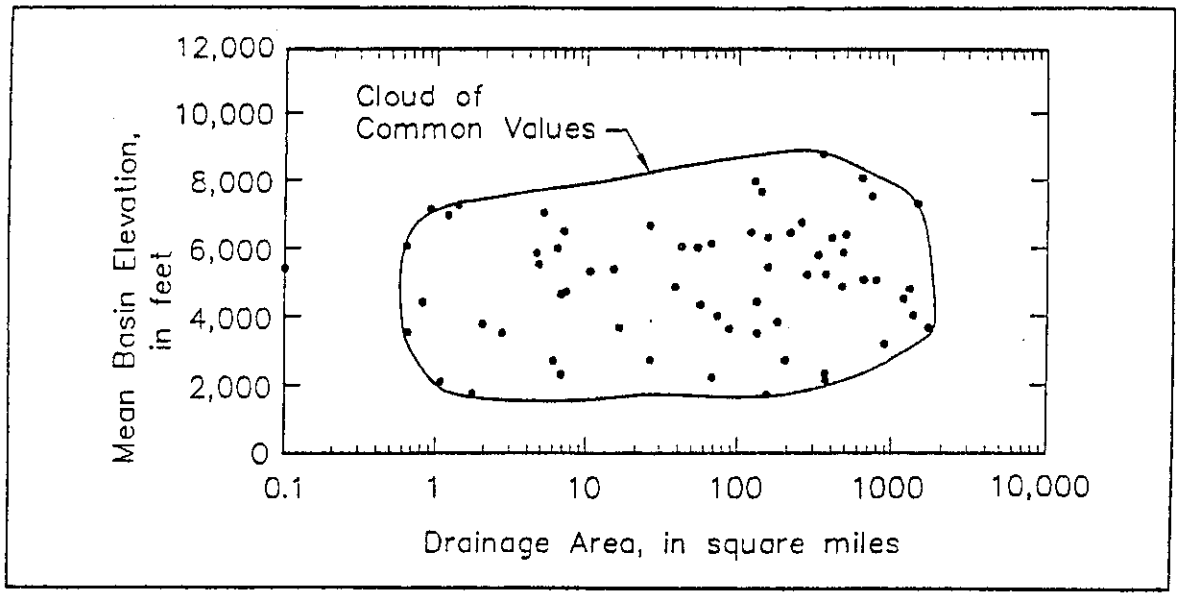
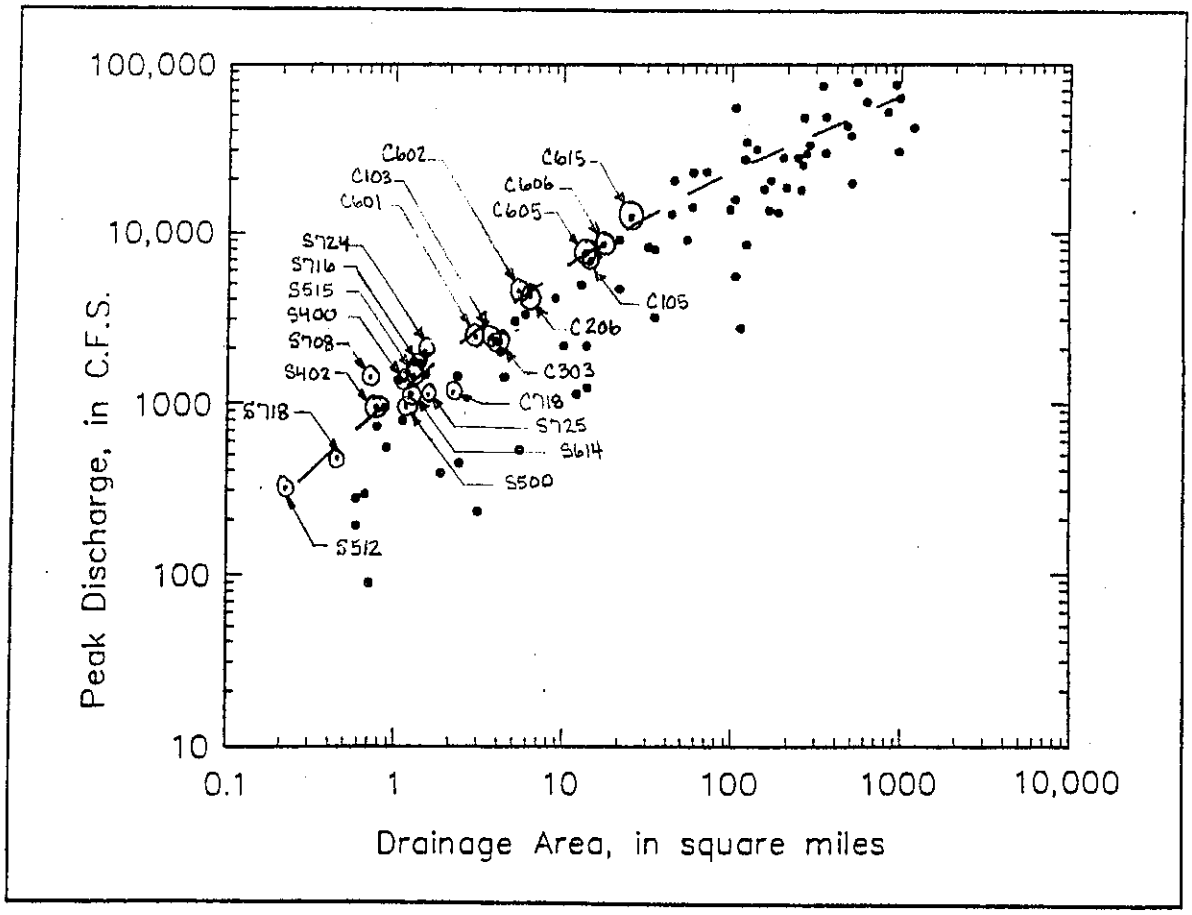


FIGURE 10-21

Q_{100} DATA POINTS AND 100-YEAR PEAK DISCHARGE RELATION FOR R12



R12

YAVAPAI COUNTY

LA PAZ COUNTY

MARICOPA COUNTY

YUMA COUNTY

PEORIA

PHOENIX

Hassayampa River

Agua Fria River

New River

Skunk Creek

Cave Creek

Verde River

Sycamore Creek

Tonto Creek

Salt River

Centennial Wash

Waterman Wash

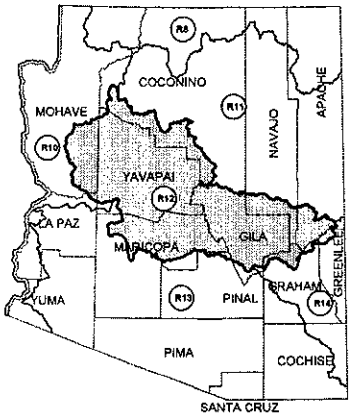
Gila River

PINAL COUNTY

MARICOPA COUNTY

PIMA COUNTY

PINAL COUNTY



LOCATION MAP

N
W E
S

10 0 10 20 Miles

Legend

- Flood Region Boundary
- Interstate Highways
- Streams
- Watershed
- County Line
- City of Peoria
- Cities

FIGURE F-3

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APPENDIX G: RATIONAL METHOD PARAMETERS AND CALCULATIONS

Table G-1
Runoff coefficient and Kb estimation worksheet

C (10-yr, Table 3.2), Enter Default Values		C (100-yr, Table 3.2), Enter Default Values	
ARP	0.85	ARP	0.95
COMM	0.70	COMM	0.88
DESERT	0.40	DESERT	0.50
IND	0.70	IND	0.88
LDR	0.55	LDR	0.69
OPEN	0.40	OPEN	0.50
PF	0.70	PF	0.88

SUB-BASIN ID	R100						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2650			0.50			0.50
HIGH ELEVATION (FT)	1520						1520.00
LOW ELEVATION (FT)	1392						1392.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	51						
SOIL TYPE AREA (SQ. FT), (ACRES)	2674492.0						61.40
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2674492	0	0	0	0	0	2674492.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.06

SUB-BASIN ID	R101						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2850			0.54			0.54
HIGH ELEVATION (FT)	1580						1580.00
LOW ELEVATION (FT)	1385.8						1385.80
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	51						
SOIL TYPE AREA (SQ. FT), (ACRES)	2346662.0						53.87
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2346662	0	0	0	0	0	2346662.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.056

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R102						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	3050			0.58			0.58
HIGH ELEVATION (FT)	1583.5						1583.50
LOW ELEVATION (FT)	1350						1350.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	18	45	51				
SOIL TYPE AREA (SQ FT), (ACRES)	4388.2	2126.8	2783847.0				64.05
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2789862	0	0	0	0	0	2789862.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	C	Kb Table 3.1 (FCDMC V.I Hydrology)					0.105

SUB-BASIN ID	R103						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	4750			0.90			0.90
HIGH ELEVATION (FT)	1510.2						1510.20
LOW ELEVATION (FT)	1363.3						1363.30
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	45	48	49	51	110		
SOIL TYPE AREA (SQ FT), (ACRES)	215056.6	1934413.0	951377.5	2954.8	1847869.0		114.29
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	4978260	0	0	0	0	0	4978260.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.052

SUB-BASIN ID	R104						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	4500			0.85			0.85
HIGH ELEVATION (FT)	1507.9						1507.90
LOW ELEVATION (FT)	1351.1						1351.10
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	48	110	118		
SOIL TYPE AREA (SQ FT), (ACRES)	518256.4	460561.3	199613	2751847.0	172232		86.14
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	3752349	0	0	0	0	0	3752349.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.053

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R105						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2250			0.43			0.43
HIGH ELEVATION (FT)	1526						1526.00
LOW ELEVATION (FT)	1340						1340.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	70	110			
SOIL TYPE AREA (SQ. FT), (ACRES)	67182.5	262747.8	162312.2	640891.8			26.01
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	1133134	0	0	0	0	0	1133134.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.061

SUB-BASIN ID	R106						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	3860			0.73			0.73
HIGH ELEVATION (FT)	1482.5						1482.50
LOW ELEVATION (FT)	1340.9						1340.90
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	12	13	18	45	110		
SOIL TYPE AREA (SQ. FT), (ACRES)	1593762.0	376294.8	60587.8	778654.6	847849.1		83.96
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	3657148	0	0	0	0	0	3657148.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.054

SUB-BASIN ID	R107						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	4025			0.76			0.76
HIGH ELEVATION (FT)	1382.2						1382.20
LOW ELEVATION (FT)	1342.7						1342.70
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	98	110	TSC		
SOIL TYPE AREA (SQ. FT), (ACRES)	1862099.0	485486.4	68323.3	5113455.0	822895.6		191.74
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	8352260	0	0	0	0	0	8352260.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.049

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R108						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	3800			0.72			0.72
HIGH ELEVATION (FT)	1342.7						1342.70
LOW ELEVATION (FT)	1260						1260.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	98	110	61	TSC	
SOIL TYPE AREA (SQ.FT.) (ACRES)	681012	855686.2	2744653	1651349	7499.2	7245120.1	196.56
LAND USE QUALIFIER	LDR	DESERT	0	0	0	0	
LAND USE (D/N)	N	N	0	0	0	0	
LAND USE AREA	4370804	8125128	0	0	0	0	8562208.40
C (Defaults to 0.4 if Land Use = N)	0.4	0.4	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.048

SUB-BASIN ID	R109						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	4650			0.88			0.88
HIGH ELEVATION (FT)	1331.2						1331.20
LOW ELEVATION (FT)	1237.9						1237.90
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	CE	LCA	MTB	PWB	PXD		
SOIL TYPE AREA (SQ.FT.) (ACRES)	3729350	3761683	1508758.0	9835491	5843478		84.43
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	3677728	0	0	0	0	0	3677728.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.054

SUB-BASIN ID	R110						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	1770			0.34			0.34
HIGH ELEVATION (FT)	1275						1275.00
LOW ELEVATION (FT)	1235						1235.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	MTB						
SOIL TYPE AREA (SQ.FT.) (ACRES)	2749943.0						63.13
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2749943.0	0	0	0	0	0	2749943.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.060

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R111						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	8310			1.57			1.57
HIGH ELEVATION (FT)	1325						1325.00
LOW ELEVATION (FT)	1220						1220.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	LcA	MTB	PWB	PYD			
SOIL TYPE AREA (SQ. FT), (ACRES)	910460.0	2087598.0	2724265.0	864974.0			151.22
LAND USE QUALIFIER	PF	DESERT	0	0	0	0	
LAND USE (D/N)	D	N	0	0	0	0	
LAND USE AREA	809671	5780330	0	0	0	0	6590001.00
C (Defaults to 0.4 if Land Use = N)	0.7	0.4	0	0	0	0	0.44
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.050

SUB-BASIN ID	R112						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	7530			1.43			1.43
HIGH ELEVATION (FT)	1300						1300.00
LOW ELEVATION (FT)	1210						1210.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	MTB	PWB	PYD				
SOIL TYPE AREA (SQ. FT), (ACRES)	2832476.0	2473337.0	1905373.4				165.55
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	7211358	0	0	0	0	0	7211358.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.049

SUB-BASIN ID	R113						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2530			0.48			0.48
HIGH ELEVATION (FT)	1240						1240.00
LOW ELEVATION (FT)	1210						1210.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	MTB	PYD					
SOIL TYPE AREA (SQ. FT), (ACRES)	1573085.0	508939.8					47.80
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2082168	0	0	0	0	0	2082168.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.060

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R114						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	7710			1.46			1.46
HIGH ELEVATION (FT)	1300						1300.00
LOW ELEVATION (FT)	1215						1215.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	MTB	PWB	PYD				
SOIL TYPE AREA (SQ. FT), (ACRES)	2232600.0	2515440.0	1596589.8				145.65
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	6344514	0	0	0	0	0	6344514.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.060

SUB-BASIN ID	R115						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	7180			1.36			1.36
HIGH ELEVATION (FT)	1290						1290.00
LOW ELEVATION (FT)	1205						1205.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	BE	MTB	PWB	PYD			
SOIL TYPE AREA (SQ. FT), (ACRES)	15365864.2	2512304.2	2075224.1	1791769.0			181.72
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	7915723	0	0	0	0	0	7915723.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.060

SUB-BASIN ID	R116						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2000			0.38			0.38
HIGH ELEVATION (FT)	1560						1560.00
LOW ELEVATION (FT)	1430						1430.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	12	45	47	52	98		
SOIL TYPE AREA (SQ. FT), (ACRES)	2521913	797486	587157.5	468429.0	230294.0		37.14
LAND USE QUALIFIER	OPEN	DESERT	0	0	0	0	
LAND USE (D/N)	N	N	0	0	0	0	
LAND USE AREA	562183.2	1055687	0	0	0	0	1617820.20
C (Defaults to 0.4 if Land Use = N)	0.4	0.4	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	C	Kb Table 3.1 (FCDMC V.I Hydrology)					0.111

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R117						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	620			0.12			0.12
HIGH ELEVATION (FT)	1550						1550.00
LOW ELEVATION (FT)	1520						1520.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	47	52			
SOIL TYPE AREA (SQ. FT), (ACRES)	381288.6	86958.0	239540.5	29154.0			16.92
LAND USE QUALIFIER	OPEN	DESERT	0	0	0	0	
LAND USE (D/N)	N	N	0	0	0	0	
LAND USE AREA	150669.2	586271.9	0	0	0	0	736941.10
C (Defaults to 0.4 if Land Use = N)	0.4	0.4	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.063

SUB-BASIN ID	R118						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	1650			0.31			0.31
HIGH ELEVATION (FT)	1555.3						1555.30
LOW ELEVATION (FT)	1430						1430.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	45	52	98				
SOIL TYPE AREA (SQ. FT), (ACRES)	1005229.0	70988.9	74126.1				26.41
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	1150344	0	0	0	0	0	1150344.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	C	Kb Table 3.1 (FCDMC V.I Hydrology)					0.114

SUB-BASIN ID	R119						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	1225			0.23			0.23
HIGH ELEVATION (FT)	1550						1550.00
LOW ELEVATION (FT)	1440						1440.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	45	98					
SOIL TYPE AREA (SQ. FT), (ACRES)	1258063.0	90658.9					30.96
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	1348722	0	0	0	0	0	1348722.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	C	Kb Table 3.1 (FCDMC V.I Hydrology)					0.113

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R120						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2875			0.54			0.54
HIGH ELEVATION (FT)	1572.6						1572.60
LOW ELEVATION (FT)	1494						1494.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45					
SOIL TYPE AREA (SQ. FT), (ACRES)	2076412.0	476894.2					58.62
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2553306	0	0	0	0	0	2553306.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.056

SUB-BASIN ID	R121						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2100			0.40			0.40
HIGH ELEVATION (FT)	1494						1494.00
LOW ELEVATION (FT)	1444.3						1444.30
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	12	13	45				
SOIL TYPE AREA (SQ. FT), (ACRES)	13016.1	1048447.0	2765875.0				87.86
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	3827338	0	0	0	0	0	3827338.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.053

SUB-BASIN ID	R122						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	3300			0.63			0.63
HIGH ELEVATION (FT)	1410						1410.00
LOW ELEVATION (FT)	1360						1360.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	10	12	45	98			
SOIL TYPE AREA (SQ. FT), (ACRES)	9530.3	1668158.0	802812.6	616414.2			71.10
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	3096915	0	0	0	0	0	3096915.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.055

Table G-1
Runoff coefficient and Kb estimation worksheet

SUB-BASIN ID	R123						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	1400			0.27			0.27
HIGH ELEVATION (FT)	1365						1365.00
LOW ELEVATION (FT)	1320						1320.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	68				
SOIL TYPE AREA (SQ. FT), (ACRES)	671005.7	587988.0	91516.2				31.00
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	1350510	0	0	0	0	0	1350510.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.059

SUB-BASIN ID	R124						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2600			0.49			0.49
HIGH ELEVATION (FT)	1384						1384.00
LOW ELEVATION (FT)	1315						1315.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	13	45	68				
SOIL TYPE AREA (SQ. FT), (ACRES)	1436241.0	145317.5	44854.0				37.34
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	1626413	0	0	0	0	0	1626413.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.058

SUB-BASIN ID	R125						INPUT DATA FOR COUNTY RATIONAL
DRAINAGE LENGTH (FT), (MILE)	2800			0.53			0.53
HIGH ELEVATION (FT)	1402.8						1402.80
LOW ELEVATION (FT)	1280						1280.00
10-YR, 6-HR PRECIP (IN)	2.2						2.20
SOIL TYPE	10	12	13	45	98	110	
SOIL TYPE AREA (SQ. FT), (ACRES)	19872.5	365805.4	163766.4	913245.1	383353.4	223463.0	47.51
LAND USE QUALIFIER	DESERT	0	0	0	0	0	
LAND USE (D/N)	N	0	0	0	0	0	
LAND USE AREA	2069506	0	0	0	0	0	2069506.00
C (Defaults to 0.4 if Land Use = N)	0.4	0	0	0	0	0	0.40
Kb Type (A = Min, B = Low, C = Hi or D = Max)	B	Kb Table 3.1 (FCDMC V.I Hydrology)					0.057

Table G-2

Summary of existing watershed condition Rational Method calculations

R100			
DRAINAGE LENGTH (FT)	2650.00		
HIGH ELEVATION (FT)	1520.00		
LOW ELEVATION (FT)	1392.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	61.40		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.7	13.2	67.3
5	3.9	11.5	96.7
10	4.7	10.8	114.3
25	5.8	10.0	157.9
50	6.6	10.0	194.2
100	7.3	10.0	225.1

R101			
DRAINAGE LENGTH (FT)	2850.00		
HIGH ELEVATION (FT)	1580.00		
LOW ELEVATION (FT)	1385.80		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	53.87		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.8	12.2	61.4
5	4.0	10.7	87.2
10	4.8	10.0	103.1
25	5.8	10.0	138.6
50	6.6	10.0	170.4
100	7.3	10.0	197.5

R102			
DRAINAGE LENGTH (FT)	3050.00		
HIGH ELEVATION (FT)	1583.50		
LOW ELEVATION (FT)	1350.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	64.05		
Weighted C	0.40		
Weighted Kb	0.10		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.4	18.1	60.3
5	3.4	15.8	86.3
10	4.0	14.8	102.9
25	5.2	13.4	146.4
50	6.1	12.6	186.4
100	6.9	12.0	219.9

Table G-2

Summary of existing watershed condition Rational Method calculations

R103			
DRAINAGE LENGTH (FT)	4750.00		
HIGH ELEVATION (FT)	1510.20		
LOW ELEVATION (FT)	1363.30		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	114.29		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.1	21.5	97.7
5	3.1	18.8	139.4
10	3.7	17.4	170.5
25	4.8	15.8	239.9
50	5.6	14.9	307.2
100	6.4	14.2	362.9

R104			
DRAINAGE LENGTH (FT)	4500.00		
HIGH ELEVATION (FT)	1507.90		
LOW ELEVATION (FT)	1351.10		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	86.14		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.2	20.2	76.5
5	3.2	17.6	109.5
10	3.8	16.4	132.2
25	4.9	15.0	185.3
50	5.8	14.0	239.1
100	6.5	13.4	281.6

R105			
DRAINAGE LENGTH (FT)	2250.00		
HIGH ELEVATION (FT)	1526.00		
LOW ELEVATION (FT)	1340.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	26.01		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	3.1	10.3	31.7
5	4.1	10.0	43.1
10	4.8	10.0	49.8
25	5.8	10.0	66.9
50	6.6	10.0	82.3
100	7.3	10.0	95.4

Table G-2

Summary of existing watershed condition Rational Method calculations

R106			
DRAINAGE LENGTH (FT)	3860.00		
HIGH ELEVATION (FT)	1482.50		
LOW ELEVATION (FT)	1340.90		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	83.96		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.4	18.0	79.2
5	3.4	15.7	113.5
10	4.0	14.7	135.4
25	5.2	13.3	192.6
50	6.1	12.6	244.4
100	6.9	12.0	288.2

R107			
DRAINAGE LENGTH (FT)	4025.00		
HIGH ELEVATION (FT)	1382.20		
LOW ELEVATION (FT)	1342.70		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	191.74		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	1.7	29.7	131.4
5	2.5	25.7	193.3
10	3.1	23.7	237.8
25	4.0	21.6	304.9
50	4.9	19.9	376.0
100	5.6	19.0	427.1

R108			
DRAINAGE LENGTH (FT)	3800.00		
HIGH ELEVATION (FT)	1342.70		
LOW ELEVATION (FT)	1260.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	196.56		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.2	20.5	173.0
5	3.1	17.9	247.3
10	3.8	16.6	300.0
25	4.9	15.1	421.5
50	5.7	14.2	541.7
100	6.5	13.6	638.0

Table G-2

Summary of existing watershed condition Rational Method calculations

R109			
DRAINAGE LENGTH (FT)	4650.00		
HIGH ELEVATION (FT)	1331.20		
LOW ELEVATION (FT)	1237.90		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	84.43		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	1.9	26.0	63.2
5	2.7	22.5	92.4
10	3.4	20.8	114.1
25	4.3	19.0	159.5
50	5.2	17.6	211.6
100	5.9	16.8	248.9

R110			
DRAINAGE LENGTH (FT)	1770.00		
HIGH ELEVATION (FT)	1275.00		
LOW ELEVATION (FT)	1235.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	63.13		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.6	14.5	65.8
5	3.8	12.6	95.6
10	4.5	11.8	113.5
25	5.7	10.8	158.1
50	6.5	10.2	198.4
100	7.3	10.0	231.5

R111			
DRAINAGE LENGTH (FT)	8310.00		
HIGH ELEVATION (FT)	1325.00		
LOW ELEVATION (FT)	1220.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	151.22		
Weighted C	0.44		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	1.4	43.5	91.1
5	2.1	36.9	140.8
10	2.5	34.7	165.7
25	3.2	31.5	234.7
50	3.8	29.6	301.9
100	4.6	27.6	377.5

Table G-2

Summary of existing watershed condition Rational Method calculations

R112			
DRAINAGE LENGTH (FT)	7530.00		
HIGH ELEVATION (FT)	1300.00		
LOW ELEVATION (FT)	1210.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	165.55		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	i (in/hr)	Tc (min)	Q (cfs)
2	1.4	41.3	94.9
5	2.1	35.5	140.9
10	2.5	33.4	165.4
25	3.2	30.6	230.3
50	3.7	28.7	296.2
100	4.3	27.3	351.8

R113			
DRAINAGE LENGTH (FT)	2530.00		
HIGH ELEVATION (FT)	1240.00		
LOW ELEVATION (FT)	1210.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	47.80		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	i (in/hr)	Tc (min)	Q (cfs)
2	2.0	23.3	38.7
5	2.9	20.3	55.5
10	3.6	18.7	68.7
25	4.6	17.0	96.6
50	5.4	16.0	124.9
100	6.4	15.0	152.5

R114			
DRAINAGE LENGTH (FT)	7710.00		
HIGH ELEVATION (FT)	1300.00		
LOW ELEVATION (FT)	1215.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	145.65		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	i (in/hr)	Tc (min)	Q (cfs)
2	1.2	50.5	70.5
5	2.0	41.9	115.3
10	2.4	39.1	137.9
25	3.1	35.5	195.5
50	3.6	33.3	253.1
100	4.2	31.6	303.9

Table G-2

Summary of existing watershed condition Rational Method calculations

R115			
DRAINAGE LENGTH (FT)	7180.00		
HIGH ELEVATION (FT)	1290.00		
LOW ELEVATION (FT)	1205.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	181.72		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	1.3	46.2	95.4
5	2.1	38.9	150.5
10	2.4	36.5	178.1
25	3.1	33.1	251.7
50	3.7	31.1	324.7
100	4.3	29.4	390.7

R116			
DRAINAGE LENGTH (FT)	2000.00		
HIGH ELEVATION (FT)	1560.00		
LOW ELEVATION (FT)	1430.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	37.14		
Weighted C	0.40		
Weighted Kb	0.11		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.5	15.4	37.5
5	3.7	13.4	54.6
10	4.4	12.5	65.1
25	5.6	11.4	91.1
50	6.4	10.8	114.6
100	7.3	10.3	134.9

R117			
DRAINAGE LENGTH (FT)	620.00		
HIGH ELEVATION (FT)	1550.00		
LOW ELEVATION (FT)	1520.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	16.92		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	3.1	10.0	20.9
5	4.1	10.0	28.0
10	4.8	10.0	32.4
25	5.8	10.0	43.5
50	6.6	10.0	53.5
100	7.3	10.0	62.0

Table G-2

Summary of existing watershed condition Rational Method calculations

R118			
DRAINAGE LENGTH (FT)	1650.00		
HIGH ELEVATION (FT)	1555.30		
LOW ELEVATION (FT)	1430.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	26.41		
Weighted C	0.40		
Weighted Kb	0.11		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.8	13.1	29.1
5	3.9	11.5	41.6
10	4.7	10.8	49.2
25	5.8	10.0	67.9
50	6.6	10.0	83.5
100	7.3	10.0	96.8

R119			
DRAINAGE LENGTH (FT)	1225.00		
HIGH ELEVATION (FT)	1550.00		
LOW ELEVATION (FT)	1440.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	30.96		
Weighted C	0.40		
Weighted Kb	0.11		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	3.1	10.3	37.8
5	4.1	10.0	51.3
10	4.8	10.0	59.2
25	5.8	10.0	79.6
50	6.6	10.0	97.9
100	7.3	10.0	113.5

R120			
DRAINAGE LENGTH (FT)	2875.00		
HIGH ELEVATION (FT)	1572.60		
LOW ELEVATION (FT)	1494.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	58.62		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.4	17.2	56.5
5	3.5	15.0	81.0
10	4.1	14.0	97.2
25	5.3	12.7	137.4
50	6.2	12.0	174.0
100	7.0	11.5	204.6

Table G-2

Summary of existing watershed condition Rational Method calculations

R121			
DRAINAGE LENGTH (FT)	2100.00		
HIGH ELEVATION (FT)	1494.00		
LOW ELEVATION (FT)	1444.30		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	87.86		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.6	14.7	90.8
5	3.8	12.7	132.6
10	4.5	11.9	157.4
25	5.7	10.9	219.3
50	6.5	10.3	275.3
100	7.3	10.0	322.2

R122			
DRAINAGE LENGTH (FT)	3300.00		
HIGH ELEVATION (FT)	1410.00		
LOW ELEVATION (FT)	1360.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	71.10		
Weighted C	0.40		
Weighted Kb	0.05		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.0	23.5	57.1
5	2.9	20.5	82.1
10	3.6	18.9	101.6
25	4.6	17.2	142.7
50	5.4	16.1	185.2
100	6.1	15.4	217.0

R123			
DRAINAGE LENGTH (FT)	1400.00		
HIGH ELEVATION (FT)	1365.00		
LOW ELEVATION (FT)	1320.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	31.00		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	3.0	10.9	37.0
5	4.1	10.0	51.4
10	4.8	10.0	59.3
25	5.8	10.0	79.7
50	6.6	10.0	98.1
100	7.3	10.0	113.7

Table G-2

Summary of existing watershed condition Rational Method calculations

R124			
DRAINAGE LENGTH (FT)	2600.00		
HIGH ELEVATION (FT)	1384.00		
LOW ELEVATION (FT)	1315.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	37.34		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.4	16.9	36.3
5	3.5	14.7	52.2
10	4.2	13.7	62.6
25	5.4	12.5	88.2
50	6.2	11.8	111.6
100	7.0	11.3	131.2

R125			
DRAINAGE LENGTH (FT)	2800.00		
HIGH ELEVATION (FT)	1402.80		
LOW ELEVATION (FT)	1280.00		
10-YR, 6-HR PRECIP (IN)	2.20		
AREA (ACRES)	47.51		
Weighted C	0.40		
Weighted Kb	0.06		
RETURN PERIOD (YEARS)	I (in/hr)	Tc (min)	Q (cfs)
2	2.6	14.4	49.7
5	3.8	12.5	72.2
10	4.5	11.7	85.7
25	5.7	10.7	119.4
50	6.6	10.1	149.8
100	7.3	10.0	174.2

APPENDIX H: HEC-1 MODEL OUTPUT

100-Year, 6-Hour HEC-1 Model Output

HEC-1 REPORT

```
1*****************************************                                    *****************************************
*                                       *                                    *                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                    *    U.S. ARMY CORPS OF ENGINEERS       *
*              JUN   1998               *                                    *    HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1                *                                    *          609 SECOND STREET            *
*                                       *                                    *       DAVIS, CALIFORNIA 95616         *
*  RUN DATE   05FEB01  TIME  07:51:07   *                                    *           (916) 756-1104              *
*                                       *                                    *                                       *
*****************************************                                    *****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X                X
                                        XXXXXXX  XXXX     X        XXXXX   X
                                        X     X  X        X                X
                                        X     X  X        X     X          X
                                        X     X  XXXXXXX   XXXXX         XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                HEC-1 INPUT                                                    PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID     N. Peoria Area Drainage Master Plan                  File: EX100-6.IH1
        2           ID        For Maricopa County FCD 99-45                 Original:05-04-00     MCG
        3           ID        By Stantec Consulting, Inc. P82000146          Revised:02-01-01     MMZ
        4           ID
        5           ID     The N. Peoria ADMP study limits consists of several small tributary
        6           ID     watersheds to the Agua Fria River.  This model is for the existing
        7           ID     condition 100-year, 6-hour storm event.  A companion model is also created
        8           ID     for the existing condition 100-year, 24-hour storm event.  Both models
        9           ID     100-year, 6- and 24-hour) should be referenced for the determination of
       10           ID     storm event produces the highest peak discharge.
       11           ID
       12           ID     Modeling of the watersheds is performed using the following:
       13           ID        100-year, 6-hour rainfall with FCDMC design rainfall distributions
       14           ID        Green & Ampt Loss Rate Method
       15           ID        NMIN = 2 minutes
       16           ID        Clark Unit Hydrograph
       17           ID        Modified Puls channel storage routing
       18           ID
       19           ID     Watershed delineation performed using USGS 7.5 Minute Series Quadrangles
                    *
                    *DIAGRAM
                    *
       20           IT       2                    1000
       21           IO       5
       22           IN      15
                    *
                    *       Depth-area reduction factors taken from Table 2.2 of FCDMC Drainage
                    *       Design Manual
                    *       6-hr rainfall distributions per Table 2.4 and Figure 2.17 of the Manual
                    *
       23           JD    3.35    0.01
       24           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
       25           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
       26           PC   0.962   0.972   0.983   0.991   1.000
       27           JD    3.33    0.50
       28           JD    3.28    2.80
       29           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
       30           PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
       31           PC   0.950   0.963   0.975   0.988   1.000
       32           JD    3.09    16.0
       33           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
       34           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
       35           PC   0.946   0.960   0.973   0.987   1.000
       36           JD    2.71    90.0
       37           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
       38           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
       39           PC   0.927   0.945   0.964   0.982   1.000
                    *
                    *  ****************************************************************************
                    *                 Begin Major Basin 100 (Unnamed Wash 1)
                    *  ****************************************************************************
                    *
1                                                HEC-1 INPUT                                                    PAGE  2

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
120          KK    S103
121          KM   Sub-Basin   S103
122          KM
123          KM      The Clark Unit Hydrograph is used for this basin.
124          KM          The Natural time-area relation is used for this basin.
125          KM
126          KM      Time of Concentration for this sub-basin is based on the following:
127          KM          6-Hour Rainfall, Pattern No.  1.00
128          KM          An rainfall areal reduction factor of 0.995
129          KM
130          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
131          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
132          KM   .46 .45 .45 .14 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
133          KM
134          KM          L=   1.321 miles, S=   76 feet/mile, Kb= .11
135          KM
136          BA   0.395
1                                        HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

137          LG    0.24    0.38    5.60    0.22   17.00
138          UC   0.796   0.609
139          UA       0       3       5       8      12      20      43      75      90      96
140          UA     100
             *

141          KK   C102L
142          KM        Combine routed hydrgraph from S102 with runoff from S103
143          HC       2
             *

144          KK    C102
145          KM        Combine hydrgraphs from C102L and C102R
146          HC       2
             *

147          KK  102103
148          KM        Normal depth route from C102 to C103R
149          KM        Source: Field Reconnaissance
150          RS       7    FLOW      -1
151          RC     .05    .039     .06    8068  0.0124
152          RX    1000    1029  1057.9    1072  1089.6  1099.4  1109.9  1173.1
153          RY     106   103.9   101.8   100.3     100   102.2   103.3   110.0
             *

154          KK    S104
155          KM   Sub-Basin   S104
156          KM
157          KM      The Clark Unit Hydrograph is used for this basin.
158          KM          The Natural time-area relation is used for this basin.
159          KM
160          KM      Time of Concentration for this sub-basin is based on the following:
161          KM          6-Hour Rainfall, Pattern No.  1.34
162          KM          An rainfall areal reduction factor of 0.988
163          KM
164          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
165          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
166          KM   .37 .37 .36 .14 .12 .11 .06 .06 .06 .01 .01 .01 .01 .01 .00 .00 .00 .00
167          KM
168          KM          L=   1.624 miles, S=  111 feet/mile, Kb= .10
169          KM
170          BA   0.900
171          LG    0.22    0.38    5.60    0.22   13.00
172          UC   0.754   0.423
173          UA       0       3       5       8      12      20      43      75      90      96
174          UA     100
             *

175          KK   C103R
176          KM        Combine routed hydrograph from 102103 w/runoff from S104
177          HC       2
             *
1                                        HEC-1 INPUT                                          PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

178          KK    S105
179          KM   Sub-Basin   S105
180          KM
181          KM      The Clark Unit Hydrograph is used for this basin.
182          KM          The Natural time-area relation is used for this basin.
183          KM
184          KM      Time of Concentration for this sub-basin is based on the following:
185          KM          6-Hour Rainfall, Pattern No.  1.10
186          KM          An rainfall areal reduction factor of 0.992
187          KM
188          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
189          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
190          KM   .43 .43 .42 .14 .10 .09 .05 .04 .04 .01 .01 .01 .00 .00 .00 .00 .00 .00
191          KM
192          KM          L=   1.976 miles, S=   96 feet/mile, Kb= .10
193          KM
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 264          KK    S200
 265          KM   Sub-Basin   S200
 266          KM
 267          KM      The Clark Unit Hydrograph is used for this basin.
 268          KM          The Natural time-area relation is used for this basin.
 269          KM
 270          KM      Time of Concentration for this sub-basin is based on the following:
 271          KM          6-Hour Rainfall, Pattern No.  1.38
 272          KM          An rainfall areal reduction factor of 0.988
 273          KM
 274          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 275          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 276          KM   .36 .35 .35 .14 .11 .10 .06 .06 .06 .03 .03 .03 .01 .01 .01 .01 .01 .01
 277          KM
 278          KM          L=   1.665 miles, S=  192 feet/mile, Kb= .10
 279          KM
 280          BA   0.959
 281          LG    0.25    0.35    4.25    0.44   35.00
 282          UC   0.621   0.336
 283          UA       0       3       5       8      12      20      43      75      90      96
 284          UA     100
              *

 285          KK  200201
 286          KM        Normal depth route from hydrograph S200 to C201
 287          KM        Source: Field Reconnaissance
 288          RS       1    FLOW      -1
 289          RC     .05     .03     .05    3952  0.0228
 290          RX    1000    1001    1002    1005    1026    1032    1034    1036
 291          RY     105     104     103     100     100     103     104     105
              *

 292          KK    S201
 293          KM   Sub-Basin   S201
 294          KM
 295          KM      The Clark Unit Hydrograph is used for this basin.
 296          KM          The Natural time-area relation is used for this basin.
 297          KM
 298          KM      Time of Concentration for this sub-basin is based on the following:
 299          KM          6-Hour Rainfall, Pattern No.  1.00
 300          KM          An rainfall areal reduction factor of 0.995
 301          KM
 302          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 303          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 304          KM   .45 .45 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
 305          KM
 306          KM          L=   1.182 miles, S=  195 feet/mile, Kb= .11
 307          KM
 308          BA   0.350
 309          LG    0.25    0.35    4.25    0.44   35.00
 310          UC   0.483   0.343
 311          UA       0       3       5       8      12      20      43      75      90      96
 312          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 313          KK    C201
 314          KM        Combine routed hydrograph 200201 w/runoff from S201
 315          HC       2
              *

 316          KK  201203
 317          KM        Normal depth route from C201 to C203R
 318          KM        Source: Field Reconnaissance
 319          RS       2    FLOW      -1
 320          RC    .055    .039    .055    3233  0.0155
 321          RX    1000  1008.4  1057.5  1066.3  1098.4  1102.8    1105  1107.6
 322          RY     105   101.1     102   100.3     100     102     103   104.2
              *

 323          KK    S202
 324          KM   Sub-Basin   S202
 325          KM
 326          KM      The Clark Unit Hydrograph is used for this basin.
 327          KM          The Natural time-area relation is used for this basin.
 328          KM
 329          KM      Time of Concentration for this sub-basin is based on the following:
 330          KM          6-Hour Rainfall, Pattern No.  1.00
 331          KM          An rainfall areal reduction factor of 0.998
 332          KM
 333          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 334          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 335          KM   .45 .45 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
 336          KM
 337          KM          L=   0.689 miles, S=  271 feet/mile, Kb= .12
 338          KM
 339          BA   0.127
 340          LG    0.25    0.35    4.25    0.44   35.00
 341          UC   0.308   0.241
```

```
415          KM
416          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
417          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
418          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .02 .02 .02 .00 .00 .00 .00 .00 .00
419          KM
420          KM          L=   1.485 miles, S=  175 feet/mile, Kb= .11
421          KM
422          BA   0.413
423          LG    0.21    0.35    4.60    0.35   21.00
424          UC   0.604   0.480
425          UA       0       3       5       8      12      20      43      75      90      96
426          UA     100
             *

427          KK    C204
428          KM        Combine routed hydrograph 203204 w/runoff from S205
429          HC       2
             *

430          KK  204205
431          KM        Normal depth route from C204 to C205L
432          KM        Source: Field Reconnaissance
433          RS       4    FLOW      -1
434          RC     .05    .039     .05    5007  0.0140
435          RX    1000  1010.6  1053.2  1064.9  1094.7  1103.1  1105.9  1113.8
436          RY   105.6   102.5   103.3   100.4     100     103     104   106.8
             *

437          KK    S206
438          KM   Sub-Basin   S206
439          KM
440          KM      The Clark Unit Hydrograph is used for this basin.
441          KM          The Natural time-area relation is used for this basin.
442          KM
443          KM      Time of Concentration for this sub-basin is based on the following:
444          KM          6-Hour Rainfall, Pattern No.  1.31
445          KM          An rainfall areal reduction factor of 0.989
446          KM
447          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
448          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
449          KM   .38 .37 .37 .14 .11 .10 .06 .06 .05 .02 .02 .02 .01 .01 .01 .01 .01 .01
450          KM
451          KM          L=   2.296 miles, S=  118 feet/mile, Kb= .10
452          KM
453          BA   0.853
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

454          LG    0.25    0.35    4.65    0.34   27.00
455          UC   0.954   0.748
456          UA       0       3       5       8      12      20      43      75      90      96
457          UA     100
             *

458          KK   C205L
459          KM        Combine routed hydrograph 204205 w/runoff from S206
460          HC       2
             *

461          KK    S207
462          KM   Sub-Basin   S207
463          KM
464          KM      The Clark Unit Hydrograph is used for this basin.
465          KM          The Natural time-area relation is used for this basin.
466          KM
467          KM      Time of Concentration for this sub-basin is based on the following:
468          KM          6-Hour Rainfall, Pattern No.  1.38
469          KM          An rainfall areal reduction factor of 0.988
470          KM
471          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
472          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
473          KM   .36 .36 .35 .14 .11 .10 .06 .06 .06 .03 .03 .03 .01 .01 .01 .01 .01 .01
474          KM
475          KM          L=   2.315 miles, S=  117 feet/mile, Kb= .10
476          KM
477          BA   0.957
478          LG    0.25    0.35    4.35    0.41   34.00
479          UC   0.967   0.715
480          UA       0       3       5       8      12      20      43      75      90      96
481          UA     100
             *

482          KK    C205
483          KM        Combine hydrograph from C205L w/runoff from S207
484          HC       2
             *

485          KK  205206
486          KM        Normal depth route from C205 to C206
487          KM        Source: Field Reconnaissance
488          RS      10    FLOW      -1
489          RC     .05    .039     .05   11893  0.0063
490          RX    1000  1002.5    1005  1019.1  1052.5  1070.5  1120.8  1146.9
491          RY   110.1   107.6   105.1     100   100.2   104.6   103.7   109.5
```

```
567          UA     100
             *

568          KK    C207
569          KM        Combine hydrograph from C207R w/runoff from S210
570          HC       2
             *

571          KK  207105
572          KM        Normal depth route to C207 from C105
573          KM        Source: Field Reconnaissance
574          RS       2    FLOW      -1
575          RC    .055    .039    .085    7176  0.0167
576          RX    1000    1003    1006    1009  1038.5  1041.5  1047.5  1053.5
577          RY     109     106     103     100     100     102     106     110
             *

578          KK    S211
579          KM   Sub-Basin   S211
580          KM
581          KM      The Clark Unit Hydrograph is used for this basin.
582          KM          The Natural time-area relation is used for this basin.
583          KM
584          KM      Time of Concentration for this sub-basin is based on the following:
585          KM          6-Hour Rainfall, Pattern No.  1.00
586          KM          An rainfall areal reduction factor of 0.994
587          KM
588          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
589          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                          PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

590          KM   .45 .44 .44 .12 .09 .08 .03 .03 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
591          KM
592          KM          L=   1.359 miles, S=  162 feet/mile, Kb= .13
593          KM
594          BA   0.488
595          LG    0.19    0.37    5.20    0.26    4.00
596          UC   0.671   0.457
597          UA       0       3       5       8      12      20      43      75      90      96
598          UA     100
             *

599          KK   C105R
600          KM        Combine routed hydrograph 207105 w/runoff from S211
601          HC       2
             *

602          KK    C105
603          KM        Combine hydrographs from C105L and C105R
604          HC       2
             *
             *  ***********************************************************************
             *                 Begin Major Basin 300 (Unnamed Wash 3)
             *  ***********************************************************************
             *

605          KK    S300
606          KM   Sub-Basin   S300
607          KM
608          KM      The Clark Unit Hydrograph is used for this basin.
609          KM          The Natural time-area relation is used for this basin.
610          KM
611          KM      Time of Concentration for this sub-basin is based on the following:
612          KM          6-Hour Rainfall, Pattern No.  1.12
613          KM          An rainfall areal reduction factor of 0.992
614          KM
615          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
616          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
617          KM   .42 .42 .41 .13 .10 .08 .04 .04 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
618          KM
619          KM          L=   1.776 miles, S=  129 feet/mile, Kb= .10
620          KM
621          BA   0.615
622          LG    0.25    0.35    4.55    0.36   25.00
623          UC   0.746   0.558
624          UA       0       3       5       8      12      20      43      75      90      96
625          UA     100
             *

626          KK    S301
627          KM   Sub-Basin   S301
628          KM
629          KM      The Clark Unit Hydrograph is used for this basin.
630          KM          The Natural time-area relation is used for this basin.
631          KM
632          KM      Time of Concentration for this sub-basin is based on the following:
1                                          HEC-1 INPUT                                          PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

633          KM          6-Hour Rainfall, Pattern No.  1.40
634          KM          An rainfall areal reduction factor of 0.987
635          KM
```

```
712          KK  302303
713          KM        Normal depth route from C302 to C303
714          KM        Source: Field Reconniassance
715          RS       4    FLOW       -1
716          RC    .055    .048    .055    7304  0.0192
717          RX    1000  1009.4  1017.8  1026.5  1067.3  1068.7  1071.5  1075.5
718          RY   106.1     104     102     100     101     102     104   105.9
             *
1                                        HEC-1 INPUT                                                    PAGE 17

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


719          KK    S304
720          KM   Sub-Basin   S304
721          KM
722          KM      The Clark Unit Hydrograph is used for this basin.
723          KM          The Natural time-area relation is used for this basin.
724          KM
725          KM      Time of Concentration for this sub-basin is based on the following:
726          KM          6-Hour Rainfall, Pattern No.  1.29
727          KM          An rainfall areal reduction factor of 0.989
728          KM
729          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
730          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
731          KM   .38 .37 .37 .13 .10 .09 .05 .05 .04 .00 .00 .00 .00 .00 .00 .00 .00 .00
732          KM
733          KM          L=   2.314 miles, S=  186 feet/mile, Kb= .10
734          KM
735          BA   0.823
736          LG    0.18    0.36    5.10    0.27    3.00
737          UC   0.796   0.628
738          UA       0       3       5       8      12      20      43      75      90      96
739          UA     100
             *

740          KK    C303
741          KM        Combine routed hydrograph 302303 w/runoff from S304
742          HC       2
             *

743          KK  WEST-1
744          KM        Dummy combine of major basins 100, 200 and 300
745          HC       2
             *
             *  ***********************************************************************
             *                Begin Major Basin 400 (Caterpillar Tanks Wash)
             *  ***********************************************************************
             *

746          KK    S400
747          KM   Sub-Basin   S400
748          KM
749          KM      The Clark Unit Hydrograph is used for this basin.
750          KM          The Natural time-area relation is used for this basin.
751          KM
752          KM      Time of Concentration for this sub-basin is based on the following:
753          KM          6-Hour Rainfall, Pattern No.  1.43
754          KM          An rainfall areal reduction factor of 0.987
755          KM
756          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
757          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
758          KM   .36 .35 .35 .15 .13 .12 .08 .07 .07 .02 .01 .01 .01 .01 .01 .00 .00 .00
759          KM
760          KM          L=   1.864 miles, S=  110 feet/mile, Kb= .10
761          KM
762          BA   1.048
1                                        HEC-1 INPUT                                                    PAGE 18

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

763          LG    0.23    0.34    5.40    0.21   14.00
764          UC   0.833   0.484
765          UA       0       3       5       8      12      20      43      75      90      96
766          UA     100
             *

767          KK   C4000
768          KM        Storage routing at crossing structure no. 78 (see Plate 5)
769          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
770          RS       1    STOR       0
771          SQ       0      62     200     400     540     625     750
772          SE    1508    1511    1514    1520    1526    1532    1540
773          SV       0     5.2    18.6    40.7    71.7   115.5   178.1   266.3
774          SE    1508    1516    1520    1524    1528    1532    1536    1540
             *

775          KK  400401
776          KM        Normal depth route from S400 to C401
777          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
778          RS       9    FLOW       -1
779          RC    .045    .040    .045    7424  0.0101
780          RX  9729.2  9772.7  9849.9   10000 10007.8 10090.6 10147.3 10185.4
781          RY  1509.6  1508.8  1500.2  1475.5  1475.3  1495.3    1496  1497.5
```

```
855          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
856          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
857          KM   .46 .45 .45 .16 .13 .12 .06 .06 .06 .03 .02 .00 .00 .00 .00 .00 .00 .00
858          KM
859          KM          L=   1.638 miles, S=   52 feet/mile, Kb= .09
860          KM
861          BA   0.559
862          LG    0.30    0.30    8.00    0.08    0.00
863          UC   0.908   0.688
864          UA       0       3       5       8      12      20      43      75      90      96
865          UA     100
             *

866          KK    C403
867          KM        Combine routed hydrograph 402403 w/runoff from S403
868          HC       2
             *

869          KK  403404
870          KM        Normal depth route from C403 to C404
871          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
872          RS       3    FLOW      -1
873          RC    .045    .045    .045    4256   .0164
874          RX  9506.5  9551.7  9955.5    9995 10007.4 10060.9 10227.2 10315.3
875          RY  1300.9  1282.3  1282.7  1276.7  1276.5  1283.5  1283.3  1302.1
876          RL                    0.03  1276.5
             *

877          KK    S404
878          KM   Sub-Basin   S404
879          KM
880          KM      The Clark Unit Hydrograph is used for this basin.
881          KM          The Natural time-area relation is used for this basin.
882          KM
883          KM      Time of Concentration for this sub-basin is based on the following:
884          KM          6-Hour Rainfall, Pattern No.  1.00
885          KM          An rainfall areal reduction factor of 0.997
886          KM
887          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
888          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
889          KM   .46 .46 .45 .14 .11 .10 .04 .04 .04 .00 .00 .00 .00 .00 .00 .00 .00 .00
890          KM
891          KM          L=   0.773 miles, S=  181 feet/mile, Kb= .09
892          KM
893          BA   0.263
894          LG    0.27    0.37    6.60    0.14    0.00
895          UC   0.317   0.180
896          UA       0       3       5       8      12      20      43      75      90      96
897          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

898          KK    C404
899          KM        Combine routed hydrograph C403 w/runoff S404
900          HC       2
             *

901          KK  WEST-2
902          KM        Dummy combine of major basins 100, 200, 300 and 400
903          HC       2
             *
             *  ***************************************************************************
             *                 Begin Major Basin 500 (Twin Buttes Wash)
             *  ***************************************************************************
             *

904          KK    S500
905          KM   Sub-Basin   S500
906          KM
907          KM      The Clark Unit Hydrograph is used for this basin.
908          KM          The Natural time-area relation is used for this basin.
909          KM
910          KM      Time of Concentration for this sub-basin is based on the following:
911          KM          6-Hour Rainfall, Pattern No.  1.43
912          KM          An rainfall areal reduction factor of 0.987
913          KM
914          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
915          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
916          KM   .35 .34 .34 .14 .12 .10 .07 .06 .06 .03 .03 .03 .02 .02 .01 .01 .01 .01
917          KM
918          KM          L=   2.399 miles, S=  117 feet/mile, Kb= .10
919          KM
920          BA   1.054
921          LG    0.25    0.35    4.25    0.44   35.00
922          UC   1.004   0.726
923          UA       0       3       5       8      12      20      43      75      90      96
924          UA     100
             *

925          KK  500501
926          KM        Normal depth route from S500 to C501
927          KM        Source: Field Reconnaissance
```

```
1003        KM
1004        BA   0.994
1005        LG    0.21     0.31     4.65     0.28    17.00
1006        UC   0.700    0.416
1007        UA       0        3        5        8       12       20       43       75       90       96
1008        UA     100
            *

1009        KK   C502I
1010        KM        Combine hydrograph from C502L w/runoff from S503
1011        HC       2
            *

1012        KK   C502O
1013        KM        Storage routing at crossing structure no. 81
1014        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1015        RS       1    STOR       0
1016        SQ       0     248      800     1600     2160     2500     2900     3200
1017        SE    1500    1503     1506     1512     1518     1524     1530     1536
1018        SV       0    2.37     9.23    20.95    37.67   122.58    212.7   516.24
1019        SE    1500    1508     1512     1516     1520     1528     1532     1540
            *

1020        KK  502505
1021        KM        Normal depth route from C502 to C505L
1022        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1023        RS       7    FLOW      -1
1024        RC    .046     .04     .046     8775   0.0091
1025        RX  9875.7   9921.8   9941.2   9962.7  10048.7  10088.3  10258.2  10339.9
1026        RY  1488.4   1476.5   1472.2     1469   1470.4   1480.9   1485.4   1497.1
1027        RL                      0.94     1469
            *
```

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```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1028        KK    S504
1029        KM   Sub-Basin    S504
1030        KM
1031        KM      The Clark Unit Hydrograph is used for this basin.
1032        KM          The Natural time-area relation is used for this basin.
1033        KM
1034        KM      Time of Concentration for this sub-basin is based on the following:
1035        KM          6-Hour Rainfall, Pattern No.  1.00
1036        KM          An rainfall areal reduction factor of 0.996
1037        KM
1038        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1039        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1040        KM   .43 .42 .41 .10 .05 .02 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1041        KM
1042        KM          L=   1.571 miles, S=   64 feet/mile, Kb= .09
1043        KM
1044        BA   0.326
1045        LG    0.35     0.35     4.40     0.38     0.00
1046        UC   0.963    0.964
1047        UA       0        3        5        8       12       20       43       75       90       96
1048        UA     100
            *

1049        KK   C505L
1050        KM        Combine routed hydrograph 502505 w/runoff from S504
1051        HC       2
            *

1052        KK    S505
1053        KM   Sub-Basin    S505
1054        KM
1055        KM      The Clark Unit Hydrograph is used for this basin.
1056        KM          The Natural time-area relation is used for this basin.
1057        KM
1058        KM      Time of Concentration for this sub-basin is based on the following:
1059        KM          6-Hour Rainfall, Pattern No.  1.00
1060        KM          An rainfall areal reduction factor of 0.998
1061        KM
1062        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1063        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1064        KM   .44 .44 .43 .12 .08 .06 .03 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
1065        KM
1066        KM          L=   0.472 miles, S=  365 feet/mile, Kb= .14
1067        KM
1068        BA   0.143
1069        LG    0.25     0.35     4.40     0.38    14.00
1070        UC   0.242    0.127
1071        UA       0        3        5        8       12       20       43       75       90       96
1072        UA     100
            *
```

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```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1073        KK   C503O
1074        KM        Storage routing at crossing structure no. 94
1075        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
```

```
1152          KK  505509
1153          KM        Normal depth route from C505 to C509L
1154          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1155          RS       8    FLOW      -1
1156          RC    .046    .047    .036    6213  0.0064
1157          RX  9136.7  9456.9  9928.8   10000 10150.9 10209.7   10414 10505.9
1158          RY  1419.5  1401.9    1395    1390  1390.3  1398.3  1395.1  1398.3
1159          RL                    0.94  1390.0
              *
1                                          HEC-1 INPUT                                                    PAGE 27

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1160          KK    S508
1161          KM   Sub-Basin   S508
1162          KM
1163          KM      The Clark Unit Hydrograph is used for this basin.
1164          KM          The Natural time-area relation is used for this basin.
1165          KM
1166          KM      Time of Concentration for this sub-basin is based on the following:
1167          KM          6-Hour Rainfall, Pattern No.  1.00
1168          KM          An rainfall areal reduction factor of 0.996
1169          KM
1170          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1171          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1172          KM   .44 .44 .43 .12 .08 .06 .03 .03 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
1173          KM
1174          KM          L=   1.082 miles, S=   92 feet/mile, Kb= .09
1175          KM
1176          BA   0.295
1177          LG    0.33    0.37    5.30    0.24    0.00
1178          UC   0.563   0.417
1179          UA       0       3       5       8      12      20      43      75      90      96
1180          UA     100
              *

1181          KK   C509L
1182          KM        Combine routed hydrograph 505509 w/runoff from S508
1183          HC       2
              *

1184          KK    S509
1185          KM   Sub-Basin   S509
1186          KM
1187          KM      The Clark Unit Hydrograph is used for this basin.
1188          KM          The Natural time-area relation is used for this basin.
1189          KM
1190          KM      Time of Concentration for this sub-basin is based on the following:
1191          KM          6-Hour Rainfall, Pattern No.  1.00
1192          KM          An rainfall areal reduction factor of 0.998
1193          KM
1194          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1195          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1196          KM   .46 .45 .44 .13 .09 .08 .04 .04 .03 .02 .02 .02 .01 .01 .01 .01 .01 .01
1197          KM
1198          KM          L=   0.721 miles, S=  304 feet/mile, Kb= .10
1199          KM
1200          BA   0.170
1201          LG    0.28    0.35    4.65    0.32   23.00
1202          UC   0.267   0.180
1203          UA       0       3       5       8      12      20      43      75      90      96
1204          UA     100
              *
1                                          HEC-1 INPUT                                                    PAGE 28

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1205          KK   C5060
1206          KM        Storage routing at crossing structure no. 84
1207          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1208          RS       1    STOR       0
1209          SQ       0     7.5      22      45      71      93     110
1210          SE    1519 1520.25  1521.5    1524    1529    1534    1540
1211          SV       0     .77    4.36   15.19   35.89
1212          SE    1519    1528    1532    1536    1540
              *

1213          KK  506508
1214          KM        Normal depth route from S506 to C508
1215          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1216          RS       6    FLOW      -1
1217          RC    .045    .045    .035    4023   .0149
1218          RX  9717.6  9800.2  9981.4   10000 10010.3 10036.3 10068.8 10227.2
1219          RY  1512.9  1510.9  1508.9    1502    1499  1505.7  1511.5  1512.3
              *

1220          KK    S510
1221          KM   Sub-Basin   S510
1222          KM
1223          KM      The Clark Unit Hydrograph is used for this basin.
1224          KM          The Natural time-area relation is used for this basin.
1225          KM
```

```
1302          KK   C508L
1303          KM        Combine routed hydrograph 507508 w/runoff from S512
1304          HC       2
              *

1305          KK    C508
1306          KM        Combine hydrographs from C508L and C508R
1307          HC       2
              *

1308          KK  508509
1309          KM        Normal depth route from C508 to C509
1310          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1311          RS      14    FLOW      -1
1312          RC    .045    .041    .045   10349  0.0077
1313          RX  9573.3  9869.3    9973  9985.2   10000   10053 10231.6 10511.6
1314          RY  1439.9  1425.1  1424.7  1422.1  1419.1  1425.1  1437.1  1444.5
1315          RL                    0.94  1419.1
              *

1316          KK    S513
1317          KM   Sub-Basin   S513
1318          KM
1319          KM      The Clark Unit Hydrograph is used for this basin.
1320          KM          The Natural time-area relation is used for this basin.
1321          KM
1322          KM      Time of Concentration for this sub-basin is based on the following:
1323          KM          6-Hour Rainfall, Pattern No.  1.26
1324          KM          An rainfall areal reduction factor of 0.990
1325          KM
1326          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1327          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1328          KM   .38 .38 .37 .13 .10 .08 .05 .05 .04 .00 .00 .00 .00 .00 .00 .00 .00 .00
1329          KM
1330          KM          L=   2.301 miles, S=   52 feet/mile, Kb= .08
1331          KM
1332          BA   0.778
1333          LG    0.32    0.38    5.40    0.22    1.00
1334          UC   1.246   1.061
1335          UA       0       3       5       8      12      20      43      75      90      96
1336          UA     100
              *

1337          KK   C509R
1338          KM        Combine routed hydrograph 508509 w/runoff from S513
1339          HC       2
              *
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1340          KK    C509
1341          KM        Combine hydrographs from C509L and C509R
1342          HC       2
              *

1343          KK  509510
1344          KM        Normal depth route from C509 to C510
1345          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1346          RS       3    FLOW      -1
1347          RC    .046    .043    .045    1958   .0102
1348          RX  9605.5  9805.1  9911.8   10000 10026.3 10119.6 10293.4 10613.5
1349          RY  1374.6  1369.2  1370.3  1365.5  1365.6  1379.6  1383.9  1390.1
1350          RL                    0.38  1365.5
              *

1351          KK    S514
1352          KM   Sub-Basin   S514
1353          KM
1354          KM      The Clark Unit Hydrograph is used for this basin.
1355          KM          The Natural time-area relation is used for this basin.
1356          KM
1357          KM      Time of Concentration for this sub-basin is based on the following:
1358          KM          6-Hour Rainfall, Pattern No.  1.15
1359          KM          An rainfall areal reduction factor of 0.992
1360          KM
1361          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1362          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1363          KM   .44 .43 .43 .16 .13 .12 .07 .06 .06 .03 .02 .00 .00 .00 .00 .00 .00 .00
1364          KM
1365          KM          L=   2.147 miles, S=   65 feet/mile, Kb= .08
1366          KM
1367          BA   0.650
1368          LG    0.28    0.32    7.60    0.09    0.00
1369          UC   0.929   0.803
1370          UA       0       3       5       8      12      20      43      75      90      96
1371          UA     100
              *

1372          KK    C510
1373          KM        Combine routed hydrograph 509510 w/runoff from S514
1374          HC       2
              *
```

```
1443          KM   Sub-Basin   S600
1444          KM
1445          KM      The Clark Unit Hydrograph is used for this basin.
1446          KM          The Natural time-area relation is used for this basin.
1447          KM
1448          KM      Time of Concentration for this sub-basin is based on the following:
1449          KM          6-Hour Rainfall, Pattern No.  1.81
1450          KM          An rainfall areal reduction factor of 0.980
1451          KM
1452          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1453          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1454          KM   .24 .24 .23 .13 .12 .10 .08 .08 .08 .02 .02 .02 .01 .01 .01 .01 .01 .01
1455          KM
1456          KM          L=   2.796 miles, S=  271 feet/mile, Kb= .09
1457          KM
1458          BA   2.018
1459          LG    0.25    0.35    4.00    0.49   22.00
1460          UC   0.796   0.438
1461          UA      0       3       5       8      12      20      43      75      90      96
1462          UA    100
              *

1463          KK  600601
1464          KM       Normal depth route from S600 to C601
1465          KM       Source: Morgan City Wash FDS, FCD 89-15
1466          RS       2    FLOW      -1
1467          RC    0.05   0.035    0.05    3463   .0332
1468          RX     100     110     135     200     220     260     275     290
1469          RY    2516    2512    2504    2500    2510    2520    2530    2540
              *
1                                          HEC-1 INPUT                                          PAGE 34

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1470          KK    S601
1471          KM   Sub-Basin   S601
1472          KM
1473          KM      The Clark Unit Hydrograph is used for this basin.
1474          KM          The Natural time-area relation is used for this basin.
1475          KM
1476          KM      Time of Concentration for this sub-basin is based on the following:
1477          KM          6-Hour Rainfall, Pattern No.  1.34
1478          KM          An rainfall areal reduction factor of 0.988
1479          KM
1480          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1481          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1482          KM   .39 .39 .38 .17 .14 .13 .08 .08 .08 .04 .04 .04 .02 .02 .02 .01 .01 .01
1483          KM
1484          KM          L=   1.840 miles, S=  232 feet/mile, Kb= .10
1485          KM
1486          BA   0.901
1487          LG    0.25    0.39    5.70    0.21   44.00
1488          UC   0.575   0.346
1489          UA      0       3       5       8      12      20      43      75      90      96
1490          UA    100
              *

1491          KK    C601
1492          KM       Combine routed hydrograph from S600 w/runoff from S601
1493          HC       2
              *

1494          KK  601602
1495          KM       Normal depth route from S601 to C602
1496          KM       Source: Morgan City Wash FDS, FCD 89-15
1497          RS       3    FLOW      -1
1498          RC    0.05   0.035    0.05    6017   .0266
1499          RX     100     130     140     155     245     255     270     340
1500          RY    2380    2360    2356    2352    2352    2356    2360    2380
              *

1501          KK    S603
1502          KM   Sub-Basin   S603
1503          KM
1504          KM      The Clark Unit Hydrograph is used for this basin.
1505          KM          The Natural time-area relation is used for this basin.
1506          KM
1507          KM      Time of Concentration for this sub-basin is based on the following:
1508          KM          6-Hour Rainfall, Pattern No.  1.17
1509          KM          An rainfall areal reduction factor of 0.991
1510          KM
1511          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1512          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1513          KM   .43 .43 .43 .16 .13 .12 .07 .07 .06 .04 .04 .04 .01 .01 .01 .01 .01 .01
1514          KM
1515          KM          L=   1.377 miles, S=  326 feet/mile, Kb= .10
1516          KM
1517          BA   0.665
1                                          HEC-1 INPUT                                          PAGE 35

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1518          LG    0.25    0.39    5.80    0.20   41.00
1519          UC   0.400   0.218
```

```
1597          BA   1.085
1598          LG    0.25    0.35    4.35    0.41   35.00
1599          UC   0.725   0.485
1600          UA       0       3       5       8      12      20      43      75      90      96
1601          UA     100
              *

1602          KK    S604
1603          KM   Sub-Basin   S604
1604          KM
1605          KM      The Clark Unit Hydrograph is used for this basin.
1606          KM          The Natural time-area relation is used for this basin.
1607          KM
1608          KM      Time of Concentration for this sub-basin is based on the following:
1609          KM          6-Hour Rainfall, Pattern No.  1.97
1610          KM          An rainfall areal reduction factor of 0.976
1611          KM
1                                          HEC-1 INPUT                                          PAGE 37

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1612          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1613          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1614          KM   .22 .22 .21 .16 .15 .14 .11 .10 .10 .03 .03 .03 .02 .02 .02 .02 .02 .02
1615          KM
1616          KM          L=   4.105 miles, S=  207 feet/mile, Kb= .09
1617          KM
1618          BA   2.656
1619          LG    0.25    0.35    4.35    0.41   35.00
1620          UC   1.121   0.745
1621          UA       0       3       5       8      12      20      43      75      90      96
1622          UA     100
              *

1623          KK    C603
1624          KM        Combine hydrograph from C603L w/runoff from  S605, and S604
1625          HC       3
              *

1626          KK  603604
1627          KM        Normal depth route from C603 to C604R
1628          KM        Source: Morgan City Wash FDS, FCD 89-15
1629          RS       4    FLOW      -1
1630          RC    0.05   0.035    0.05    7830    .0192
1631          RX    1000    1022    1038    1053    1328    1375    1410    1430
1632          RY    2108    2104    2100    2088    2088    2100    2108    2112
1633          RL                    0.96  2088.0
              *

1634          KK    S609
1635          KM   Sub-Basin   S609
1636          KM
1637          KM      The Clark Unit Hydrograph is used for this basin.
1638          KM          The Natural time-area relation is used for this basin.
1639          KM
1640          KM      Time of Concentration for this sub-basin is based on the following:
1641          KM          6-Hour Rainfall, Pattern No.  1.07
1642          KM          An rainfall areal reduction factor of 0.993
1643          KM
1644          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1645          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1646          KM   .43 .42 .41 .12 .08 .06 .03 .03 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1647          KM
1648          KM          L=   2.239 miles, S=  214 feet/mile, Kb= .10
1649          KM
1650          BA   0.560
1651          LG    0.27    0.35    4.10    0.47   27.00
1652          UC   0.721   0.682
1653          UA       0       3       5       8      12      20      43      75      90      96
1654          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 38

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1655          KK   C604R
1656          KM        Combine routed hydrograph 603604 w/runoff from S609
1657          HC       2
              *

1658          KK    S607
1659          KM   Sub-Basin   S607
1660          KM
1661          KM      The Clark Unit Hydrograph is used for this basin.
1662          KM          The Natural time-area relation is used for this basin.
1663          KM
1664          KM      Time of Concentration for this sub-basin is based on the following:
1665          KM          6-Hour Rainfall, Pattern No.  1.29
1666          KM          An rainfall areal reduction factor of 0.989
1667          KM
1668          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1669          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1670          KM   .39 .39 .39 .15 .13 .12 .07 .07 .06 .03 .03 .03 .01 .01 .01 .01 .01 .01
1671          KM
```

```
1745          KK    S612
1746          KM   Sub-Basin   S612
1747          KM
1748          KM      The Clark Unit Hydrograph is used for this basin.
1749          KM          The Natural time-area relation is used for this basin.
1750          KM
1751          KM      Time of Concentration for this sub-basin is based on the following:
1752          KM          6-Hour Rainfall, Pattern No.  1.28
1753          KM          An rainfall areal reduction factor of 0.989
1754          KM
1755          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1756          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1757          KM   .40 .40 .40 .16 .14 .13 .07 .07 .07 .03 .03 .03 .01 .01 .01 .01 .01 .01
1758          KM
1759          KM          L=   2.531 miles, S=  230 feet/mile, Kb= .10
1760          KM
1761          BA   0.808
1762          LG    0.25    0.38    6.40    0.16   31.00
1763          UC   0.713   0.603
1764          UA       0       3       5       8      12      20      43      75      90      96
1765          UA     100
              *

1766          KK    C606
1767          KM       Combine hydrograph from C606L w/runoff from S612
1768          HC       2
              *

1769          KK  606608
1770          KM        Normal depth route from C606 to C608
1771          KM        Source: Morgan City Wash FDS, FCD 89-15
1772          RS       1    FLOW      -1
1773          RC    0.05   0.035    0.05    1141   .0175
1774          RX    1000    1034    1070    1150    1237    1280    1378    1420
1775          RY    1888    1880    1876    1868    1868    1876    1900    1920
1776          RL                    0.96  1868.0
              *

1777          KK    S611
1778          KM   Sub-Basin   S611
1779          KM
1780          KM      The Clark Unit Hydrograph is used for this basin.
1781          KM          The Natural time-area relation is used for this basin.
1782          KM
1783          KM      Time of Concentration for this sub-basin is based on the following:
1784          KM          6-Hour Rainfall, Pattern No.  1.07
1785          KM          An rainfall areal reduction factor of 0.993
1786          KM
1787          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1788          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1789          KM   .44 .43 .43 .13 .10 .08 .04 .04 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
1790          KM
1791          KM          L=   1.286 miles, S=  270 feet/mile, Kb= .12
1792          KM
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1793          BA   0.569
1794          LG    0.25    0.35    4.35    0.41   35.00
1795          UC   0.479   0.276
1796          UA       0       3       5       8      12      20      43      75      90      96
1797          UA     100
              *

1798          KK  607608
1799          KM        Normal depth route from S611 to S613
1800          KM        Source: Field Reconnaissance
1801          RS       5    FLOW      -1
1802          RC    .075     .03    .075   11167  0.0242
1803          RX     100     106     114     120     168     172     232     292
1804          RY     110     107     103     100     100     104     107     110
              *

1805          KK    S613
1806          KM   Sub-Basin   S613
1807          KM
1808          KM      The Clark Unit Hydrograph is used for this basin.
1809          KM          The Natural time-area relation is used for this basin.
1810          KM
1811          KM      Time of Concentration for this sub-basin is based on the following:
1812          KM          6-Hour Rainfall, Pattern No.  1.74
1813          KM          An rainfall areal reduction factor of 0.982
1814          KM
1815          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1816          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1817          KM   .28 .27 .27 .15 .14 .13 .09 .09 .09 .03 .03 .03 .02 .02 .02 .01 .01 .01
1818          KM
1819          KM          L=   2.525 miles, S=  131 feet/mile, Kb= .11
1820          KM
1821          BA   1.797
1822          LG    0.25    0.35    4.55    0.36   34.00
1823          UC   1.088   0.610
```

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1895          KM
1896          KM      The Clark Unit Hydrograph is used for this basin.
1897          KM          The Natural time-area relation is used for this basin.
1898          KM
1899          KM      Time of Concentration for this sub-basin is based on the following:
1900          KM          6-Hour Rainfall, Pattern No.  1.43
1901          KM          An rainfall areal reduction factor of 0.987
1902          KM
1903          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1904          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1905          KM   .38 .38 .37 .18 .16 .15 .10 .09 .09 .05 .05 .05 .02 .02 .02 .02 .02 .02
1906          KM
1907          KM          L=   2.059 miles, S=  136 feet/mile, Kb= .12
1908          KM
1909          BA   1.055
1910          LG    0.25    0.39    6.20    0.17   55.00
1911          UC   0.867   0.546
1912          UA       0       3       5       8      12      20      43      75      90      96
1913          UA     100
              *

1914          KK  610611
1915          KM        Normal depth route from S615 to C611
1916          KM        Source: Morgan City Wash FDS, FCD 89-15
1917          RS       5    FLOW      -1
1918          RC    0.05   0.035    0.05    7981   .0100
1919          RX    1000    1028    1041    1078    1087    1092    1100    1108
1920          RY    1860    1840    1820    1800    1800    1820    1840    1860
              *

1921          KK    S616
1922          KM   Sub-Basin   S616
1923          KM
1924          KM      The Clark Unit Hydrograph is used for this basin.
1925          KM          The Natural time-area relation is used for this basin.
1926          KM
1927          KM      Time of Concentration for this sub-basin is based on the following:
1928          KM          6-Hour Rainfall, Pattern No.  1.01
1929          KM          An rainfall areal reduction factor of 0.993
1930          KM
1931          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1932          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1933          KM   .45 .45 .44 .14 .10 .09 .04 .04 .03 .02 .02 .02 .00 .00 .00 .00 .00 .00
1934          KM
1935          KM          L=   1.738 miles, S=   46 feet/mile, Kb= .11
1936          KM
1937          BA   0.505
1938          LG    0.22    0.37    5.20    0.26   19.00
1939          UC   1.258   1.097
1940          UA       0       3       5       8      12      20      43      75      90      96
1941          UA     100
              *

1942          KK   C611L
1943          KM        Combine routed hydrograph 6110611 w/runoff frm S616
1944          HC       2
              *

1945          KK    C611
1946          KM        Combine hydrographs C611L and C611R
1947          HC       2
              *

1948          KK  611613
1949          KM        Normal depth route from C611 to C613
1950          KM        Source: Morgan City Wash FDS, FCD 89-15
1951          RS       2    FLOW      -1
1952          RC    0.05   0.035    0.05    4445   .0382
1953          RX    1000    1050    1080    1122    1210    1250    1305    1338
1954          RY    1644    1644    1628    1620    1620    1628    1660    1680
1955          RL                    0.94  1620.0
              *

1956          KK    S618
1957          KM   Sub-Basin   S618
1958          KM
1959          KM      The Clark Unit Hydrograph is used for this basin.
1960          KM          The Natural time-area relation is used for this basin.
1961          KM
1962          KM      Time of Concentration for this sub-basin is based on the following:
1963          KM          6-Hour Rainfall, Pattern No.  1.38
1964          KM          An rainfall areal reduction factor of 0.988
1965          KM
1966          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1967          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1968          KM   .37 .36 .36 .15 .12 .11 .07 .07 .06 .02 .02 .02 .01 .01 .01 .01 .01 .01
1969          KM
1970          KM          L=   2.364 miles, S=  199 feet/mile, Kb= .10
1971          KM
1972          BA   0.958
1973          LG    0.20    0.37    5.20    0.26   22.00
```

```
2045          KM
2046          KM      The Clark Unit Hydrograph is used for this basin.
2047          KM          The Natural time-area relation is used for this basin.
2048          KM
2049          KM      Time of Concentration for this sub-basin is based on the following:
2050          KM          6-Hour Rainfall, Pattern No.  1.36
2051          KM          An rainfall areal reduction factor of 0.988
2052          KM
2053          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2054          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2055          KM   .36 .35 .35 .13 .10 .09 .05 .05 .05 .00 .00 .00 .00 .00 .00 .00 .00 .00
2056          KM
2057          KM          L=   1.470 miles, S=  170 feet/mile, Kb= .10
2058          KM
2059          BA   0.923
2060          LG    0.17    0.35    4.80    0.31    3.00
2061          UC   0.613   0.306
2062          UA       0       3       5       8      12      20      43      75      90      96
2063          UA     100
              *

2064          KK    C614
2065          KM        Combine routed hydrograph 613614 w/runoff from S621
2066          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE 47

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2067          KK  614615
2068          KM        Normal depth route from C614 to C615
2069          KM        Source: Morgan City Wash FDS, FCD 89-15
2070          RS       3    FLOW      -1
2071          RC    0.05   0.035    0.05    7995   .0144
2072          RX    1000    1050    1088    1150    1195    1290    1340    1405
2073          RY    1496    1484    1476    1460    1460    1476    1484    1516
2074          RL                    0.94  1460.0
              *

2075          KK    S622
2076          KM   Sub-Basin   S622
2077          KM
2078          KM      The Clark Unit Hydrograph is used for this basin.
2079          KM          The Natural time-area relation is used for this basin.
2080          KM
2081          KM      Time of Concentration for this sub-basin is based on the following:
2082          KM          6-Hour Rainfall, Pattern No.  1.34
2083          KM          An rainfall areal reduction factor of 0.988
2084          KM
2085          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2086          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2087          KM   .36 .36 .35 .13 .10 .09 .05 .05 .05 .00 .00 .00 .00 .00 .00 .00 .00 .00
2088          KM
2089          KM          L=   2.004 miles, S=  152 feet/mile, Kb= .12
2090          KM
2091          BA   0.897
2092          LG    0.18    0.35    4.90    0.30    4.00
2093          UC   0.929   0.633
2094          UA       0       3       5       8      12      20      43      75      90      96
2095          UA     100
              *

2096          KK    C615
2097          KM        Combine routed hydrograph from 614615 w/runoff from S622
2098          HC       2
              *

2099          KK  WEST-4
2100          KM        Dummy combine for all major basins, west of the Agua Fria River
2101          HC       2
              *

2102          KK    S700
2103          KM   Sub-Basin   S700
2104          KM
2105          KM      The Clark Unit Hydrograph is used for this basin.
2106          KM          The Natural time-area relation is used for this basin.
2107          KM
2108          KM      Time of Concentration for this sub-basin is based on the following:
2109          KM          6-Hour Rainfall, Pattern No.  1.11
2110          KM          An rainfall areal reduction factor of 0.992
2111          KM
2112          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1                                          HEC-1 INPUT                                          PAGE 48

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2113          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2114          KM   .42 .41 .41 .13 .10 .09 .04 .04 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
2115          KM
2116          KM          L=   1.923 miles, S=  185 feet/mile, Kb= .10
2117          KM
2118          BA   0.610
2119          LG    0.17    0.36    5.10    0.27    5.00
```

```
2203          LG    0.26    0.35    4.90    0.30   11.00
2204          UC   0.425   0.288
2205          UA       0       3       5       8      12      20      43      75      90      96
2206          UA     100
              *

2207          KK  704705
2208          KM        Normal depth route from S704 to C705
2209          KM        Source: Field reconnaissance
2210          RS       7    FLOW      -1
2211          RC    .035    .045    .025    7534   .0186
2212          RX     100     123   159.5   162.8   186.8   205.3   206.3   207.3
1                                          HEC-1 INPUT                                                    PAGE 50

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2213          RY   108.5   102.7   101.3   100.2     100   108.3   109.3   110.3
              *

2214          KK    S705
2215          KM   Sub-Basin   S705
2216          KM
2217          KM      The Clark Unit Hydrograph is used for this basin.
2218          KM          The Natural time-area relation is used for this basin.
2219          KM
2220          KM      Time of Concentration for this sub-basin is based on the following:
2221          KM          6-Hour Rainfall, Pattern No.  1.24
2222          KM          An rainfall areal reduction factor of 0.990
2223          KM
2224          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2225          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2226          KM   .40 .40 .39 .15 .12 .11 .06 .06 .06 .01 .01 .01 .00 .00 .00 .00 .00 .00
2227          KM
2228          KM          L=   2.145 miles, S=  253 feet/mile, Kb= .10
2229          KM
2230          BA   0.754
2231          LG    0.22    0.38    6.40    0.16    7.00
2232          UC   0.625   0.475
2233          UA       0       3       5       8      12      20      43      75      90      96
2234          UA     100
              *

2235          KK    C705
2236          KM        Combine routed hydrograph 704705 w/runoff from S705
2237          HC       2
              *

2238          KK   C7050
2239          KM        Storage routing at crossing structure no. 63
2240          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2241          KM        Cooper Aerial Photography extended from Agua Fria FDS
2242          RS       1    STOR       0
2243          SQ       0     200     400     600     800    1000    1200    1400    1420    1800
2244          SQ    2000
2245          SE  1338.2 1342.26 1344.68 1347.93 1352.52 1359.03 1367.08 1376.59 1377.62    1400
2246          SE  1413.9
2247          SV       0    0.08    0.46    1.29    2.71    4.72    7.32   10.63   14.77   19.75
2248          SV   25.57   32.07   39.09   46.63   54.70   63.28   72.40   82.03   92.19  102.87
2249          SE  1338.2    1339    1340    1341    1342    1343    1344    1345    1346    1347
2250          SE    1348    1349    1350    1351    1352    1353    1354    1355    1356    1357
              *

2251          KK  7050AF
2252          KM        Normal depth route from C7050 to C705AF
2253          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2254          RS       8    FLOW      -1
2255          RC    .045    .045    .045 2253.82   .0082
2256          RX     100  147.63  203.16  349.46  505.89  666.35  920.07 1239.80
2257          RY    1324 1324.30    1324 1321.84 1321.64 1322.54    1324    1326
              *
1                                          HEC-1 INPUT                                                    PAGE 51

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2258          KK  S705AF
2259          KM   Sub-Basin S705AF
2260          KM
2261          KM      The Clark Unit Hydrograph is used for this basin.
2262          KM          The Natural time-area relation is used for this basin.
2263          KM
2264          KM      Time of Concentration for this sub-basin is based on the following:
2265          KM          6-Hour Rainfall, Pattern No.  1.00
2266          KM          An rainfall areal reduction factor of 0.998
2267          KM
2268          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2269          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2270          KM   .49 .49 .49 .18 .15 .14 .07 .07 .07 .06 .06 .05 .01 .01 .01 .01 .01 .00
2271          KM
2272          KM          L=   0.933 miles, S=   34 feet/mile, Kb= .05
2273          KM
2274          BA   0.183
2275          LG    0.31    0.22   10.10    0.03    0.00
2276          UC   0.454   0.384
2277          UA       0       3       5       8      12      20      43      75      90      96
```

```
2351          KK    S708
2352          KM   Sub-Basin   S708
2353          KM
2354          KM      The Clark Unit Hydrograph is used for this basin.
2355          KM          The Natural time-area relation is used for this basin.
2356          KM
2357          KM      Time of Concentration for this sub-basin is based on the following:
2358          KM          6-Hour Rainfall, Pattern No.  1.20
2359          KM          An rainfall areal reduction factor of 0.991
2360          KM
2361          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2362          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2363          KM   .44 .44 .44 .18 .15 .15 .08 .08 .08 .06 .06 .05 .02 .01 .01 .01 .01 .01
2364          KM
2365          KM          L=   1.594 miles, S=  194 feet/mile, Kb= .10
2366          KM
2367          BA   0.706
2368          LG    0.22    0.25    9.70    0.04    0.00
2369          UC   0.529   0.323
2370          UA       0       3       5       8      12      20      43      75      90      96
2371          UA     100
              *

2372          KK    S709
2373          KM   Sub-Basin   S709
2374          KM
2375          KM      The Clark Unit Hydrograph is used for this basin.
2376          KM          The Natural time-area relation is used for this basin.
2377          KM
2378          KM      Time of Concentration for this sub-basin is based on the following:
2379          KM          6-Hour Rainfall, Pattern No.  1.00
2380          KM          An rainfall areal reduction factor of 0.994
2381          KM
2382          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2383          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2384          KM   .50 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .06 .01 .01 .01 .01 .01 .01
2385          KM
2386          KM          L=   1.417 miles, S=  155 feet/mile, Kb= .09
2387          KM
2388          BA   0.441
2389          LG    0.30    0.19   11.20    0.02    0.00
2390          UC   0.479   0.345
2391          UA       0       3       5       8      12      20      43      75      90      96
2392          UA     100
              *

2393          KK   C709O
2394          KM        Storage routing at crossing structure no. (South of 95)
2395          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2396          KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2397          KM        Detour, Jan 4, 1985
2398          RS       1    STOR       0
2399          SQ       0     120     240     360     480     600     720     840     903    1080
2400          SQ    1200
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2401          SE    1496 1500.80 1505.20 1512.68 1523.15 1525.11 1525.18 1525.23 1525.26 1525.33
2402          SE  1525.4
2403          SV     0.0    1.59    4.55    8.36   13.04   20.12   29.31   42.75   51.34   63.40
2404          SV   78.92   97.91
2405          SE    1496    1500    1504    1508    1512    1516    1520    1524    1528    1532
2406          SE    1536    1540
              *

2407          KK  709710
2408          KM        Normal depth route from S709 to C710
2409          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2410          RS       2    FLOW      -1
2411          RC     .05    .035     .05    2683   .0261
2412          RX     100     160     200     220     255     265     280     305
2413          RY    1448    1444    1440    1436    1436    1440    1444    1448
              *

2414          KK    S710
2415          KM   Sub-Basin   S710
2416          KM
2417          KM      The Clark Unit Hydrograph is used for this basin.
2418          KM          The Natural time-area relation is used for this basin.
2419          KM
2420          KM      Time of Concentration for this sub-basin is based on the following:
2421          KM          6-Hour Rainfall, Pattern No.  1.00
2422          KM          An rainfall areal reduction factor of 0.999
2423          KM
2424          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2425          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2426          KM   .50 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
2427          KM
2428          KM          L=   0.633 miles, S=  198 feet/mile, Kb= .10
2429          KM
2430          BA   0.112
2431          LG    0.15    0.22   10.10    0.03    0.00
2432          UC   0.275   0.213
2433          UA       0       3       5       8      12      20      43      75      90      96
```

```
2509        UA       0       3       5       8      12      20      43      75      90      96
2510        UA     100
            *

2511        KK   C712I
2512        KM        Combine routed hydrograph 711712 w/runoff from S712
2513        HC       2
            *

2514        KK   C712O
2515        KM        Storage routing at crossing structure no. 60
2516        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2517        KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2518        KM        Detour, Jan 4, 1985
2519        RS       1    STOR       0
2520        SQ       0      90     180     270     360     450     540     630     658     810
2521        SQ     900
2522        SE    1432 1435.56 1437.81 1440.49 1444.18 1449.19 1450.09 1450.14 1450.16 1450.24
2523        SE  1450.2
2524        SV     0.0    0.14    0.36    0.65    1.02    1.56    2.43    3.61    5.10
2525        SE    1432    1433    1434    1435    1436    1437    1438    1439    1440
            *

2526        KK  712714
2527        KM        Normal depth route from C712 to C714
2528        KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2529        RS       2    FLOW      -1
2530        RC     .05    .035     .05    2032   .0172
2531        RX     100     325     355     370     415     435     450     515
2532        RY    1416    1412    1408    1404    1404    1408    1412    1408
            *
1                                          HEC-1 INPUT                                          PAGE 57

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2533        KK    S713
2534        KM   Sub-Basin   S713
2535        KM
2536        KM      The Clark Unit Hydrograph is used for this basin.
2537        KM          The Natural time-area relation is used for this basin.
2538        KM
2539        KM      Time of Concentration for this sub-basin is based on the following:
2540        KM          6-Hour Rainfall, Pattern No.  1.00
2541        KM          An rainfall areal reduction factor of 0.999
2542        KM
2543        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2544        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2545        KM   .50 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
2546        KM
2547        KM          L=   0.545 miles, S=  220 feet/mile, Kb= .08
2548        KM
2549        BA   0.107
2550        LG    0.15    0.22   10.10    0.03    0.00
2551        UC   0.217   0.149
2552        UA       0       3       5       8      12      20      43      75      90      96
2553        UA     100
            *

2554        KK   C713O
2555        KM        Storage routing at crossing structure no. 59
2556        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2557        KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2558        KM        Detour, Jan 4, 1985
2559        RS       1    STOR       0
2560        SQ       0      60     120     180     240     300     326     420     480     540
2561        SQ     600
2562        SE    1420 1423.17 1425.30 1428.15 1432.22 1437.97 1438.04 1438.12 1438.15 1438.18
2563        SE  1438.2
2564        SV     0.0    2.35    5.72   10.11   15.52   26.19
2565        SE    1420    1424    1428    1432    1436    1440
            *

2566        KK  713714
2567        KM        Normal depth route from S713 to C714
2568        KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2569        RS       1    FLOW      -1
2570        RC     .05    .035     .05     831   .0421
2571        RX     100     260     270     280     305     315     335     490
2572        RY    1416    1416    1412    1408    1408    1412    1416    1420
            *

2573        KK    S714
2574        KM   Sub-Basin   S714
2575        KM
2576        KM      The Clark Unit Hydrograph is used for this basin.
2577        KM          The Natural time-area relation is used for this basin.
2578        KM
2579        KM      Time of Concentration for this sub-basin is based on the following:
2580        KM          6-Hour Rainfall, Pattern No.  1.00
1                                          HEC-1 INPUT                                          PAGE 58

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2581        KM          An rainfall areal reduction factor of 0.999
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2661        KM      The Clark Unit Hydrograph is used for this basin.
2662        KM          The Natural time-area relation is used for this basin.
2663        KM
2664        KM      Time of Concentration for this sub-basin is based on the following:
2665        KM          6-Hour Rainfall, Pattern No.  1.00
2666        KM          An rainfall areal reduction factor of 0.996
2667        KM
2668        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2669        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2670        KM   .50 .49 .49 .19 .16 .15 .08 .08 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
2671        KM
2672        KM          L=   0.727 miles, S=  131 feet/mile, Kb= .07
2673        KM
2674        BA   0.286
2675        LG    0.25    0.19   11.20    0.02    0.00
2676        UC   0.279   0.142
2677        UA       0       3       5       8      12      20      43      75      90      96
2678        UA     100
            *
1                                          HEC-1 INPUT                                          PAGE 60

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2679        KK    C717
2680        KM        Combine routed hydrograph 716717 w/runoff from S717
2681        HC       2
            *

2682        KK  717718
2683        KM        Normal depth route from C717 to C718
2684        KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2685        RS      11    FLOW      -1
2686        RC     .05    .045     .05    7146   .0105
2687        RX     100     235     275     325     420     455     465     530
2688        RY    1364    1360    1356    1352    1352    1356    1360    1380
2689        RL                    0.03  1352.0
            *

2690        KK    S718
2691        KM   Sub-Basin   S718
2692        KM
2693        KM      The Clark Unit Hydrograph is used for this basin.
2694        KM          The Natural time-area relation is used for this basin.
2695        KM
2696        KM      Time of Concentration for this sub-basin is based on the following:
2697        KM          6-Hour Rainfall, Pattern No.  1.00
2698        KM          An rainfall areal reduction factor of 0.994
2699        KM
2700        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2701        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2702        KM   .50 .49 .49 .19 .16 .15 .08 .08 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
2703        KM
2704        KM          L=   2.103 miles, S=   45 feet/mile, Kb= .07
2705        KM
2706        BA   0.442
2707        LG    0.22    0.18   11.20    0.02    2.00
2708        UC   0.879   0.926
2709        UA       0       3       5       8      12      20      43      75      90      96
2710        UA     100
            *

2711        KK    C718
2712        KM        Combine routed hydrograph 717718 w/runoff from S718
2713        HC       2
            *

2714        KK    S719
2715        KM   Sub-Basin   S719
2716        KM
2717        KM      The Clark Unit Hydrograph is used for this basin.
2718        KM          The Natural time-area relation is used for this basin.
2719        KM
2720        KM      Time of Concentration for this sub-basin is based on the following:
2721        KM          6-Hour Rainfall, Pattern No.  1.00
2722        KM          An rainfall areal reduction factor of 0.998
2723        KM
2724        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1                                          HEC-1 INPUT                                          PAGE 61

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2725        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2726        KM   .51 .50 .50 .19 .16 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .02 .02 .01
2727        KM
2728        KM          L=   1.221 miles, S=   82 feet/mile, Kb= .08
2729        KM
2730        BA   0.154
2731        LG    0.23    0.11   12.40    0.01    4.00
2732        UC   0.508   0.595
2733        UA       0       3       5       8      12      20      43      75      90      96
2734        UA     100
            *

2735        KK  EAST-1
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2817          KM
2818          BA   0.955
2819          LG    0.30    0.25    9.70    0.04    0.00
2820          UC   0.717   0.517
2821          UA       0       3       5       8      12      20      43      75      90      96
2822          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE 63

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2823          KK    C722
2824          KM        Combine routed hydrograph 721722 w/runoff from S722
2825          HC       2
              *

2826          KK    S723
2827          KM   Sub-Basin   S723
2828          KM
2829          KM      The Clark Unit Hydrograph is used for this basin.
2830          KM          The Natural time-area relation is used for this basin.
2831          KM
2832          KM      Time of Concentration for this sub-basin is based on the following:
2833          KM          6-Hour Rainfall, Pattern No.  1.00
2834          KM          An rainfall areal reduction factor of 0.999
2835          KM
2836          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2837          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2838          KM   .49 .49 .49 .18 .15 .14 .07 .07 .07 .06 .06 .05 .01 .01 .01 .01 .01 .00
2839          KM
2840          KM          L=   0.562 miles, S=  178 feet/mile, Kb= .11
2841          KM
2842          BA   0.085
2843          LG    0.29    0.22   10.10    0.03    0.00
2844          UC   0.283   0.235
2845          UA       0       3       5       8      12      20      43      75      90      96
2846          UA     100
              *

2847          KK    S724
2848          KM   Sub-Basin   S724
2849          KM
2850          KM      The Clark Unit Hydrograph is used for this basin.
2851          KM          The Natural time-area relation is used for this basin.
2852          KM
2853          KM      Time of Concentration for this sub-basin is based on the following:
2854          KM          6-Hour Rainfall, Pattern No.  1.49
2855          KM          An rainfall areal reduction factor of 0.986
2856          KM
2857          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2858          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2859          KM   .38 .37 .37 .20 .18 .18 .11 .11 .11 .07 .07 .07 .03 .03 .03 .02 .02 .02
2860          KM
2861          KM          L=   2.319 miles, S=   97 feet/mile, Kb= .06
2862          KM
2863          BA   1.156
2864          LG    0.27    0.19   11.20    0.02    0.00
2865          UC   0.650   0.414
2866          UA       0       3       5       8      12      20      43      75      90      96
2867          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE 64

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2868          KK    S725
2869          KM   Sub-Basin   S725
2870          KM
2871          KM      The Clark Unit Hydrograph is used for this basin.
2872          KM          The Natural time-area relation is used for this basin.
2873          KM
2874          KM      Time of Concentration for this sub-basin is based on the following:
2875          KM          6-Hour Rainfall, Pattern No.  1.49
2876          KM          An rainfall areal reduction factor of 0.986
2877          KM
2878          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2879          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2880          KM   .36 .36 .36 .18 .16 .16 .10 .10 .10 .05 .05 .04 .03 .02 .02 .01 .01 .01
2881          KM
2882          KM          L=   3.038 miles, S=   71 feet/mile, Kb= .06
2883          KM
2884          BA   1.158
2885          LG    0.30    0.27    8.80    0.05    0.00
2886          UC   0.917   0.752
2887          UA       0       3       5       8      12      20      43      75      90      96
2888          UA     100
              *

2889          KK  EAST-2
2890          KM        Dummy combine of minor subbasins east of the Agua Fria River
2891          HC       5
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141             .       C102L..........
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                .          .
144          C102..........
                V
                V
147         102103
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                .
154             .        S104
                .          .
                .          .
175         C103R.........
                .
                .
178             .        S105
                .          .
                .          .
199          C103..........
                V
                V
202         103104
                .
                .
209             .        S106
                .          .
                .          .
230          C104..........
                V
                V
233         104105
                .
                .
240             .        S107
                .          .
                .          .
261         C105L.........
                .
                .
264             .        S200
                .          V
                .          V
285             .      200201
                .          .
                .          .
292             .          .        S201
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313             .        C201..........
                .          V
                .          V
316             .      201203
                .          .
                .          .
323             .          .        S202
                .          .          V
                .          .          V
344             .          .      202203
                .          .          .
                .          .          .
351             .          .          .        S203
                .          .          .          .
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372             .       C203R.......................
                .          .
                .          .
375             .          .        S204
                .          .          .
                .          .          .
396             .        C203..........
                .          V
                .          V
399             .      203204
                .          .
                .          .
406             .          .        S205
                .          .          .
                .          .          .
427             .        C204..........
                .          V
                .          V
430             .      204205
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                .          .
437             .          .        S206
                .          .          .
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458             .       C205L..........
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461             .          .        S207
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 813          .          .        S402
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 834          .      C402............
              .         V
              .         V
 837          .     402403
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              .          .
 845          .          .        S403
              .          .           .
              .          .           .
 866          .      C403............
              .         V
              .         V
 869          .     403404
              .          .
              .          .
 877          .          .        S404
              .          .           .
              .          .           .
 898          .      C404............
              .          .
              .          .
 901     WEST-2............
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              .
 904          .      S500
              .         V
              .         V
 925          .     500501
              .          .
              .          .
 932          .          .        S501
              .          .           .
              .          .           .
 953          .      C501............
              .         V
              .         V
 956          .     501502
              .          .
              .          .
 964          .          .        S502
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              .          .           .
 985          .     C502L............
              .          .
              .          .
 988          .          .        S503
              .          .           .
              .          .           .
1009          .     C502I............
              .         V
              .         V
1012          .     C502O
              .         V
              .         V
1020          .     502505
              .          .
              .          .
1028          .          .        S504
              .          .           .
              .          .           .
1049          .     C505L............
              .          .
              .          .
1052          .          .        S505
              .          .           V
              .          .           V
1073          .          .      C503O
              .          .           V
              .          .           V
1081          .          .     503505
              .          .           .
              .          .           .
1089          .          .           .       S506
              .          .           .          V
              .          .           .          V
1110          .          .           .      C504O
              .          .           .          V
              .          .           .          V
1118          .          .           .     504505
              .          .           .          .
              .          .           .          .
1125          .          .           .          .        S507
              .          .           .          .           .
              .          .           .          .           .
1146          .          .      C505R........................
              .          .           .
              .          .           .
1149          .      C505............
              .         V
              .         V
1152          .     505509
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1494          .      601602
              .          .
              .          .
1501          .          .        S603
              .          .           .
              .          .           .
1522          .      C602L............
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              .          .
1525          .          .        S602
              .          .           .
              .          .           .
1546          .       C602............
              .          V
              .          V
1549          .      602603
              .          .
              .          .
1557          .          .        S606
              .          .           .
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1578          .      C603L............
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1581          .          .        S605
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1602          .          .           .        S604
              .          .           .           .
              .          .           .           .
1623          .       C603........................
              .          V
              .          V
1626          .      603604
              .          .
              .          .
1634          .          .        S609
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              .          .           .
1655          .      C604R............
              .          .
              .          .
1658          .          .        S607
              .          .           .
              .          .           .
1679          .       C604............
              .          V
              .          V
1682          .      604605
              .          .
              .          .
1689          .          .        S608
              .          .           .
              .          .           .
1710          .       C605............
              .          V
              .          V
1713          .      605606
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              .          .
1721          .          .        S610
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              .          .           .
1742          .      C606L............
              .          .
              .          .
1745          .          .        S612
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              .          .           .
1766          .       C606............
              .          V
              .          V
1769          .      606608
              .          .
              .          .
1777          .          .        S611
              .          .           V
              .          .           V
1798          .          .      607608
              .          .           .
              .          .           .
1805          .          .           .        S613
              .          .           .           .
              .          .           .           .
1826          .       C608........................
              .          V
              .          V
1829          .      608609
              .          .
              .          .
1837          .          .        S614
              .          .           .
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1858          .       C609............
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                 .         .         .         .         .         V
2251             .         .         .         .         .     705OAF
                 .         .         .         .         .         .
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2258             .         .         .         .         .         .     S705AF
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2279             .         .         .         .         .     C705AF............
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2282             .     WEST-5.............................................
                 .         .
                 .         .
2285             .         .       S706
                 .         .         .
                 .         .         .
2306             .         .         .       S707
                 .         .         .         .
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2327             .         .         .         .       S728
                 .         .         .         .         .
                 .         .         .         .         .
2348         WEST...........................................
                 .
                 .
2351             .       S708
                 .         .
                 .         .
2372             .         .       S709
                 .         .         V
                 .         .         V
2393             .         .     C709O
                 .         .         V
                 .         .         V
2407             .         .    709710
                 .         .         .
                 .         .         .
2414             .         .         .       S710
                 .         .         .         .
                 .         .         .         .
2435             .         .     C710I............
                 .         .         V
                 .         .         V
2438             .         .     C710O
                 .         .         .
                 .         .         .
2450             .         .         .       S711
                 .         .         .         V
                 .         .         .         V
2471             .         .         .     C711O
                 .         .         .         V
                 .         .         .         V
2483             .         .         .    711712
                 .         .         .         .
                 .         .         .         .
2490             .         .         .         .       S712
                 .         .         .         .         .
                 .         .         .         .         .
2511             .         .         .     C712I............
                 .         .         .         V
                 .         .         .         V
2514             .         .         .     C712O
                 .         .         .         V
                 .         .         .         V
2526             .         .         .    712714
                 .         .         .         .
                 .         .         .         .
2533             .         .         .         .       S713
                 .         .         .         .         V
                 .         .         .         .         V
2554             .         .         .         .     C713O
                 .         .         .         .         V
                 .         .         .         .         V
2566             .         .         .         .    713714
                 .         .         .         .         .
                 .         .         .         .         .
2573             .         .         .         .         .       S714
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2594             .         .         .       C714........................
                 .         .         .         .
                 .         .         .         .
2597             .         .         .         .       S715
                 .         .         .         .         .
                 .         .         .         .         .
2618             .         .         .         .         .       S716
                 .         .         .         .         .         V
                 .         .         .         .         .         V
2639             .         .         .         .         .     C716O
                 .         .         .         .         .         V
                 .         .         .         .         .         V
2651             .         .         .         .         .    716717
                 .         .         .         .         .         .
                 .         .         .         .         .         .
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                    Clark Unit Hydrograph
                    Modified Puls channel storage routing

                Watershed delineation performed using USGS 7.5 Minute Series Quadrangles

21 IO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                 NMIN          2  MINUTES IN COMPUTATION INTERVAL
                IDATE     1    0  STARTING DATE
                ITIME        0000  STARTING TIME
                   NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
               NDDATE     2    0  ENDING DATE
               NDTIME        0918  ENDING TIME
                ICENT          19  CENTURY MARK

            COMPUTATION INTERVAL    0.03 HOURS
                 TOTAL TIME BASE   33.30 HOURS

      ENGLISH UNITS
           DRAINAGE AREA          SQUARE MILES
           PRECIPITATION DEPTH    INCHES
           LENGTH, ELEVATION      FEET
           FLOW                   CUBIC FEET PER SECOND
           STORAGE VOLUME         ACRE-FEET
           SURFACE AREA           ACRES
           TEMPERATURE            DEGREES FAHRENHEIT

23 JD        INDEX STORM NO. 1
                STRM        3.35  PRECIPITATION DEPTH
                TRDA        0.01  TRANSPOSITION DRAINAGE AREA

24 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.04      0.06      0.06      0.06      0.06      0.06      0.06      0.06
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

27 JD        INDEX STORM NO. 2
                STRM        3.33  PRECIPITATION DEPTH
                TRDA        0.50  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.04      0.06      0.06      0.06      0.06      0.06      0.06      0.06
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

28 JD        INDEX STORM NO. 3
                STRM        3.28  PRECIPITATION DEPTH
                TRDA        2.80  TRANSPOSITION DRAINAGE AREA

29 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
```

+	2 COMBINED AT	C102	1769.	4.60	385.	97.	70.	2.05
+	ROUTED TO	102103	1725.	4.83	385.	97.	70.	2.05
+	HYDROGRAPH AT	S104	1137.	4.50	175.	44.	32.	0.90
+	2 COMBINED AT	C103R	2330.	4.77	530.	134.	97.	2.95
+	HYDROGRAPH AT	S105	547.	4.67	119.	30.	22.	0.59
+	2 COMBINED AT	C103	2671.	4.77	621.	157.	113.	3.54
+	ROUTED TO	103104	2630.	4.93	620.	157.	113.	3.54
+	HYDROGRAPH AT	S106	686.	4.47	107.	27.	19.	0.57
+	2 COMBINED AT	C104	2892.	4.87	695.	176.	127.	4.11
+	ROUTED TO	104105	2854.	5.07	695.	176.	127.	4.11
+	HYDROGRAPH AT	S107	789.	4.60	154.	38.	28.	0.94
+	2 COMBINED AT	C105L	3193.	5.03	801.	203.	146.	5.05
+	HYDROGRAPH AT	S200	1379.	4.40	204.	51.	37.	0.96
+	ROUTED TO	200201	1344.	4.43	204.	51.	37.	0.96
+	HYDROGRAPH AT	S201	603.	4.30	78.	20.	14.	0.35
+	2 COMBINED AT	C201	1669.	4.43	272.	69.	49.	1.31
+	ROUTED TO	201203	1629.	4.50	272.	69.	49.	1.31
+	HYDROGRAPH AT	S202	274.	4.17	28.	7.	5.	0.13
+	ROUTED TO	202203	263.	4.27	28.	7.	5.	0.13
+	HYDROGRAPH AT	S203	417.	4.50	82.	21.	15.	0.37
+	3 COMBINED AT	C203R	1954.	4.50	366.	93.	67.	1.81
+	HYDROGRAPH AT	S204	1126.	4.50	196.	49.	36.	0.95
+	2 COMBINED AT	C203	2627.	4.53	535.	135.	97.	2.76
+	ROUTED TO	203204	2617.	4.57	535.	135.	97.	2.76
+	HYDROGRAPH AT	S205	561.	4.40	85.	21.	15.	0.41
+	2 COMBINED AT	C204	2913.	4.53	600.	152.	109.	3.17
+	ROUTED TO	204205	2883.	4.67	599.	152.	109.	3.17
+	HYDROGRAPH AT	S206	760.	4.70	175.	45.	32.	0.85
+	2 COMBINED AT	C205L	3345.	4.67	739.	188.	135.	4.03
+	HYDROGRAPH AT	S207	863.	4.70	202.	51.	37.	0.96
+	2 COMBINED AT	C205	3870.	4.70	900.	229.	165.	4.98
	ROUTED TO							

+	2 COMBINED AT	C402	1292.	4.83	416.	105.	76.	2.43
+	ROUTED TO	402403	1256.	5.20	416.	105.	76.	2.43
+	HYDROGRAPH AT	S403	617.	4.63	121.	30.	22.	0.56
+	2 COMBINED AT	C403	1572.	5.17	520.	131.	94.	2.99
+	ROUTED TO	403404	1557.	5.27	519.	131.	94.	2.99
+	HYDROGRAPH AT	S404	651.	4.17	52.	13.	9.	0.26
+	2 COMBINED AT	C404	1556.	5.27	562.	142.	102.	3.26
+	2 COMBINED AT	WEST-2	9010.	5.13	2699.	690.	497.	19.61
+	HYDROGRAPH AT	S500	914.	4.73	220.	56.	40.	1.05
+	ROUTED TO	500501	901.	4.87	220.	56.	40.	1.05
+	HYDROGRAPH AT	S501	844.	4.43	124.	31.	22.	0.61
+	2 COMBINED AT	C501	1250.	4.77	324.	83.	60.	1.67
+	ROUTED TO	501502	1235.	4.83	320.	81.	59.	1.67
+	HYDROGRAPH AT	S502	704.	4.30	77.	19.	14.	0.40
+	2 COMBINED AT	C502L	1392.	4.73	381.	97.	70.	2.07
+	HYDROGRAPH AT	S503	1285.	4.47	201.	50.	36.	0.99
+	2 COMBINED AT	C502I	2246.	4.60	548.	139.	100.	3.07
+	ROUTED TO	C502O	1982.	4.87	548.	139.	100.	3.07
+	ROUTED TO	502505	1953.	5.10	536.	135.	97.	3.07
+	HYDROGRAPH AT	S504	219.	4.70	51.	13.	9.	0.33
+	2 COMBINED AT	C505L	2057.	5.07	568.	143.	103.	3.39
+	HYDROGRAPH AT	S505	382.	4.13	27.	7.	5.	0.14
+	ROUTED TO	C503O	97.	4.37	27.	7.	5.	0.14
+	ROUTED TO	503505	95.	4.87	26.	7.	5.	0.14
+	HYDROGRAPH AT	S506	318.	4.20	30.	7.	5.	0.15
+	ROUTED TO	C504O	93.	4.60	30.	7.	5.	0.15
+	ROUTED TO	504505	93.	4.97	30.	7.	5.	0.15
+	HYDROGRAPH AT	S507	811.	4.50	117.	29.	21.	0.67
+	3 COMBINED AT	C505R	876.	4.53	165.	41.	30.	0.96
+	2 COMBINED AT	C505	2513.	4.90	691.	174.	126.	4.35
+	ROUTED TO	505509	2459.	5.17	670.	168.	121.	4.35
+	HYDROGRAPH AT	S508	418.	4.37	52.	13.	9.	0.29

+		S603	1467.	4.23	166.	42.	30.	0.67
+	2 COMBINED AT	C602L	3040.	4.57	678.	171.	123.	3.58
+	HYDROGRAPH AT	S602	1882.	4.57	386.	97.	70.	1.88
+	2 COMBINED AT	C602	4393.	4.57	1002.	253.	183.	5.47
+	ROUTED TO	602603	4278.	4.80	958.	240.	173.	5.47
+	HYDROGRAPH AT	S606	910.	4.37	148.	37.	27.	0.66
+	2 COMBINED AT	C603L	4628.	4.77	1071.	269.	194.	6.13
+	HYDROGRAPH AT	S605	1250.	4.50	231.	58.	42.	1.09
+	HYDROGRAPH AT	S604	1924.	4.87	523.	134.	97.	2.66
+	3 COMBINED AT	C603	6527.	4.77	1667.	423.	305.	9.87
+	ROUTED TO	603604	6391.	4.90	1618.	407.	293.	9.87
+	HYDROGRAPH AT	S609	564.	4.50	112.	28.	20.	0.56
+	2 COMBINED AT	C604R	6592.	4.90	1691.	426.	307.	10.43
+	HYDROGRAPH AT	S607	947.	4.50	187.	47.	34.	0.82
+	2 COMBINED AT	C604	6994.	4.90	1829.	461.	332.	11.25
+	ROUTED TO	604605	6964.	4.93	1829.	461.	332.	11.25
+	HYDROGRAPH AT	S608	976.	4.30	125.	31.	23.	0.51
+	2 COMBINED AT	C605	7133.	4.93	1919.	484.	349.	11.76
+	ROUTED TO	605606	7049.	5.03	1909.	482.	347.	11.76
+	HYDROGRAPH AT	S610	730.	4.53	145.	37.	26.	0.60
+	2 COMBINED AT	C606L	7321.	5.03	2015.	509.	367.	12.36
+	HYDROGRAPH AT	S612	954.	4.50	189.	48.	34.	0.81
+	2 COMBINED AT	C606	7694.	5.00	2155.	545.	393.	13.17
+	ROUTED TO	606608	7687.	5.03	2152.	544.	392.	13.17
+	HYDROGRAPH AT	S611	1068.	4.30	127.	32.	23.	0.57
+	ROUTED TO	607608	968.	4.47	127.	32.	23.	0.57
+	HYDROGRAPH AT	S613	1579.	4.80	373.	95.	68.	1.80
+	3 COMBINED AT	C608	8797.	5.00	2514.	637.	459.	15.53
+	ROUTED TO	608609	8718.	5.13	2500.	633.	456.	15.53
+	HYDROGRAPH AT	S614	1033.	4.67	228.	58.	42.	1.08
+	2 COMBINED AT	C609	9109.	5.10	2652.	673.	485.	16.61
+	ROUTED TO	609611	8980.	5.30	2621.	663.	478.	16.61

+	HYDROGRAPH AT	S705AF	351.	4.30	46.	12.	8.	0.18
+	2 COMBINED AT	C705AF	772.	4.90	259.	65.	47.	1.34
+	5 COMBINED AT	WEST-5	1882.	4.67	534.	135.	97.	3.19
+	HYDROGRAPH AT	S706	825.	4.47	134.	34.	24.	0.71
+	HYDROGRAPH AT	S707	728.	4.47	127.	32.	23.	0.64
+	HYDROGRAPH AT	S728	286.	4.47	49.	12.	9.	0.28
+	5 COMBINED AT	WEST	17327.	5.40	6375.	1644.	1185.	55.94
+	HYDROGRAPH AT	S708	1336.	4.33	173.	43.	31.	0.71
+	HYDROGRAPH AT	S709	903.	4.30	117.	29.	21.	0.44
+	ROUTED TO	C709O	411.	4.70	117.	29.	21.	0.44
+	ROUTED TO	709710	410.	4.77	117.	29.	21.	0.44
+	HYDROGRAPH AT	S710	298.	4.17	29.	7.	5.	0.11
+	2 COMBINED AT	C710I	524.	4.20	146.	37.	26.	0.55
+	ROUTED TO	C710O	408.	5.03	146.	37.	26.	0.55
+	HYDROGRAPH AT	S711	483.	4.13	43.	11.	8.	0.16
+	ROUTED TO	C711O	181.	4.40	43.	11.	8.	0.16
+	ROUTED TO	711712	181.	4.43	43.	11.	8.	0.16
+	HYDROGRAPH AT	S712	238.	4.03	18.	4.	3.	0.07
+	2 COMBINED AT	C712I	371.	4.07	60.	15.	11.	0.23
+	ROUTED TO	C712O	245.	4.27	60.	15.	11.	0.23
+	ROUTED TO	712714	244.	4.33	60.	15.	11.	0.23
+	HYDROGRAPH AT	S713	326.	4.10	28.	7.	5.	0.11
+	ROUTED TO	C713O	179.	4.27	28.	7.	5.	0.11
+	ROUTED TO	713714	179.	4.30	28.	7.	5.	0.11
+	HYDROGRAPH AT	S714	163.	4.13	13.	3.	2.	0.06
+	3 COMBINED AT	C714	543.	4.17	102.	25.	18.	0.39
+	HYDROGRAPH AT	S715	450.	4.30	58.	15.	11.	0.22
+	HYDROGRAPH AT	S716	1625.	4.47	284.	71.	51.	1.13
+	ROUTED TO	C716O	618.	5.17	284.	71.	51.	1.13
+	ROUTED TO	716717	617.	5.30	284.	71.	51.	1.13
+	HYDROGRAPH AT	S717	867.	4.13	77.	19.	14.	0.29
	2 COMBINED AT							

100-Year, 24-Hour HEC-1 Model Output

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN   1998           *
*            VERSION 4.1            *
*                                   *
* RUN DATE   05FEB01  TIME  07:54:00 *
*                                   *
*************************************
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*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
1                                   HEC-1 INPUT                                          PAGE  1

     LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

       1           ID     N. Peoria Area Drainage Master Plan                 File:EX100-24.IH1
       2           ID        For Maricopa County FCD 99-45                Original:05-04-00     MCG
       3           ID        By Stantec Consulting, Inc. P82000146         Revised:02-01-01     MMZ
       4           ID
       5           ID     The N. Peoria ADMP study limits consists of several small tributary
       6           ID     watersheds to the Agua Fria River.  This model is for the existing
       7           ID     condition 100-year, 24-hour storm event.  A companion model is also created
       8           ID     for the existing condition 100-year, 6-hour storm event.  Both models
       9           ID     (100-year, 6- and 24-hour) should be referenced for the determination of
      10           ID     storm event produces the highest peak discharge.
      11           ID
      12           ID     Modeling of the watersheds is performed using the following:
      13           ID        100-year, 24-hour rainfall with FCDMC design rainfall distributions
      14           ID        Green & Ampt Loss Rate Method
      15           ID        NMIN = 2 minutes
      16           ID        Clark Unit Hydrograph
      17           ID        Modified Puls channel storage routing
      18           ID
      19           ID     Watershed delineation performed using USGS 7.5 Minute Series Quadrangles
                   *
                   *DIAGRAM
                   *
      20           IT       2                    1000
      21           IO       5
      22           IN      15
                   *
                   *       Depth-area reduction factors taken from Table 2.1a of FCDMC Drainage
                   *       Design Manual
                   *       The following PC records are a 24-hour SCS Type II rainfall distribution
                   *
      23           JD    4.20    0.01
      24           PC   0.000   0.002   0.005   0.008   0.011   0.013   0.016   0.019   0.022   0.025
      25           PC   0.028   0.032   0.035   0.038   0.041   0.044   0.048   0.053   0.056   0.060
      26           PC   0.063   0.067   0.071   0.075   0.080   0.084   0.089   0.093   0.098   0.103
      27           PC   0.109   0.114   0.120   0.127   0.133   0.140   0.147   0.155   0.163   0.172
      28           PC   0.181   0.192   0.204   0.220   0.235   0.259   0.283   0.473   0.663   0.699
      29           PC   0.735   0.754   0.772   0.785   0.799   0.810   0.820   0.829   0.838   0.846
      30           PC   0.854   0.861   0.868   0.874   0.880   0.885   0.891   0.900   0.902   0.910
      31           PC   0.912   0.920   0.921   0.926   0.929   0.930   0.937   0.941   0.945   0.950
      32           PC   0.952   0.957   0.959   0.962   0.965   0.970   0.972   0.973   0.978   0.981
      33           PC   0.984   0.987   0.989   0.992   0.995   0.998   1.000
      34           JD    4.18       1
      35           JD    4.07       5
      36           JD    3.95      10
      37           JD    3.80      25
      38           JD    3.59      70
                   *
                   *  ***************************************************************************
                   *                 Begin Major Basin 100 (Unnamed Wash 1)
                   *  ***************************************************************************
                   *
1                                   HEC-1 INPUT                                          PAGE  2

     LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

      39           KK    S100
```

```
KM   Sub-Basin   S100
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
KM
KM          L=   1.811 miles, S=  149 feet/mile, Kb= .09
KM
BA   0.574
LG    0.19    0.35    4.65    0.34   25.00
UC   0.692   0.542
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK  100102
KM        Normal depth route from S100 to C102R
KM        Source: Field Reconnaissance
RS       8    FLOW      -1
RC     .05    .039     .06    6535   .0138
RX    1000  1012.7  1037.5  1047.7    1060  1072.4  1087.8  1098.8
RY   104.8   102.3   102.3   100.1     100   102.7   103.5   106.7
*

KK    S101
KM   Sub-Basin   S101
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
KM
KM          L=   1.544 miles, S=  155 feet/mile, Kb= .08
KM
BA   0.631
LG    0.26    0.37    5.30    0.25   15.00
UC   0.542   0.345
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
```

1 HEC-1 INPUT PAGE 3

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   C102R
KM        Combine routed hydrograph from S100 w/runoff from S101
HC       2
*

KK    S102
KM   Sub-Basin   S102
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
KM
KM          L=   1.487 miles, S=  108 feet/mile, Kb= .11
KM
BA   0.449
LG    0.15    0.35    4.45    0.39   30.00
UC   0.813   0.637
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK  101102
KM        Normal depth route from S102 to C102
KM        Source: Field Reconnaissance
RS       6    FLOW      -1
RC    .045     .04    .045    7254  0.0138
RX     100     106     114     120     134     143     155     164
RY     110     107     103     100     100     103     107     110
*

KK    S103
KM   Sub-Basin   S103
KM
```

```
 119          KM      The Clark Unit Hydrograph is used for this basin.
 120          KM          The Natural time-area relation is used for this basin.
 121          KM
 122          KM      Time of Concentration for this sub-basin is based on the following:
 123          KM          An rainfall areal reduction factor of 1.000
 124          KM
 125          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 126          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 127          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
 128          KM
 129          KM          L=   1.321 miles, S=   76 feet/mile, Kb= .11
 130          KM
 131          BA   0.395
 132          LG    0.24    0.38    5.60    0.22   17.00
 133          UC   0.871   0.673
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 134          UA       0       3       5       8      12      20      43      75      90      96
 135          UA     100
              *

 136          KK   C102L
 137          KM        Combine routed hydrgraph from S102 with runoff from S103
 138          HC       2
              *

 139          KK    C102
 140          KM        Combine hydrgraphs from C102L and C102R
 141          HC       2
              *

 142          KK  102103
 143          KM        Normal depth route from C102 to C103R
 144          KM        Source: Field Reconnaissance
 145          RS       7    FLOW      -1
 146          RC     .05    .039     .06    8068  0.0124
 147          RX    1000    1029  1057.9    1072  1089.6  1099.4  1109.9  1173.1
 148          RY     106   103.9   101.8   100.3     100   102.2   103.3   110.0
              *

 149          KK    S104
 150          KM   Sub-Basin   S104
 151          KM
 152          KM      The Clark Unit Hydrograph is used for this basin.
 153          KM          The Natural time-area relation is used for this basin.
 154          KM
 155          KM      Time of Concentration for this sub-basin is based on the following:
 156          KM          An rainfall areal reduction factor of 1.000
 157          KM
 158          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 159          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 160          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 161          KM
 162          KM          L=   1.624 miles, S=  111 feet/mile, Kb= .10
 163          KM
 164          BA   0.900
 165          LG    0.22    0.38    5.60    0.22   13.00
 166          UC   0.792   0.447
 167          UA       0       3       5       8      12      20      43      75      90      96
 168          UA     100
              *

 169          KK   C103R
 170          KM        Combine routed hydrograph from 102103 w/runoff from S104
 171          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 172          KK    S105
 173          KM   Sub-Basin   S105
 174          KM
 175          KM      The Clark Unit Hydrograph is used for this basin.
 176          KM          The Natural time-area relation is used for this basin.
 177          KM
 178          KM      Time of Concentration for this sub-basin is based on the following:
 179          KM          An rainfall areal reduction factor of 1.000
 180          KM
 181          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 182          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 183          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 184          KM
 185          KM          L=   1.976 miles, S=   96 feet/mile, Kb= .10
 186          KM
 187          BA   0.594
 188          LG    0.22    0.38    5.60    0.22   13.00
 189          UC   0.988   0.847
 190          UA       0       3       5       8      12      20      43      75      90      96
 191          UA     100
              *
```

```
192          KK    C103
193          KM        Combine hydrograph from C103R w/runoff from S105
194          HC       2
             *

195          KK  103104
196          KM        Normal depth route from C103 to C104
197          KM        Source: Field Reconnaissance
198          RS       6    FLOW      -1
199          RC    .053    .053    .053    8625  0.0162
200          RX    1000  1001.5    1003    1011    1033    1047  1050.6  1067.2
201          RY   107.4   106.4   105.4     100   100.5   104.4   105.4   110.0
             *

202          KK    S106
203          KM   Sub-Basin   S106
204          KM
205          KM      The Clark Unit Hydrograph is used for this basin.
206          KM          The Natural time-area relation is used for this basin.
207          KM
208          KM      Time of Concentration for this sub-basin is based on the following:
209          KM          An rainfall areal reduction factor of 1.000
210          KM
211          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
212          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
213          KM   .25 .24 .24 .24 .24 .24 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
214          KM
215          KM          L=   1.770 miles, S=  158 feet/mile, Kb= .10
216          KM
217          BA   0.567
218          LG    0.19    0.37    5.20    0.26    7.00
219          UC   0.729   0.569
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

220          UA       0       3       5       8      12      20      43      75      90      96
221          UA     100
             *

222          KK    C104
223          KM        Combine routed hydrograph 103104 w/runoff from S106
224          HC       2
             *

225          KK  104105
226          KM        Normal depth route from C104 to C105
227          KM        Source: Field Reconnaissance
228          RS       7    FLOW      -1
229          RC    .053    .053    .053    6956  0.0115
230          RX    1000  1002.3  1004.6  1019.3  1041.1  1069.4  1111.7  1128.8
231          RY     108   107.5     107   100.2     100   103.4   102.3   107.3
             *

232          KK    S107
233          KM   Sub-Basin   S107
234          KM
235          KM      The Clark Unit Hydrograph is used for this basin.
236          KM          The Natural time-area relation is used for this basin.
237          KM
238          KM      Time of Concentration for this sub-basin is based on the following:
239          KM          An rainfall areal reduction factor of 1.000
240          KM
241          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
242          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
243          KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
244          KM
245          KM          L=   2.593 miles, S=  204 feet/mile, Kb= .10
246          KM
247          BA   0.936
248          LG    0.15    0.35    4.90    0.30    0.00
249          UC   0.896   0.729
250          UA       0       3       5       8      12      20      43      75      90      96
251          UA     100
             *

252          KK   C105L
253          KM        Combine routed hydrograph from 104105 w/runoff from S107
254          HC       2
             *
             *  ************************************************************************
             *                  Begin Major Basin 200 (Unnamed Wash 2)
             *  ************************************************************************
             *

255          KK    S200
256          KM   Sub-Basin   S200
257          KM
258          KM      The Clark Unit Hydrograph is used for this basin.
259          KM          The Natural time-area relation is used for this basin.
260          KM
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
261          KM      Time of Concentration for this sub-basin is based on the following:
262          KM          An rainfall areal reduction factor of 1.000
263          KM
264          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
265          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
266          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
267          KM
268          KM          L=   1.665 miles, S=  192 feet/mile, Kb= .10
269          KM
270          BA   0.959
271          LG    0.25    0.35    4.25    0.44   35.00
272          UC   0.629   0.341
273          UA       0       3       5       8      12      20      43      75      90      96
274          UA     100
             *

275          KK  200201
276          KM        Normal depth route from hydrograph S200 to C201
277          KM        Source: Field Reconnaissance
278          RS       1    FLOW      -1
279          RC     .05     .03     .05    3952  0.0228
280          RX    1000    1001    1002    1005    1026    1032    1034    1036
281          RY     105     104     103     100     100     103     104     105
             *

282          KK    S201
283          KM   Sub-Basin   S201
284          KM
285          KM      The Clark Unit Hydrograph is used for this basin.
286          KM          The Natural time-area relation is used for this basin.
287          KM
288          KM      Time of Concentration for this sub-basin is based on the following:
289          KM          An rainfall areal reduction factor of 1.000
290          KM
291          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
292          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
293          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
294          KM
295          KM          L=   1.182 miles, S=  195 feet/mile, Kb= .11
296          KM
297          BA   0.350
298          LG    0.25    0.35    4.25    0.44   35.00
299          UC   0.517   0.370
300          UA       0       3       5       8      12      20      43      75      90      96
301          UA     100
             *

302          KK    C201
303          KM        Combine routed hydrograph 200201 w/runoff from S201
304          HC       2
             *
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```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

305          KK  201203
306          KM        Normal depth route from C201 to C203R
307          KM        Source: Field Reconnaissance
308          RS       3    FLOW      -1
309          RC    .055    .039    .055    3233  0.0155
310          RX    1000  1008.4  1057.5  1066.3  1098.4  1102.8    1105  1107.6
311          RY     105   101.1     102   100.3     100     102     103   104.2
             *

312          KK    S202
313          KM   Sub-Basin   S202
314          KM
315          KM      The Clark Unit Hydrograph is used for this basin.
316          KM          The Natural time-area relation is used for this basin.
317          KM
318          KM      Time of Concentration for this sub-basin is based on the following:
319          KM          An rainfall areal reduction factor of 1.000
320          KM
321          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
322          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
323          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
324          KM
325          KM          L=   0.689 miles, S=  271 feet/mile, Kb= .12
326          KM
327          BA   0.127
328          LG    0.25    0.35    4.25    0.44   35.00
329          UC   0.367   0.292
330          UA       0       3       5       8      12      20      43      75      90      96
331          UA     100
             *

332          KK  202203
333          KM        Normal depth route from S202 to C203R
334          KM        Source: Field Reconnaissance
335          RS       2    FLOW      -1
336          RC     .05     .03     .05    2353   .0170
337          RX    1000  1008.4  1057.5  1066.3  1098.4  1102.8    1105  1107.6
338          RY   103.6   101.1     102   100.3     100     102    103.   104.2
             *
```

```
 339          KK    S203
 340          KM   Sub-Basin   S203
 341          KM
 342          KM      The Clark Unit Hydrograph is used for this basin.
 343          KM          The Natural time-area relation is used for this basin.
 344          KM
 345          KM      Time of Concentration for this sub-basin is based on the following:
 346          KM          An rainfall areal reduction factor of 1.000
 347          KM
 348          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 349          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 350          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
 351          KM
 352          KM          L=   1.683 miles, S=  154 feet/mile, Kb= .11
1                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 353          KM
 354          BA   0.373
 355          LG    0.25    0.35    4.25    0.44   35.00
 356          UC   0.758   0.724
 357          UA      0       3       5       8      12      20      43      75      90      96
 358          UA    100
              *

 359          KK   C203R
 360          KM        Combine routed hydrographs 201203 and 202203 with runoff from S203
 361          HC       3
              *

 362          KK    S204
 363          KM   Sub-Basin   S204
 364          KM
 365          KM      The Clark Unit Hydrograph is used for this basin.
 366          KM          The Natural time-area relation is used for this basin.
 367          KM
 368          KM      Time of Concentration for this sub-basin is based on the following:
 369          KM          An rainfall areal reduction factor of 1.000
 370          KM
 371          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 372          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 373          KM   .25 .24 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
 374          KM
 375          KM          L=   1.959 miles, S=  174 feet/mile, Kb= .10
 376          KM
 377          BA   0.951
 378          LG    0.25    0.35    4.25    0.44   32.00
 379          UC   0.750   0.474
 380          UA      0       3       5       8      12      20      43      75      90      96
 381          UA    100
              *

 382          KK    C203
 383          KM        Combine hydrograph from C203R with runoff from S204
 384          HC       2
              *

 385          KK  203204
 386          KM        Normal depth route from C203 to C204
 387          KM        Source: Field Reconnaissance
 388          RS       1    FLOW      -1
 389          RC    .055    .039    .055    1325  0.0151
 390          RX   989.2  1008.4  1057.5  1066.3  1098.4  1102.8    1105  1120.2
 391          RY     110   101.1     102   100.3     100     102     103   110.0
              *

 392          KK    S205
 393          KM   Sub-Basin   S205
 394          KM
 395          KM      The Clark Unit Hydrograph is used for this basin.
 396          KM          The Natural time-area relation is used for this basin.
 397          KM
1                                          HEC-1 INPUT                                          PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 398          KM      Time of Concentration for this sub-basin is based on the following:
 399          KM          An rainfall areal reduction factor of 1.000
 400          KM
 401          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 402          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 403          KM   .25 .24 .24 .24 .24 .23 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
 404          KM
 405          KM          L=   1.485 miles, S=  175 feet/mile, Kb= .11
 406          KM
 407          BA   0.413
 408          LG    0.21    0.35    4.60    0.35   21.00
 409          UC   0.654   0.525
 410          UA      0       3       5       8      12      20      43      75      90      96
 411          UA    100
              *

 412          KK    C204
```

```
413          KM        Combine routed hydrograph 203204 w/runoff from S205
414          HC       2
             *

415          KK  204205
416          KM        Normal depth route from C204 to C205L
417          KM        Source: Field Reconnaissance
418          RS       3    FLOW      -1
419          RC     .05    .039     .05    5007  0.0140
420          RX    1000  1010.6  1053.2  1064.9  1094.7  1103.1  1105.9  1113.8
421          RY   105.6   102.5   103.3   100.4     100     103     104   106.8
             *

422          KK    S206
423          KM   Sub-Basin   S206
424          KM
425          KM      The Clark Unit Hydrograph is used for this basin.
426          KM          The Natural time-area relation is used for this basin.
427          KM
428          KM      Time of Concentration for this sub-basin is based on the following:
429          KM          An rainfall areal reduction factor of 1.000
430          KM
431          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
432          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
433          KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
434          KM
435          KM          L=   2.296 miles, S=  118 feet/mile, Kb= .10
436          KM
437          BA   0.853
438          LG    0.25    0.35    4.65    0.34   27.00
439          UC   1.008   0.795
440          UA       0       3       5       8      12      20      43      75      90      96
441          UA     100
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

442          KK   C205L
443          KM        Combine routed hydrograph 204205 w/runoff from S206
444          HC       2
             *

445          KK    S207
446          KM   Sub-Basin   S207
447          KM
448          KM      The Clark Unit Hydrograph is used for this basin.
449          KM          The Natural time-area relation is used for this basin.
450          KM
451          KM      Time of Concentration for this sub-basin is based on the following:
452          KM          An rainfall areal reduction factor of 1.000
453          KM
454          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
455          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
456          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
457          KM
458          KM          L=   2.315 miles, S=  117 feet/mile, Kb= .10
459          KM
460          BA   0.957
461          LG    0.25    0.35    4.35    0.41   34.00
462          UC   1.017   0.756
463          UA       0       3       5       8      12      20      43      75      90      96
464          UA     100
             *

465          KK    C205
466          KM        Combine hydrograph from C205L w/runoff from S207
467          HC       2
             *

468          KK  205206
469          KM        Normal depth route from C205 to C206
470          KM        Source: Field Reconnaissance
471          RS      10    FLOW      -1
472          RC     .05    .039     .05   11893  0.0063
473          RX    1000  1002.5    1005  1019.1  1052.5  1070.5  1120.8  1146.9
474          RY   110.1   107.6   105.1     100   100.2   104.6   103.7   109.5
             *

475          KK    S208
476          KM   Sub-Basin   S208
477          KM
478          KM      The Clark Unit Hydrograph is used for this basin.
479          KM          The Natural time-area relation is used for this basin.
480          KM
481          KM      Time of Concentration for this sub-basin is based on the following:
482          KM          An rainfall areal reduction factor of 1.000
483          KM
484          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
485          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
486          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
487          KM
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 488          KM          L=   2.205 miles, S=   93 feet/mile, Kb= .10
 489          KM
 490          BA   1.103
 491          LG    0.23    0.37    5.30    0.25   24.00
 492          UC   1.079   0.717
 493          UA      0       3       5       8      12      20      43      75      90      96
 494          UA    100
              *

 495          KK    C206
 496          KM        Combine routed hydrograph 205206 w/runoff from S208
 497          HC       2
              *

 498          KK  206207
 499          KM        Normal depth route from C206 to C207R
 500          KM        Source: Field Reconnaissance
 501          RS       2    FLOW      -1
 502          RC    .055    .039    .055    4972  0.0312
 503          RX    1000  1007.4  1014.8  1022.2  1057.6  1068.1  1088.2  1094.2
 504          RY     106     104     102     100   100.2   102.2   102.9   105.9
              *

 505          KK    S209
 506          KM   Sub-Basin   S209
 507          KM
 508          KM      The Clark Unit Hydrograph is used for this basin.
 509          KM          The Natural time-area relation is used for this basin.
 510          KM
 511          KM      Time of Concentration for this sub-basin is based on the following:
 512          KM          An rainfall areal reduction factor of 1.000
 513          KM
 514          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 515          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 516          KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
 517          KM
 518          KM          L=   1.358 miles, S=  133 feet/mile, Kb= .12
 519          KM
 520          BA   0.650
 521          LG    0.22    0.36    5.00    0.29   15.00
 522          UC   0.746   0.436
 523          UA      0       3       5       8      12      20      43      75      90      96
 524          UA    100
              *

 525          KK   C207R
 526          KM        Combine routed hydrograph 206207 w/runoff from S209
 527          HC       2
              *
```

1 HEC-1 INPUT PAGE 13

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 528          KK    S210
 529          KM   Sub-Basin   S210
 530          KM
 531          KM      The Clark Unit Hydrograph is used for this basin.
 532          KM          The Natural time-area relation is used for this basin.
 533          KM
 534          KM      Time of Concentration for this sub-basin is based on the following:
 535          KM          An rainfall areal reduction factor of 1.000
 536          KM
 537          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 538          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 539          KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
 540          KM
 541          KM          L=   1.274 miles, S=  181 feet/mile, Kb= .11
 542          KM
 543          BA   0.481
 544          LG    0.16    0.36    5.00    0.29    2.00
 545          UC   0.579   0.372
 546          UA      0       3       5       8      12      20      43      75      90      96
 547          UA    100
              *

 548          KK    C207
 549          KM        Combine hydrograph from C207R w/runoff from S210
 550          HC       2
              *

 551          KK  207105
 552          KM        Normal depth route from C207 to C105
 553          KM        Source: Field Reconnaissance
 554          RS       2    FLOW      -1
 555          RC    .055    .039    .055    7176  0.0167
 556          RX    1000    1003    1006    1009  1038.5  1041.5  1047.5  1053.5
 557          RY     109     106     103     100     100     102     106     110
              *

 558          KK    S211
 559          KM   Sub-Basin   S211
 560          KM
```

```
561          KM      The Clark Unit Hydrograph is used for this basin.
562          KM          The Natural time-area relation is used for this basin.
563          KM
564          KM      Time of Concentration for this sub-basin is based on the following:
565          KM          An rainfall areal reduction factor of 1.000
566          KM
567          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
568          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
569          KM   .25 .24 .24 .24 .24 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
570          KM
571          KM          L=   1.359 miles, S=  162 feet/mile, Kb= .13
572          KM
573          BA   0.488
574          LG    0.19    0.37    5.20    0.26    4.00
575          UC   0.729   0.501
1                                          HEC-1 INPUT                                          PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

576          UA       0       3       5       8      12      20      43      75      90      96
577          UA     100
             *

578          KK   C105R
579          KM        Combine routed hydrograph 207105 w/runoff from S211
580          HC       2
             *

581          KK    C105
582          KM        Combine hydrographs from C105L and C105R
583          HC       2
             *
             *  ***********************************************************************
             *                  Begin Major Basin 300 (Unnamed Wash 3)
             *  ***********************************************************************
             *

584          KK    S300
585          KM   Sub-Basin   S300
586          KM
587          KM      The Clark Unit Hydrograph is used for this basin.
588          KM          The Natural time-area relation is used for this basin.
589          KM
590          KM      Time of Concentration for this sub-basin is based on the following:
591          KM          An rainfall areal reduction factor of 1.000
592          KM
593          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
594          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
595          KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
596          KM
597          KM          L=   1.776 miles, S=  129 feet/mile, Kb= .10
598          KM
599          BA   0.615
600          LG    0.25    0.35    4.55    0.36   25.00
601          UC   0.800   0.603
602          UA       0       3       5       8      12      20      43      75      90      96
603          UA     100
             *

604          KK    S301
605          KM   Sub-Basin   S301
606          KM
607          KM      The Clark Unit Hydrograph is used for this basin.
608          KM          The Natural time-area relation is used for this basin.
609          KM
610          KM      Time of Concentration for this sub-basin is based on the following:
611          KM          An rainfall areal reduction factor of 1.000
612          KM
613          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
614          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
615          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
616          KM
617          KM          L=   2.001 miles, S=  190 feet/mile, Kb= .10
618          KM
1                                          HEC-1 INPUT                                          PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

619          BA   0.994
620          LG    0.25    0.35    4.25    0.44   35.00
621          UC   0.725   0.453
622          UA       0       3       5       8      12      20      43      75      90      96
623          UA     100
             *

624          KK    C300
625          KM        Combine runoff from S300 and S301
626          HC       2
             *

627          KK  300301
628          KM        Normal depth route from C300 to C301
629          KM        Source: Field Reconnaissance
630          RS       3    FLOW      -1
631          RC    .051    .044    .051    5117  0.0137
```

```
632          RX    1000    1001    1002    1010    1047    1059  1060.5    1062
633          RY     110     109     108     100     100     108     109     110
             *

634          KK    S302
635          KM   Sub-Basin   S302
636          KM
637          KM      The Clark Unit Hydrograph is used for this basin.
638          KM          The Natural time-area relation is used for this basin.
639          KM
640          KM      Time of Concentration for this sub-basin is based on the following:
641          KM          An rainfall areal reduction factor of 1.000
642          KM
643          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
644          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
645          KM   .25 .24 .24 .24 .24 .23 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
646          KM
647          KM          L=   1.095 miles, S=  137 feet/mile, Kb= .13
648          KM
649          BA   0.465
650          LG    0.24    0.35    4.55    0.36   24.00
651          UC   0.663   0.390
652          UA       0       3       5       8      12      20      43      75      90      96
653          UA     100
             *

654          KK    C301
655          KM        Combine routed hydrograph 300301 w/runoff from S302
656          HC       2
             *

657          KK  301302
658          KM        Normal depth route from C301 to C302
659          KM        Source: Field Reconnaissance
660          RS       9    FLOW      -1
661          RC    .051    .039    .051    8124  0.0086
662          RX    1000    1004  1200.3  1213.6  1240.6  1249.9  1344.4  1369.6
663          RY   110.6   108.6   103.5   100.2     100   104.2   107.4   110.4
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

664          KK    S303
665          KM   Sub-Basin   S303
666          KM
667          KM      The Clark Unit Hydrograph is used for this basin.
668          KM          The Natural time-area relation is used for this basin.
669          KM
670          KM      Time of Concentration for this sub-basin is based on the following:
671          KM          An rainfall areal reduction factor of 1.000
672          KM
673          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
674          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
675          KM   .24 .24 .23 .23 .23 .23 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
676          KM
677          KM          L=   1.539 miles, S=  188 feet/mile, Kb= .12
678          KM
679          BA   0.708
680          LG    0.22    0.35    4.60    0.35   10.00
681          UC   0.713   0.437
682          UA       0       3       5       8      12      20      43      75      90      96
683          UA     100
             *

684          KK    C302
685          KM        Combine routed hydrograph 301302 w/runoff from S303
686          HC       2
             *

687          KK  302303
688          KM        Normal depth route from C302 to C303
689          KM        Source: Field Reconniassance
690          RS       4    FLOW      -1
691          RC    .055    .048    .055    7304  0.0192
692          RX    1000  1009.4  1017.8  1026.5  1067.3  1068.7  1071.5  1075.5
693          RY   106.1     104     102     100     101     102     104   105.9
             *

694          KK    S304
695          KM   Sub-Basin   S304
696          KM
697          KM      The Clark Unit Hydrograph is used for this basin.
698          KM          The Natural time-area relation is used for this basin.
699          KM
700          KM      Time of Concentration for this sub-basin is based on the following:
701          KM          An rainfall areal reduction factor of 1.000
702          KM
703          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
704          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
705          KM   .25 .24 .24 .24 .24 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
706          KM
707          KM          L=   2.314 miles, S=  186 feet/mile, Kb= .10
708          KM
```

```
 709          BA   0.823
 710          LG    0.18     0.36     5.10     0.27     3.00
 711          UC   0.842    0.668
1                                        HEC-1 INPUT                                                          PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 712          UA       0        3        5        8       12       20       43       75       90       96
 713          UA     100
              *

 714          KK    C303
 715          KM        Combine routed hydrograph 302303 w/runoff from S304
 716          HC       2
              *

 717          KK  WEST-1
 718          KM        Dummy combine of major basins 100, 200 and 300
 719          HC       2
              *
              *  ***********************************************************************
              *                 Begin Major Basin 400 (Caterpillar Tanks Wash)
              *  ***********************************************************************
              *

 720          KK    S400
 721          KM   Sub-Basin   S400
 722          KM
 723          KM      The Clark Unit Hydrograph is used for this basin.
 724          KM          The Natural time-area relation is used for this basin.
 725          KM
 726          KM      Time of Concentration for this sub-basin is based on the following:
 727          KM          An rainfall areal reduction factor of 1.000
 728          KM
 729          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 730          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 731          KM   .26 .26 .26 .25 .25 .25 .02 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
 732          KM
 733          KM          L=   1.864 miles, S=  110 feet/mile, Kb= .10
 734          KM
 735          BA   1.048
 736          LG    0.23     0.34     5.40     0.21    14.00
 737          UC   0.867    0.506
 738          UA       0        3        5        8       12       20       43       75       90       96
 739          UA     100
              *

 740          KK   C4000
 741          KM        Storage routing at crossing structure no. 78 (see Plate 5)
 742          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
 743          RS       1     STOR        0
 744          SQ       0       62      200      400      540      625      750
 745          SE    1508     1511     1514     1520     1526     1532     1540
 746          SV       0      5.2     18.6     40.7     71.7    115.5    178.1    266.3
 747          SE    1508     1516     1520     1524     1528     1532     1536     1540
              *
1                                        HEC-1 INPUT                                                          PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 748          KK  400401
 749          KM        Normal depth route from S400 to C401
 750          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
 751          RS       9     FLOW       -1
 752          RC    .045     .040     .045     7424   0.0101
 753          RX  9729.2   9772.7   9849.9    10000  10007.8  10090.6  10147.3  10185.4
 754          RY  1509.6   1508.8   1500.2   1475.5   1475.3   1495.3     1496   1497.5
              *

 755          KK    S401
 756          KM   Sub-Basin   S401
 757          KM
 758          KM      The Clark Unit Hydrograph is used for this basin.
 759          KM          The Natural time-area relation is used for this basin.
 760          KM
 761          KM      Time of Concentration for this sub-basin is based on the following:
 762          KM          An rainfall areal reduction factor of 1.000
 763          KM
 764          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 765          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 766          KM   .25 .24 .24 .24 .24 .23 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
 767          KM
 768          KM          L=   1.349 miles, S=   74 feet/mile, Kb= .10
 769          KM
 770          BA   0.646
 771          LG    0.30     0.36     5.10     0.26     7.00
 772          UC   0.858    0.509
 773          UA       0        3        5        8       12       20       43       75       90       96
 774          UA     100
              *

 775          KK    C401
 776          KM        Combine routed hydrograph 400401 w/runoff from S401
 777          HC       2
```

```
                *
 778            KK  401402
 779            KM        Normal depth route from C401 to C402
 780            KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
 781            RS      11    FLOW      -1
 782            RC    .045    .043    .045    8029  0.0112
 783            RX  9581.3  9756.6  9997.5   10000 10022.2 10086.4 10119.5 10362.5
 784            RY  1455.4  1419.3  1413.3  1410.9  1409.8  1414.4    1419  1428.6
                *

 785            KK    S402
 786            KM   Sub-Basin   S402
 787            KM
 788            KM      The Clark Unit Hydrograph is used for this basin.
 789            KM          The Natural time-area relation is used for this basin.
 790            KM
 791            KM      Time of Concentration for this sub-basin is based on the following:
 792            KM          An rainfall areal reduction factor of 1.000
 793            KM
1                                          HEC-1 INPUT                                          PAGE 19

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 794            KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 795            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 796            KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00
 797            KM
 798            KM          L=   1.468 miles, S=   75 feet/mile, Kb= .08
 799            KM
 800            BA   0.740
 801            LG    0.31    0.38    5.60    0.21    3.00
 802            UC   0.750   0.434
 803            UA       0       3       5       8      12      20      43      75      90      96
 804            UA     100
                *

 805            KK    C402
 806            KM        Combine routed hydrograph 401402 w/runoff from S402
 807            HC       2
                *

 808            KK  402403
 809            KM        Normal depth route from C402 to C403
 810            KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
 811            RS      10    FLOW      -1
 812            RC    .045    .043    .045    6138  0.0049
 813            RX   9267.  9571.2  9916.2  9988.7  9997.4 10095.3 10157.8   10641
 814            RY  1395.9  1388.7  1383.7    1355    1355  1361.4  1359.6    1378
 815            RL                    0.03  1355.0
                *

 816            KK    S403
 817            KM   Sub-Basin   S403
 818            KM
 819            KM      The Clark Unit Hydrograph is used for this basin.
 820            KM          The Natural time-area relation is used for this basin.
 821            KM
 822            KM      Time of Concentration for this sub-basin is based on the following:
 823            KM          An rainfall areal reduction factor of 1.000
 824            KM
 825            KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 826            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 827            KM   .28 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
 828            KM
 829            KM          L=   1.638 miles, S=   52 feet/mile, Kb= .09
 830            KM
 831            BA   0.559
 832            LG    0.30    0.30    8.00    0.08    0.00
 833            UC   0.971   0.740
 834            UA       0       3       5       8      12      20      43      75      90      96
 835            UA     100
                *
1                                          HEC-1 INPUT                                          PAGE 20

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 836            KK    C403
 837            KM        Combine routed hydrograph 402403 w/runoff from S403
 838            HC       2
                *

 839            KK  403404
 840            KM        Normal depth route from C403 to C404
 841            KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
 842            RS       3    FLOW      -1
 843            RC    .045    .045    .045    4256   .0164
 844            RX  9506.5  9551.7  9955.5    9995 10007.4 10060.9 10227.2 10315.3
 845            RY  1300.9  1282.3  1282.7  1276.7  1276.5  1283.5  1283.3  1302.1
 846            RL                    0.03  1276.5
                *

 847            KK    S404
 848            KM   Sub-Basin   S404
```

```
849          KM
850          KM      The Clark Unit Hydrograph is used for this basin.
851          KM          The Natural time-area relation is used for this basin.
852          KM
853          KM      Time of Concentration for this sub-basin is based on the following:
854          KM          An rainfall areal reduction factor of 1.000
855          KM
856          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
857          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
858          KM   .26 .26 .26 .26 .25 .25 .02 .02 .02 .02 .02 .01 .00 .00 .00 .00 .00 .00
859          KM
860          KM          L=   0.773 miles, S=  181 feet/mile, Kb= .09
861          KM
862          BA   0.263
863          LG    0.27    0.37    6.60    0.14    0.00
864          UC   0.371   0.214
865          UA       0       3       5       8      12      20      43      75      90      96
866          UA     100
             *

867          KK    C404
868          KM        Combine routed hydrograph C403 w/runoff S404
869          HC       2
             *

870          KK  WEST-2
871          KM        Dummy combine of major basins 100, 200, 300 and 400
872          HC       2
             *
             *  ***************************************************************************
             *                Begin Major Basin 500 (Twin Buttes Wash)
             *  ***************************************************************************
             *
1                                          HEC-1 INPUT                                          PAGE 21

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


873          KK    S500
874          KM   Sub-Basin   S500
875          KM
876          KM      The Clark Unit Hydrograph is used for this basin.
877          KM          The Natural time-area relation is used for this basin.
878          KM
879          KM      Time of Concentration for this sub-basin is based on the following:
880          KM          An rainfall areal reduction factor of 1.000
881          KM
882          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
883          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
884          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
885          KM
886          KM          L=   2.399 miles, S=  117 feet/mile, Kb= .10
887          KM
888          BA   1.054
889          LG    0.25    0.35    4.25    0.44   35.00
890          UC   1.046   0.760
891          UA       0       3       5       8      12      20      43      75      90      96
892          UA     100
             *

893          KK  500501
894          KM        Normal depth route from S500 to C501
895          KM        Source: Field Reconnaissance
896          RS       4    FLOW      -1
897          RC    0.05   0.035    0.05    5972  0.0134
898          RX    1000    1004    1032    1047    1069 1072.75  1075.9  1081.9
899          RY   105.7   101.7    99.6    96.8    97.1    99.6   101.7   105.7
             *

900          KK    S501
901          KM   Sub-Basin   S501
902          KM
903          KM      The Clark Unit Hydrograph is used for this basin.
904          KM          The Natural time-area relation is used for this basin.
905          KM
906          KM      Time of Concentration for this sub-basin is based on the following:
907          KM          An rainfall areal reduction factor of 1.000
908          KM
909          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
910          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
911          KM   .24 .24 .24 .24 .24 .23 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
912          KM
913          KM          L=   1.486 miles, S=  135 feet/mile, Kb= .10
914          KM
915          BA   0.614
916          LG    0.22    0.35    4.45    0.39   23.00
917          UC   0.692   0.445
918          UA       0       3       5       8      12      20      43      75      90      96
919          UA     100
             *
1                                          HEC-1 INPUT                                          PAGE 22

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
920          KK    C501
921          KM        Combine routed hydrograph 500501 w/runoff from S501
922          HC       2
             *

923          KK  501502
924          KM        Normal depth route from C501 to C502L
925          KM        Source: Field Reconniassance
926          RS       2    FLOW      -1
927          RC    0.05   0.035    0.05    5021  0.0159
928          RX    1000    1001    1002    1006    1035    1039    1040    1041
929          RY     106     105     104     100     100     104     105     106
930          RL                    0.94   100.0
             *

931          KK    S502
932          KM   Sub-Basin   S502
933          KM
934          KM      The Clark Unit Hydrograph is used for this basin.
935          KM          The Natural time-area relation is used for this basin.
936          KM
937          KM      Time of Concentration for this sub-basin is based on the following:
938          KM          An rainfall areal reduction factor of 1.000
939          KM
940          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
941          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
942          KM   .24 .24 .24 .24 .23 .23 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
943          KM
944          KM          L=   1.053 miles, S=  209 feet/mile, Kb= .13
945          KM
946          BA   0.403
947          LG    0.27    0.35    4.50    0.35   14.00
948          UC   0.533   0.322
949          UA       0       3       5       8      12      20      43      75      90      96
950          UA     100
             *

951          KK   C502L
952          KM        Combine routed hydrograph 501502 w/runoff from S502
953          HC       2
             *

954          KK    S503
955          KM   Sub-Basin   S503
956          KM
957          KM      The Clark Unit Hydrograph is used for this basin.
958          KM          The Natural time-area relation is used for this basin.
959          KM
960          KM      Time of Concentration for this sub-basin is based on the following:
961          KM          An rainfall areal reduction factor of 1.000
962          KM
963          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
964          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
965          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

966          KM
967          KM          L=   1.891 miles, S=  116 feet/mile, Kb= .08
968          KM
969          BA   0.994
970          LG    0.21    0.31    4.65    0.28   17.00
971          UC   0.721   0.430
972          UA       0       3       5       8      12      20      43      75      90      96
973          UA     100
             *

974          KK   C502I
975          KM        Combine hydrograph from C502L w/runoff from S503
976          HC       2
             *

977          KK   C502O
978          KM        Storage routing at crossing structure no. 81
979          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
980          RS       1    STOR       0
981          SQ       0     248     800    1600    2160    2500    2900    3200
982          SE    1500    1503    1506    1512    1518    1524    1530    1536
983          SV       0    2.37    9.23   20.95   37.67  122.58   212.7  516.24
984          SE    1500    1508    1512    1516    1520    1528    1532    1540
             *

985          KK  502505
986          KM        Normal depth route from C502 to C505L
987          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
988          RS       7    FLOW      -1
989          RC    .046     .04    .046    8775  0.0091
990          RX  9875.7  9921.8  9941.2  9962.7 10048.7 10088.3 10258.2 10339.9
991          RY  1488.4  1476.5  1472.2    1469  1470.4  1480.9  1485.4  1497.1
992          RL                    0.94    1469
             *

993          KK    S504
994          KM   Sub-Basin   S504
```

```
 995          KM
 996          KM      The Clark Unit Hydrograph is used for this basin.
 997          KM          The Natural time-area relation is used for this basin.
 998          KM
 999          KM      Time of Concentration for this sub-basin is based on the following:
1000          KM          An rainfall areal reduction factor of 1.000
1001          KM
1002          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1003          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1004          KM   .23 .22 .22 .22 .22 .21 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1005          KM
1006          KM          L=   1.571 miles, S=   64 feet/mile, Kb= .09
1007          KM
1008          BA   0.326
1009          LG    0.35    0.35    4.40    0.38    0.00
1010          UC   1.025   1.034
1011          UA       0       3       5       8      12      20      43      75      90      96
1012          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 24

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1013          KK   C505L
1014          KM        Combine routed hydrograph 502505 w/runoff from S504
1015          HC       2
              *

1016          KK    S505
1017          KM   Sub-Basin   S505
1018          KM
1019          KM      The Clark Unit Hydrograph is used for this basin.
1020          KM          The Natural time-area relation is used for this basin.
1021          KM
1022          KM      Time of Concentration for this sub-basin is based on the following:
1023          KM          An rainfall areal reduction factor of 1.000
1024          KM
1025          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1026          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1027          KM   .24 .24 .23 .23 .23 .22 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1028          KM
1029          KM          L=   0.472 miles, S=  365 feet/mile, Kb= .14
1030          KM
1031          BA   0.143
1032          LG    0.25    0.35    4.40    0.38   14.00
1033          UC   0.304   0.164
1034          UA       0       3       5       8      12      20      43      75      90      96
1035          UA     100
              *

1036          KK   C5030
1037          KM        Storage routing at crossing structure no. 94
1038          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1039          RS       1    STOR       0
1040          SQ       0     7.5      22      45      71      93     110
1041          SE    1519  1520.25 1521.5    1524    1529    1534    1540
1042          SV       0    0.61    2.78    8.03   18.24
1043          SE    1519    1528    1532    1536    1540
              *

1044          KK  503505
1045          KM        Normal depth route from S505 to C505
1046          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1047          RS      15    FLOW      -1
1048          RC    .045    .047    .043    9136   .0115
1049          RX    9715  9892.4    9965  9996.6   10000 10044.9 10077.4 10088.5
1050          RY  1504.8  1497.4  1487.9  1471.1  1471.6  1487.4  1484.4  1483.1
1051          RL                    0.63  1471.1
              *

1052          KK    S506
1053          KM   Sub-Basin   S506
1054          KM
1055          KM      The Clark Unit Hydrograph is used for this basin.
1056          KM          The Natural time-area relation is used for this basin.
1057          KM
1058          KM      Time of Concentration for this sub-basin is based on the following:
1                                          HEC-1 INPUT                                          PAGE 25

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1059          KM          An rainfall areal reduction factor of 1.000
1060          KM
1061          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1062          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1063          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1064          KM
1065          KM          L=   0.726 miles, S=  307 feet/mile, Kb= .14
1066          KM
1067          BA   0.151
1068          LG    0.29    0.39    5.70    0.20    9.00
1069          UC   0.392   0.297
1070          UA       0       3       5       8      12      20      43      75      90      96
1071          UA     100
```

```
                *

1072            KK   C5040
1073            KM        Storage routing at crossing structure no. 93
1074            KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1075            RS       1    STOR       0
1076            SQ       0     7.5      22      52      72      90     103     115
1077            SE  1513.9  1515.2  1516.4  1520.2  1524.2  1528.2  1532.2    1540
1078            SV       0     0.1    0.18    1.89    5.34   11.99   24.05    43.4
1079            SE  1513.9  1517.8    1520    1524    1528    1532    1536    1540
                *

1080            KK  504505
1081            KM        Normal depth route from S506 to C505
1082            KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1083            RS      13    FLOW      -1
1084            RC    .045    .043    .044    7754  0.0129
1085            RX  9785.2  9855.2  9914.4  9959.2 10013.6 10041.2 10119.8 10183.2
1086            RY    1501  1493.8  1487.5    1473  1468.9  1480.7  1487.9  1494.5
                *

1087            KK    S507
1088            KM   Sub-Basin   S507
1089            KM
1090            KM      The Clark Unit Hydrograph is used for this basin.
1091            KM          The Natural time-area relation is used for this basin.
1092            KM
1093            KM      Time of Concentration for this sub-basin is based on the following:
1094            KM          An rainfall areal reduction factor of 1.000
1095            KM
1096            KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1097            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1098            KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00
1099            KM
1100            KM          L=   1.467 miles, S=   68 feet/mile, Kb= .08
1101            KM
1102            BA   0.666
1103            LG    0.34    0.39    5.70    0.20    1.00
1104            UC   0.788   0.486
1105            UA       0       3       5       8      12      20      43      75      90      96
1106            UA     100
                *
1                                          HEC-1 INPUT                                          PAGE 26

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1107            KK   C505R
1108            KM        Combine routed hydrographs 503505 and 504505 w/runoff from S507
1109            HC       3
                *

1110            KK    C505
1111            KM        Combine hydrographs from C505L and C505R
1112            HC       2
                *

1113            KK  505509
1114            KM        Normal depth route from C505 to C509L
1115            KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1116            RS      10    FLOW      -1
1117            RC    .046    .047    .036    6213  0.0064
1118            RX  9136.7  9456.9  9928.8   10000 10150.9 10209.7   10414 10505.9
1119            RY  1419.5  1401.9    1395    1390  1390.3  1398.3  1395.1  1398.3
1120            RL                    0.94  1390.0
                *

1121            KK    S508
1122            KM   Sub-Basin   S508
1123            KM
1124            KM      The Clark Unit Hydrograph is used for this basin.
1125            KM          The Natural time-area relation is used for this basin.
1126            KM
1127            KM      Time of Concentration for this sub-basin is based on the following:
1128            KM          An rainfall areal reduction factor of 1.000
1129            KM
1130            KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1131            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1132            KM   .24 .24 .24 .24 .24 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1133            KM
1134            KM          L=   1.082 miles, S=   92 feet/mile, Kb= .09
1135            KM
1136            BA   0.295
1137            LG    0.33    0.37    5.30    0.24    0.00
1138            UC   0.596   0.445
1139            UA       0       3       5       8      12      20      43      75      90      96
1140            UA     100
                *

1141            KK   C509L
1142            KM        Combine routed hydrograph 505509 w/runoff from S508
1143            HC       2
                *

1144            KK    S509
```

```
1145        KM   Sub-Basin   S509
1146        KM
1147        KM      The Clark Unit Hydrograph is used for this basin.
1148        KM          The Natural time-area relation is used for this basin.
1149        KM
1150        KM      Time of Concentration for this sub-basin is based on the following:
1                                   HEC-1 INPUT                                          PAGE 27

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1151        KM          An rainfall areal reduction factor of 1.000
1152        KM
1153        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1154        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1155        KM   .25 .25 .25 .24 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1156        KM
1157        KM          L=   0.721 miles, S=  304 feet/mile, Kb= .10
1158        KM
1159        BA   0.170
1160        LG    0.28    0.35    4.65    0.32   23.00
1161        UC   0.329   0.228
1162        UA       0       3       5       8      12      20      43      75      90      96
1163        UA     100
            *

1164        KK   C5060
1165        KM        Storage routing at crossing structure no. 84
1166        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1167        RS       1    STOR       0
1168        SQ       0     7.5      22      45      71      93     110
1169        SE    1519 1520.25  1521.5    1524    1529    1534    1540
1170        SV       0     .77    4.36   15.19   35.89
1171        SE    1519    1528    1532    1536    1540
            *

1172        KK  506508
1173        KM        Normal depth route from S506 to C508
1174        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1175        RS       6    FLOW      -1
1176        RC    .045    .045    .035    4023   .0149
1177        RX  9717.6  9800.2  9981.4   10000 10010.3 10036.3 10068.8 10227.2
1178        RY  1512.9  1510.9  1508.9    1502    1499  1505.7  1511.5  1512.3
            *

1179        KK    S510
1180        KM   Sub-Basin   S510
1181        KM
1182        KM      The Clark Unit Hydrograph is used for this basin.
1183        KM          The Natural time-area relation is used for this basin.
1184        KM
1185        KM      Time of Concentration for this sub-basin is based on the following:
1186        KM          An rainfall areal reduction factor of 1.000
1187        KM
1188        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1189        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1190        KM   .27 .27 .27 .26 .26 .26 .02 .02 .02 .02 .02 .02 .00 .00 .00 .00 .00 .00
1191        KM
1192        KM          L=   0.803 miles, S=   75 feet/mile, Kb= .10
1193        KM
1194        BA   0.127
1195        LG    0.32    0.33    7.30    0.11    6.00
1196        UC   0.529   0.497
1197        UA       0       3       5       8      12      20      43      75      90      96
1198        UA     100
            *
1                                   HEC-1 INPUT                                          PAGE 28

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1199        KK   C508R
1200        KM        Combine routed hydrograph 506508 w/runoff from S510
1201        HC       2
            *

1202        KK    S511
1203        KM   Sub-Basin   S511
1204        KM
1205        KM      The Clark Unit Hydrograph is used for this basin.
1206        KM          The Natural time-area relation is used for this basin.
1207        KM
1208        KM      Time of Concentration for this sub-basin is based on the following:
1209        KM          An rainfall areal reduction factor of 1.000
1210        KM
1211        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1212        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1213        KM   .26 .26 .25 .25 .25 .25 .02 .02 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1214        KM
1215        KM          L=   1.319 miles, S=  270 feet/mile, Kb= .09
1216        KM
1217        BA   0.385
1218        LG    0.29    0.39    5.70    0.20   19.00
1219        UC   0.433   0.314
1220        UA       0       3       5       8      12      20      43      75      90      96
1221        UA     100
```

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                 *
1222             KK   C507O
1223             KM        Storage routing at crossing structure no. 82
1224             KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1225             RS       1    STOR       0
1226             SQ       0     7.5      22      45      71      93     108     115
1227             SE    1516 1517.25  1518.5    1521    1526    1531    1536    1540
1228             SV       0     .75    4.47   19.99   60.85  133.63
1229             SE    1520    1524    1528    1532    1536    1540
                 *

1230             KK  507508
1231             KM        Normal depth route from S511 to C508
1232             KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1233             RS       9    FLOW      -1
1234             RC    .045    .045    .035    5400   .0111
1235             RX  9723.2  9781.7   9912.  9989.1   10000 10022.9 10089.7 10209.7
1236             RY  1491.1  1490.1  1489.9  1476.5  1477.1  1483.3  1486.2  1492.1
1237             RL                    0.39  1476.5
                 *

1238             KK    S512
1239             KM   Sub-Basin   S512
1240             KM
1241             KM      The Clark Unit Hydrograph is used for this basin.
1242             KM          The Natural time-area relation is used for this basin.
1243             KM
1244             KM      Time of Concentration for this sub-basin is based on the following:
1                                          HEC-1 INPUT                                          PAGE 29

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1245             KM          An rainfall areal reduction factor of 1.000
1246             KM
1247             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1248             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1249             KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1250             KM
1251             KM          L=   0.974 miles, S=   62 feet/mile, Kb= .10
1252             KM
1253             BA   0.214
1254             LG    0.35    0.30    8.00    0.08    0.00
1255             UC   0.667   0.556
1256             UA       0       3       5       8      12      20      43      75      90      96
1257             UA     100
                 *

1258             KK   C508L
1259             KM        Combine routed hydrograph 507508 w/runoff from S512
1260             HC       2
                 *

1261             KK    C508
1262             KM        Combine hydrographs from C508L and C508R
1263             HC       2
                 *

1264             KK  508509
1265             KM        Normal depth route from C508 to C509
1266             KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1267             RS      16    FLOW      -1
1268             RC    .045    .041    .045   10349  0.0077
1269             RX  9573.3  9869.3    9973  9985.2   10000   10053 10231.6 10511.6
1270             RY  1439.9  1425.1  1424.7  1422.1  1419.1  1425.1  1437.1  1444.5
1271             RL                    0.94  1419.1
                 *

1272             KK    S513
1273             KM   Sub-Basin   S513
1274             KM
1275             KM      The Clark Unit Hydrograph is used for this basin.
1276             KM          The Natural time-area relation is used for this basin.
1277             KM
1278             KM      Time of Concentration for this sub-basin is based on the following:
1279             KM          An rainfall areal reduction factor of 1.000
1280             KM
1281             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1282             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1283             KM   .25 .24 .24 .24 .24 .23 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1284             KM
1285             KM          L=   2.301 miles, S=   52 feet/mile, Kb= .08
1286             KM
1287             BA   0.778
1288             LG    0.32    0.38    5.40    0.22    1.00
1289             UC   1.300   1.113
1290             UA       0       3       5       8      12      20      43      75      90      96
1291             UA     100
                 *
1                                          HEC-1 INPUT                                          PAGE 30

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1292             KK   C509R
```

```
1293          KM        Combine routed hydrograph 508509 w/runoff from S513
1294          HC       2
              *

1295          KK    C509
1296          KM        Combine hydrographs from C509L and C509R
1297          HC       2
              *

1298          KK  509510
1299          KM        Normal depth route from C509 to C510
1300          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1301          RS       3    FLOW       -1
1302          RC    .046    .043    .045    1958   .0102
1303          RX  9605.5  9805.1  9911.8   10000 10026.3 10119.6 10293.4 10613.5
1304          RY  1374.6  1369.2  1370.3  1365.5  1365.6  1379.6  1383.9  1390.1
1305          RL                     0.38  1365.5
              *

1306          KK    S514
1307          KM   Sub-Basin   S514
1308          KM
1309          KM      The Clark Unit Hydrograph is used for this basin.
1310          KM          The Natural time-area relation is used for this basin.
1311          KM
1312          KM      Time of Concentration for this sub-basin is based on the following:
1313          KM          An rainfall areal reduction factor of 1.000
1314          KM
1315          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1316          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1317          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .00 .00 .00 .00
1318          KM
1319          KM          L=   2.147 miles, S=   65 feet/mile, Kb= .08
1320          KM
1321          BA   0.650
1322          LG    0.28    0.32    7.60    0.09    0.00
1323          UC   0.983   0.855
1324          UA       0       3       5       8      12      20      43      75      90      96
1325          UA     100
              *

1326          KK    C510
1327          KM        Combine routed hydrograph 509510 w/runoff from S514
1328          HC       2
              *

1329          KK  510511
1330          KM        Normal depth route from C510 to C511
1331          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1332          RS      11    FLOW       -1
1333          RC    .046    .044    .046    6722  0.0067
1334          RX  9361.9  9781.7  9944.4  9985.6   10000 10040.8   10420 11470.9
1335          RY  1382.6  1375.5  1364.2  1355.1  1355.4  1360.8  1363.1  1381.1
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1336          RL                     0.38  1355.1
              *

1337          KK    S515
1338          KM   Sub-Basin   S515
1339          KM
1340          KM      The Clark Unit Hydrograph is used for this basin.
1341          KM          The Natural time-area relation is used for this basin.
1342          KM
1343          KM      Time of Concentration for this sub-basin is based on the following:
1344          KM          An rainfall areal reduction factor of 1.000
1345          KM
1346          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1347          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1348          KM   .28 .28 .28 .28 .28 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1349          KM
1350          KM          L=   1.948 miles, S=   54 feet/mile, Kb= .08
1351          KM
1352          BA   1.102
1353          LG    0.32    0.27    8.80    0.06    0.00
1354          UC   0.975   0.580
1355          UA       0       3       5       8      12      20      43      75      90      96
1356          UA     100
              *

1357          KK    C511
1358          KM        Combine routed hydrograph 510511 w/runoff from S515
1359          HC       2
              *

1360          KK  511512
1361          KM        Normal depth route from C511 to C512
1362          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09
1363          RS      10    FLOW       -1
1364          RC    .046    .044    .046    9226  0.0081
1365          RX  9565.4  9665.5  9852.4   10000 10019.5 10074.2 10242.6   10760
1366          RY  1305.6  1305.6  1303.1  1297.8  1296.9  1336.3  1339.9  1336.5
1367          RL                     0.40  1296.9
```

```
                 *
1368             KK    S516
1369             KM   Sub-Basin   S516
1370             KM
1371             KM      The Clark Unit Hydrograph is used for this basin.
1372             KM          The Natural time-area relation is used for this basin.
1373             KM
1374             KM      Time of Concentration for this sub-basin is based on the following:
1375             KM          An rainfall areal reduction factor of 1.000
1376             KM
1377             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1378             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1379             KM   .24 .24 .23 .23 .23 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1380             KM
1381             KM          L=   1.747 miles, S=   66 feet/mile, Kb= .09
1382             KM
1                                                HEC-1 INPUT                                                    PAGE 32

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1383             BA   0.540
1384             LG    0.35    0.35    4.80    0.29    0.00
1385             UC   1.058   0.875
1386             UA       0       3       5       8      12      20      43      75      90      96
1387             UA     100
                 *

1388             KK    C512
1389             KM       Combine routed hydrograph 511512 w/runoff from S516
1390             HC       2
                 *

1391             KK  WEST-3
1392             KM       Dummy combine of major basins S100, S200, S300, S400 and S500
1393             HC       2
                 *
                 *  ***********************************************************************
                 *                Begin Major Basin 600 (Morgan City Wash)
                 *  ***********************************************************************
                 *

1394             KK    S600
1395             KM   Sub-Basin   S600
1396             KM
1397             KM      The Clark Unit Hydrograph is used for this basin.
1398             KM          The Natural time-area relation is used for this basin.
1399             KM
1400             KM      Time of Concentration for this sub-basin is based on the following:
1401             KM          An rainfall areal reduction factor of 1.000
1402             KM
1403             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1404             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1405             KM   .23 .23 .23 .23 .22 .22 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1406             KM
1407             KM          L=   2.796 miles, S=  271 feet/mile, Kb= .09
1408             KM
1409             BA   2.018
1410             LG    0.25    0.35    4.00    0.49   22.00
1411             UC   0.763   0.418
1412             UA       0       3       5       8      12      20      43      75      90      96
1413             UA     100
                 *

1414             KK  600601
1415             KM       Normal depth route from S600 to C601
1416             KM       Source: Morgan City Wash FDS, FCD 89-15
1417             RS       2    FLOW      -1
1418             RC    0.05   0.035    0.05    3463   .0332
1419             RX     100     110     135     200     220     260     275     290
1420             RY    2516    2512    2504    2500    2510    2520    2530    2540
                 *
1                                                HEC-1 INPUT                                                    PAGE 33

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1421             KK    S601
1422             KM   Sub-Basin   S601
1423             KM
1424             KM      The Clark Unit Hydrograph is used for this basin.
1425             KM          The Natural time-area relation is used for this basin.
1426             KM
1427             KM      Time of Concentration for this sub-basin is based on the following:
1428             KM          An rainfall areal reduction factor of 1.000
1429             KM
1430             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1431             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1432             KM   .27 .27 .27 .27 .26 .26 .03 .03 .03 .02 .02 .02 .01 .01 .01 .01 .01 .01
1433             KM
1434             KM          L=   1.840 miles, S=  232 feet/mile, Kb= .10
1435             KM
1436             BA   0.901
1437             LG    0.25    0.39    5.70    0.21   44.00
1438             UC   0.588   0.354
```

```
1439          UA      0       3       5       8      12      20      43      75      90      96
1440          UA    100
              *

1441          KK    C601
1442          KM        Combine routed hydrograph from S600 w/runoff from S601
1443          HC       2
              *

1444          KK  601602
1445          KM        Normal depth route from S601 to C602
1446          KM        Source: Morgan City Wash FDS, FCD 89-15
1447          RS       3    FLOW      -1
1448          RC    0.05   0.035    0.05    6017   .0266
1449          RX     100     130     140     155     245     255     270     340
1450          RY    2380    2360    2356    2352    2352    2356    2360    2380
              *

1451          KK    S603
1452          KM   Sub-Basin   S603
1453          KM
1454          KM      The Clark Unit Hydrograph is used for this basin.
1455          KM          The Natural time-area relation is used for this basin.
1456          KM
1457          KM      Time of Concentration for this sub-basin is based on the following:
1458          KM          An rainfall areal reduction factor of 1.000
1459          KM
1460          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1461          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1462          KM   .27 .27 .27 .26 .26 .26 .03 .03 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1463          KM
1464          KM          L=   1.377 miles, S=  326 feet/mile, Kb= .10
1465          KM
1466          BA   0.665
1467          LG    0.25    0.39    5.80    0.20   41.00
1468          UC   0.433   0.238
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1469          UA      0       3       5       8      12      20      43      75      90      96
1470          UA    100
              *

1471          KK   C602L
1472          KM        Combine routed hydrogaph 601602 w/runoff from S603
1473          HC       2
              *

1474          KK    S602
1475          KM   Sub-Basin   S602
1476          KM
1477          KM      The Clark Unit Hydrograph is used for this basin.
1478          KM          The Natural time-area relation is used for this basin.
1479          KM
1480          KM      Time of Concentration for this sub-basin is based on the following:
1481          KM          An rainfall areal reduction factor of 1.000
1482          KM
1483          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1484          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1485          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1486          KM
1487          KM          L=   3.035 miles, S=  258 feet/mile, Kb= .09
1488          KM
1489          BA   1.883
1490          LG    0.25    0.35    4.35    0.41   35.00
1491          UC   0.788   0.481
1492          UA      0       3       5       8      12      20      43      75      90      96
1493          UA    100
              *

1494          KK    C602
1495          KM        Combine hydrograph at C602L w/runoff from S602
1496          HC       2
              *

1497          KK  602603
1498          KM        Normal depth route from C602 to C603L
1499          KM        Source: Morgan City Wash FDS, FCD 89-15
1500          RS       7    FLOW      -1
1501          RC    0.05   0.035    0.05    7614   .0171
1502          RX    1000    1020    1045    1065    1322    1340    1372    1405
1503          RY    2228    2224    2220    2212    2212    2220    2240    2260
1504          RL                    0.96  2212.0
              *

1505          KK    S606
1506          KM   Sub-Basin   S606
1507          KM
1508          KM      The Clark Unit Hydrograph is used for this basin.
1509          KM          The Natural time-area relation is used for this basin.
1510          KM
1511          KM      Time of Concentration for this sub-basin is based on the following:
1512          KM          An rainfall areal reduction factor of 1.000
1513          KM
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1                                   HEC-1 INPUT                                                    PAGE 35

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1514          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1515          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1516          KM   .25 .25 .25 .25 .25 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1517          KM
1518          KM          L=   2.111 miles, S=  300 feet/mile, Kb= .10
1519          KM
1520          BA   0.660
1521          LG    0.26    0.35    4.50    0.37   35.00
1522          UC   0.600   0.484
1523          UA       0       3       5       8      12      20      43      75      90      96
1524          UA     100
              *

1525          KK   C603L
1526          KM        Combine routed hydrograph 602603 w/runoff from S606
1527          HC       2
              *

1528          KK    S605
1529          KM   Sub-Basin   S605
1530          KM
1531          KM      The Clark Unit Hydrograph is used for this basin.
1532          KM          The Natural time-area relation is used for this basin.
1533          KM
1534          KM      Time of Concentration for this sub-basin is based on the following:
1535          KM          An rainfall areal reduction factor of 1.000
1536          KM
1537          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1538          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1539          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1540          KM
1541          KM          L=   2.322 miles, S=  229 feet/mile, Kb= .10
1542          KM
1543          BA   1.085
1544          LG    0.25    0.35    4.35    0.41   35.00
1545          UC   0.742   0.497
1546          UA       0       3       5       8      12      20      43      75      90      96
1547          UA     100
              *

1548          KK    S604
1549          KM   Sub-Basin   S604
1550          KM
1551          KM      The Clark Unit Hydrograph is used for this basin.
1552          KM          The Natural time-area relation is used for this basin.
1553          KM
1554          KM      Time of Concentration for this sub-basin is based on the following:
1555          KM          An rainfall areal reduction factor of 1.000
1556          KM
1557          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1558          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1559          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1560          KM
1561          KM          L=   4.105 miles, S=  207 feet/mile, Kb= .09
1562          KM
1                                   HEC-1 INPUT                                                    PAGE 36

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1563          BA   2.656
1564          LG    0.25    0.35    4.35    0.41   35.00
1565          UC   1.100   0.729
1566          UA       0       3       5       8      12      20      43      75      90      96
1567          UA     100
              *

1568          KK    C603
1569          KM        Combine hydrograph from C603L w/runoff from  S605, and S604
1570          HC       3
              *

1571          KK  603604
1572          KM        Normal depth route from C603 to C604R
1573          KM        Source: Morgan City Wash FDS, FCD 89-15
1574          RS       4    FLOW      -1
1575          RC    0.05   0.035    0.05    7830   .0192
1576          RX    1000    1022    1038    1053    1328    1375    1410    1430
1577          RY    2108    2104    2100    2088    2088    2100    2108    2112
1578          RL                    0.96  2088.0
              *

1579          KK    S609
1580          KM   Sub-Basin   S609
1581          KM
1582          KM      The Clark Unit Hydrograph is used for this basin.
1583          KM          The Natural time-area relation is used for this basin.
1584          KM
1585          KM      Time of Concentration for this sub-basin is based on the following:
1586          KM          An rainfall areal reduction factor of 1.000
1587          KM
1588          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```

```
1589          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1590          KM   .24 .24 .23 .23 .23 .22 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1591          KM
1592          KM          L=   2.239 miles, S=  214 feet/mile, Kb= .10
1593          KM
1594          BA   0.560
1595          LG    0.27    0.35    4.10    0.47   27.00
1596          UC   0.767   0.731
1597          UA       0       3       5       8      12      20      43      75      90      96
1598          UA     100
              *

1599          KK   C604R
1600          KM        Combine routed hydrograph 603604 w/runoff from S609
1601          HC       2
              *

1602          KK    S607
1603          KM   Sub-Basin   S607
1604          KM
1605          KM      The Clark Unit Hydrograph is used for this basin.
1606          KM          The Natural time-area relation is used for this basin.
1607          KM
1                                          HEC-1 INPUT                                          PAGE 37

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1608          KM      Time of Concentration for this sub-basin is based on the following:
1609          KM          An rainfall areal reduction factor of 1.000
1610          KM
1611          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1612          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1613          KM   .26 .26 .26 .26 .25 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1614          KM
1615          KM          L=   2.567 miles, S=  257 feet/mile, Kb= .10
1616          KM
1617          BA   0.822
1618          LG    0.25    0.36    5.10    0.27   34.00
1619          UC   0.738   0.627
1620          UA       0       3       5       8      12      20      43      75      90      96
1621          UA     100
              *

1622          KK    C604
1623          KM        Combine hydrograph from C604R w/runoff from S607
1624          HC       2
              *

1625          KK  604605
1626          KM        Normal depth route from C604 to C605
1627          KM        Source: Morgan City Wash FDS, FCD 89-15
1628          RS       1    FLOW      -1
1629          RC    0.05   0.035    0.05    1543   .0065
1630          RX    1000    1080    1110    1125    1210    1292    1340    1375
1631          RY    2016    2112    2000    1984    1984    1992    2000    2008
              *

1632          KK    S608
1633          KM   Sub-Basin   S608
1634          KM
1635          KM      The Clark Unit Hydrograph is used for this basin.
1636          KM          The Natural time-area relation is used for this basin.
1637          KM
1638          KM      Time of Concentration for this sub-basin is based on the following:
1639          KM          An rainfall areal reduction factor of 1.000
1640          KM
1641          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1642          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1643          KM   .27 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1644          KM
1645          KM          L=   1.398 miles, S=  230 feet/mile, Kb= .11
1646          KM
1647          BA   0.508
1648          LG    0.25    0.39    5.80    0.20   37.00
1649          UC   0.517   0.342
1650          UA       0       3       5       8      12      20      43      75      90      96
1651          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 38

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1652          KK    C605
1653          KM        Combine routed hydrograph from 604605 w/runoff from S608
1654          HC       2
              *

1655          KK  605606
1656          KM        Normal depth route from C605 to C606L
1657          KM        Source: Morgan City Wash FDS, FCD 89-15
1658          RS       3    FLOW      -1
1659          RC    0.05   0.035    0.05    5520   .0199
1660          RX    1000    1052    1190    1248    1281    1340    1368    1395
1661          RY    1940    1928    1928    1924    1924    1928    1936    1940
```

```
1662          RL                    0.96  1924.0
              *

1663          KK    S610
1664          KM   Sub-Basin   S610
1665          KM
1666          KM      The Clark Unit Hydrograph is used for this basin.
1667          KM          The Natural time-area relation is used for this basin.
1668          KM
1669          KM      Time of Concentration for this sub-basin is based on the following:
1670          KM          An rainfall areal reduction factor of 1.000
1671          KM
1672          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1673          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1674          KM   .26 .26 .26 .26 .26 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1675          KM
1676          KM          L=   1.869 miles, S=  118 feet/mile, Kb= .10
1677          KM
1678          BA   0.603
1679          LG    0.26    0.36    5.10    0.27   39.00
1680          UC   0.829   0.661
1681          UA      0       3       5       8      12      20      43      75      90      96
1682          UA    100
              *

1683          KK   C606L
1684          KM        Combine routed hydrograph 605606 w/runoff from S610
1685          HC       2
              *

1686          KK    S612
1687          KM   Sub-Basin   S612
1688          KM
1689          KM      The Clark Unit Hydrograph is used for this basin.
1690          KM          The Natural time-area relation is used for this basin.
1691          KM
1692          KM      Time of Concentration for this sub-basin is based on the following:
1693          KM          An rainfall areal reduction factor of 1.000
1694          KM
1695          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1696          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1697          KM   .27 .27 .27 .26 .26 .26 .03 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1698          KM
1699          KM          L=   2.531 miles, S=  230 feet/mile, Kb= .10
1700          KM
1701          BA   0.808
1702          LG    0.25    0.38    6.40    0.16   31.00
1703          UC   0.750   0.638
1704          UA      0       3       5       8      12      20      43      75      90      96
1705          UA    100
              *

1706          KK    C606
1707          KM        Combine hydrograph from C606L w/runoff from S612
1708          HC       2
              *

1709          KK  606608
1710          KM        Normal depth route from C606 to C608
1711          KM        Source: Morgan City Wash FDS, FCD 89-15
1712          RS       1    FLOW     -1
1713          RC    0.05   0.035    0.05    1141   .0175
1714          RX    1000    1034    1070    1150    1237    1280    1378    1420
1715          RY    1888    1880    1876    1868    1868    1876    1900    1920
1716          RL                    0.96  1868.0
              *

1717          KK    S611
1718          KM   Sub-Basin   S611
1719          KM
1720          KM      The Clark Unit Hydrograph is used for this basin.
1721          KM          The Natural time-area relation is used for this basin.
1722          KM
1723          KM      Time of Concentration for this sub-basin is based on the following:
1724          KM          An rainfall areal reduction factor of 1.000
1725          KM
1726          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1727          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1728          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1729          KM
1730          KM          L=   1.286 miles, S=  270 feet/mile, Kb= .12
1731          KM
1732          BA   0.569
1733          LG    0.25    0.35    4.35    0.41   35.00
1734          UC   0.504   0.292
1735          UA      0       3       5       8      12      20      43      75      90      96
1736          UA    100
              *

1737          KK  607608
1738          KM        Normal depth route from S611 to S613
```

```
1739        KM        Source: Field Reconnaissance
1740        RS      6    FLOW      -1
1741        RC    .075     .03    .075   11167  0.0242
1742        RX     100     106     114     120     168     172     232     292
1743        RY     110     107     103     100     100     104     107     110
            *
1                                   HEC-1 INPUT                                                    PAGE 40

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1744        KK    S613
1745        KM   Sub-Basin   S613
1746        KM
1747        KM      The Clark Unit Hydrograph is used for this basin.
1748        KM          The Natural time-area relation is used for this basin.
1749        KM
1750        KM      Time of Concentration for this sub-basin is based on the following:
1751        KM          An rainfall areal reduction factor of 1.000
1752        KM
1753        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1754        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1755        KM   .25 .25 .25 .25 .25 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1756        KM
1757        KM          L=   2.525 miles, S=  131 feet/mile, Kb= .11
1758        KM
1759        BA   1.797
1760        LG    0.25    0.35    4.55    0.36   34.00
1761        UC   1.096   0.615
1762        UA      0       3       5       8      12      20      43      75      90      96
1763        UA    100
            *

1764        KK    C608
1765        KM        Combine routed hydrograph 606608 and 607608 w/runoff from S613
1766        HC       3
            *

1767        KK  608609
1768        KM        Normal depth route from C608 to C609
1769        KM        Source: Morgan City Wash FDS, FCD 89-15
1770        RS       4    FLOW      -1
1771        RC    0.05   0.035    0.05    6518   .0123
1772        RX    1000    1031    1052    1090    1132    1290    1320    1360
1773        RY    1860    1848    1844    1836    1836    1844    1848    1860
1774        RL                    0.94  1836.0
            *

1775        KK    S614
1776        KM   Sub-Basin   S614
1777        KM
1778        KM      The Clark Unit Hydrograph is used for this basin.
1779        KM          The Natural time-area relation is used for this basin.
1780        KM
1781        KM      Time of Concentration for this sub-basin is based on the following:
1782        KM          An rainfall areal reduction factor of 1.000
1783        KM
1784        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1785        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1786        KM   .25 .25 .25 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1787        KM
1788        KM          L=   2.285 miles, S=  149 feet/mile, Kb= .11
1789        KM
1790        BA   1.079
1791        LG    0.24    0.35    4.40    0.40   34.00
1                                   HEC-1 INPUT                                                    PAGE 41

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1792        UC   0.963   0.658
1793        UA      0       3       5       8      12      20      43      75      90      96
1794        UA    100
            *

1795        KK    C609
1796        KM        Combine routed hydrograph 608609 w/runoff from S614
1797        HC       2
            *

1798        KK  609611
1799        KM        Normal depth route from C609 to C611R
1800        KM        Source: Morgan City Wash FDS, FCD 89-15
1801        RS       5    FLOW      -1
1802        RC    0.05   0.035    0.05    6519   .0031
1803        RX    1000    1070    1145    1230    1410    1430    1550    1642
1804        RY    1732    1720    1716    1708    1708    1716    1720    1740
1805        RL                    0.94  1708.0
            *

1806        KK    S617
1807        KM   Sub-Basin   S617
1808        KM
1809        KM      The Clark Unit Hydrograph is used for this basin.
1810        KM          The Natural time-area relation is used for this basin.
1811        KM
```

```
1812        KM      Time of Concentration for this sub-basin is based on the following:
1813        KM          An rainfall areal reduction factor of 1.000
1814        KM
1815        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1816        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1817        KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1818        KM
1819        KM          L=   1.362 miles, S=   81 feet/mile, Kb= .10
1820        KM
1821        BA   0.675
1822        LG    0.23    0.35    4.80    0.31   23.00
1823        UC   0.808   0.468
1824        UA       0       3       5       8      12      20      43      75      90      96
1825        UA     100
            *

1826        KK   C611R
1827        KM        Combine routed hydrograph 609611 w/runoff from S617
1828        HC       2
            *

1829        KK    S615
1830        KM   Sub-Basin   S615
1831        KM
1832        KM      The Clark Unit Hydrograph is used for this basin.
1833        KM          The Natural time-area relation is used for this basin.
1834        KM
1835        KM      Time of Concentration for this sub-basin is based on the following:
1836        KM          An rainfall areal reduction factor of 1.000
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1837        KM
1838        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1839        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1840        KM   .28 .28 .28 .27 .27 .27 .03 .03 .03 .03 .03 .03 .02 .02 .02 .02 .02 .02
1841        KM
1842        KM          L=   2.059 miles, S=  136 feet/mile, Kb= .12
1843        KM
1844        BA   1.055
1845        LG    0.25    0.39    6.20    0.17   55.00
1846        UC   0.913   0.578
1847        UA       0       3       5       8      12      20      43      75      90      96
1848        UA     100
            *

1849        KK  610611
1850        KM        Normal depth route from S615 to C611
1851        KM        Source: Morgan City Wash FDS, FCD 89-15
1852        RS       5    FLOW      -1
1853        RC    0.05   0.035    0.05    7981   .0100
1854        RX    1000    1028    1041    1078    1087    1092    1100    1108
1855        RY    1860    1840    1820    1800    1800    1820    1840    1860
            *

1856        KK    S616
1857        KM   Sub-Basin   S616
1858        KM
1859        KM      The Clark Unit Hydrograph is used for this basin.
1860        KM          The Natural time-area relation is used for this basin.
1861        KM
1862        KM      Time of Concentration for this sub-basin is based on the following:
1863        KM          An rainfall areal reduction factor of 1.000
1864        KM
1865        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1866        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1867        KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1868        KM
1869        KM          L=   1.738 miles, S=   46 feet/mile, Kb= .11
1870        KM
1871        BA   0.505
1872        LG    0.22    0.37    5.20    0.26   19.00
1873        UC   1.375   1.210
1874        UA       0       3       5       8      12      20      43      75      90      96
1875        UA     100
            *

1876        KK   C611L
1877        KM        Combine routed hydrograph 6110611 w/runoff frm S616
1878        HC       2
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1879        KK    C611
1880        KM        Combine hydrographs C611L and C611R
1881        HC       2
            *

1882        KK  611613
1883        KM        Normal depth route from C611 to C613
1884        KM        Source: Morgan City Wash FDS, FCD 89-15
```

```
1885          RS       1    FLOW      -1
1886          RC    0.05   0.035    0.05    4445   .0382
1887          RX    1000    1050    1080    1122    1210    1250    1305    1338
1888          RY    1644    1644    1628    1620    1620    1628    1660    1680
1889          RL                    0.94  1620.0
              *

1890          KK    S618
1891          KM   Sub-Basin   S618
1892          KM
1893          KM      The Clark Unit Hydrograph is used for this basin.
1894          KM          The Natural time-area relation is used for this basin.
1895          KM
1896          KM      Time of Concentration for this sub-basin is based on the following:
1897          KM          An rainfall areal reduction factor of 1.000
1898          KM
1899          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1900          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1901          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1902          KM
1903          KM          L=   2.364 miles, S=  199 feet/mile, Kb= .10
1904          KM
1905          BA   0.958
1906          LG    0.20    0.37    5.20    0.26   22.00
1907          UC   0.796   0.586
1908          UA       0       3       5       8      12      20      43      75      90      96
1909          UA     100
              *

1910          KK   C613R
1911          KM        Combine routed hydrograph 611613 w/runoff from S618
1912          HC       2
              *

1913          KK    S619
1914          KM   Sub-Basin   S619
1915          KM
1916          KM      The Clark Unit Hydrograph is used for this basin.
1917          KM          The Natural time-area relation is used for this basin.
1918          KM
1919          KM      Time of Concentration for this sub-basin is based on the following:
1920          KM          An rainfall areal reduction factor of 1.000
1921          KM
1922          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1923          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1924          KM   .28 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1925          KM
1926          KM          L=   1.212 miles, S=   99 feet/mile, Kb= .12
1927          KM
1928          BA   0.827
1929          LG    0.27    0.36    6.80    0.14   39.00
1930          UC   0.721   0.334
1931          UA       0       3       5       8      12      20      43      75      90      96
1932          UA     100
              *

1933          KK  612613
1934          KM        Normal depth route from S619 to S620
1935          KM        Source: Morgan City Wash FDS, FCD 89-15
1936          RS       5    FLOW      -1
1937          RC    0.05   0.035    0.05    8752   .0331
1938          RX     100     103     106     110     180     184     187     190
1939          RY     110     107     104     100     100     104     107     110
              *

1940          KK    S620
1941          KM   Sub-Basin   S620
1942          KM
1943          KM      The Clark Unit Hydrograph is used for this basin.
1944          KM          The Natural time-area relation is used for this basin.
1945          KM
1946          KM      Time of Concentration for this sub-basin is based on the following:
1947          KM          An rainfall areal reduction factor of 1.000
1948          KM
1949          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1950          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1951          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1952          KM
1953          KM          L=   1.763 miles, S=  228 feet/mile, Kb= .13
1954          KM
1955          BA   0.444
1956          LG    0.23    0.38    6.40    0.16   37.00
1957          UC   0.696   0.619
1958          UA       0       3       5       8      12      20      43      75      90      96
1959          UA     100
              *

1960          KK   C613L
1961          KM        Combine routed hydrograph 612613 w/runoff from S620
1962          HC       2
              *
```

```
1963          KK    C613
1964          KM        Combine hydrographs C613R and C613L
1965          HC       2
              *
1                                        HEC-1 INPUT                                                PAGE 45

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1966          KK  613614
1967          KM        Normal depth route from C613 to C614
1968          KM        Source: Morgan City Wash FDS, FCD 89-15
1969          RS       2    FLOW      -1
1970          RC    0.05   0.035    0.05    5557   .0108
1971          RX    1000    1022    1050    1100    1180    1225    1260    1360
1972          RY    1640    1620    1580    1552    1552    1564    1576    1580
1973          RL                    0.94  1552.0
              *

1974          KK    S621
1975          KM   Sub-Basin   S621
1976          KM
1977          KM      The Clark Unit Hydrograph is used for this basin.
1978          KM          The Natural time-area relation is used for this basin.
1979          KM
1980          KM      Time of Concentration for this sub-basin is based on the following:
1981          KM          An rainfall areal reduction factor of 1.000
1982          KM
1983          KM      EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1984          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1985          KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1986          KM
1987          KM          L=   1.470 miles, S=  170 feet/mile, Kb= .10
1988          KM
1989          BA   0.923
1990          LG    0.17    0.35    4.80    0.31    3.00
1991          UC   0.621   0.311
1992          UA       0       3       5       8      12      20      43      75      90      96
1993          UA     100
              *

1994          KK    C614
1995          KM        Combine routed hydrograph 613614 w/runoff from S621
1996          HC       2
              *

1997          KK  614615
1998          KM        Normal depth route from C614 to C615
1999          KM        Source: Morgan City Wash FDS, FCD 89-15
2000          RS       4    FLOW      -1
2001          RC    0.05   0.035    0.05    7995   .0144
2002          RX    1000    1050    1088    1150    1195    1290    1340    1405
2003          RY    1496    1484    1476    1460    1460    1476    1484    1516
2004          RL                    0.94  1460.0
              *

2005          KK    S622
2006          KM   Sub-Basin   S622
2007          KM
2008          KM      The Clark Unit Hydrograph is used for this basin.
2009          KM          The Natural time-area relation is used for this basin.
2010          KM
2011          KM      Time of Concentration for this sub-basin is based on the following:
1                                        HEC-1 INPUT                                                PAGE 46

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2012          KM          An rainfall areal reduction factor of 1.000
2013          KM
2014          KM      EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2015          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2016          KM   .24 .24 .24 .24 .24 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
2017          KM
2018          KM          L=   2.004 miles, S=  152 feet/mile, Kb= .12
2019          KM
2020          BA   0.897
2021          LG    0.18    0.35    4.90    0.30    4.00
2022          UC   0.971   0.664
2023          UA       0       3       5       8      12      20      43      75      90      96
2024          UA     100
              *

2025          KK    C615
2026          KM        Combine routed hydrograph from 614615 w/runoff from S622
2027          HC       2
              *

2028          KK  WEST-4
2029          KM        Dummy combine for all major basins, west of the Agua Fria River
2030          HC       2
              *

2031          KK    S700
2032          KM   Sub-Basin   S700
```

```
2033        KM
2034        KM      The Clark Unit Hydrograph is used for this basin.
2035        KM          The Natural time-area relation is used for this basin.
2036        KM
2037        KM      Time of Concentration for this sub-basin is based on the following:
2038        KM          An rainfall areal reduction factor of 1.000
2039        KM
2040        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2041        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2042        KM   .25 .24 .24 .24 .24 .24 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
2043        KM
2044        KM          L=   1.923 miles, S=  185 feet/mile, Kb= .10
2045        KM
2046        BA   0.610
2047        LG    0.17    0.36    5.10    0.27    5.00
2048        UC   0.725   0.579
2049        UA      0       3       5       8      12      20      43      75      90      96
2050        UA    100
            *

2051        KK    S701
2052        KM   Sub-Basin   S701
2053        KM
2054        KM      The Clark Unit Hydrograph is used for this basin.
2055        KM          The Natural time-area relation is used for this basin.
2056        KM
2057        KM      Time of Concentration for this sub-basin is based on the following:
2058        KM          An rainfall areal reduction factor of 1.000
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2059        KM
2060        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2061        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2062        KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2063        KM
2064        KM          L=   2.821 miles, S=  136 feet/mile, Kb= .10
2065        KM
2066        BA   0.720
2067        LG    0.22    0.38    5.60    0.22   14.00
2068        UC   1.100   1.137
2069        UA      0       3       5       8      12      20      43      75      90      96
2070        UA    100
            *

2071        KK    S702
2072        KM   Sub-Basin   S702
2073        KM
2074        KM      The Clark Unit Hydrograph is used for this basin.
2075        KM          The Natural time-area relation is used for this basin.
2076        KM
2077        KM      Time of Concentration for this sub-basin is based on the following:
2078        KM          An rainfall areal reduction factor of 1.000
2079        KM
2080        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2081        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2082        KM   .25 .24 .24 .24 .24 .24 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
2083        KM
2084        KM          L=   1.395 miles, S=  215 feet/mile, Kb= .11
2085        KM
2086        BA   0.257
2087        LG    0.17    0.36    5.10    0.27    4.00
2088        UC   0.563   0.553
2089        UA      0       3       5       8      12      20      43      75      90      96
2090        UA    100
            *

2091        KK    S703
2092        KM   Sub-Basin   S703
2093        KM
2094        KM      The Clark Unit Hydrograph is used for this basin.
2095        KM          The Natural time-area relation is used for this basin.
2096        KM
2097        KM      Time of Concentration for this sub-basin is based on the following:
2098        KM          An rainfall areal reduction factor of 1.000
2099        KM
2100        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2101        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2102        KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
2103        KM
2104        KM          L=   1.126 miles, S=  204 feet/mile, Kb= .11
2105        KM
2106        BA   0.257
2107        LG    0.15    0.35    4.90    0.30    0.00
2108        UC   0.496   0.405
2109        UA      0       3       5       8      12      20      43      75      90      96
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2110        UA    100
            *

2111        KK    S704
```

```
2112    KM   Sub-Basin   S704
2113    KM
2114    KM      The Clark Unit Hydrograph is used for this basin.
2115    KM          The Natural time-area relation is used for this basin.
2116    KM
2117    KM      Time of Concentration for this sub-basin is based on the following:
2118    KM          An rainfall areal reduction factor of 1.000
2119    KM
2120    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2121    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2122    KM   .25 .24 .24 .24 .24 .23 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2123    KM
2124    KM          L=   1.266 miles, S=  300 feet/mile, Kb= .11
2125    KM
2126    BA   0.408
2127    LG    0.26    0.35    4.90    0.30   11.00
2128    UC   0.463   0.316
2129    UA       0       3       5       8      12      20      43      75      90      96
2130    UA     100
        *

2131    KK  704705
2132    KM       Normal depth route from S704 to C705
2133    KM       Source: Field reconnaissance
2134    RS       7    FLOW      -1
2135    RC    .035    .045    .025    7534   .0186
2136    RX     100     123   159.5   162.8   186.8   205.3   206.3   207.3
2137    RY   108.5   102.7   101.3   100.2     100   108.3   109.3   110.3
        *

2138    KK    S705
2139    KM   Sub-Basin   S705
2140    KM
2141    KM      The Clark Unit Hydrograph is used for this basin.
2142    KM          The Natural time-area relation is used for this basin.
2143    KM
2144    KM      Time of Concentration for this sub-basin is based on the following:
2145    KM          An rainfall areal reduction factor of 1.000
2146    KM
2147    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2148    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2149    KM   .26 .26 .26 .26 .25 .25 .02 .02 .02 .02 .01 .01 .00 .00 .00 .00 .00 .00
2150    KM
2151    KM          L=   2.145 miles, S=  253 feet/mile, Kb= .10
2152    KM
2153    BA   0.754
2154    LG    0.22    0.38    6.40    0.16    7.00
2155    UC   0.650   0.496
2156    UA       0       3       5       8      12      20      43      75      90      96
2157    UA     100
        *
```



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LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2158    KK    C705
2159    KM        Combine routed hydrograph 704705 w/runoff from S705
2160    HC       2
        *

2161    KK   C7050
2162    KM        Storage routing at crossing structure no. 63
2163    KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2164    KM        Cooper Aerial Photography extended from Agua Fria FDS
2165    RS       1    STOR       0
2166    SQ       0     200     400     600     800    1000    1200    1400    1420    1800
2167    SQ    2000
2168    SE  1338.2 1342.26 1344.68 1347.93 1352.52 1359.03 1367.08 1376.59 1377.62    1400
2169    SE  1413.9
2170    SV       0    0.08    0.46    1.29    2.71    4.72    7.32   10.63   14.77   19.75
2171    SV   25.57   32.07   39.09   46.63   54.70   63.28   72.40   82.03   92.19  102.87
2172    SE  1338.2    1339    1340    1341    1342    1343    1344    1345    1346    1347
2173    SE    1348    1349    1350    1351    1352    1353    1354    1355    1356    1357
        *

2174    KK  7050AF
2175    KM        Normal depth route from C7050 to C705AF
2176    KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2177    RS       8    FLOW      -1
2178    RC    .045    .045    .045 2253.82   .0082
2179    RX     100  147.63  203.16  349.46  505.89  666.35  920.07 1239.80
2180    RY    1324 1324.30    1324 1321.84 1321.64 1322.54    1324    1326
        *

2181    KK  S705AF
2182    KM   Sub-Basin S705AF
2183    KM
2184    KM      The Clark Unit Hydrograph is used for this basin.
2185    KM          The Natural time-area relation is used for this basin.
2186    KM
2187    KM      Time of Concentration for this sub-basin is based on the following:
2188    KM          An rainfall areal reduction factor of 1.000
2189    KM
2190    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```

```
2191        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2192        KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2193        KM
2194        KM          L=   0.933 miles, S=   34 feet/mile, Kb= .05
2195        KM
2196        BA   0.183
2197        LG    0.31    0.22   10.10    0.03    0.00
2198        UC   0.488   0.415
2199        UA       0       3       5       8      12      20      43      75      90      96
2200        UA     100
            *
1                                          HEC-1 INPUT                                          PAGE 50

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2201        KK  C705AF
2202        KM        Combine routed hydrograph 7050AF w/runoff from S705
2203        HC       2
            *

2204        KK  WEST-5
2205        KM        Dummy combine for minor basins, west of the Agua Fria River
2206        HC       5
            *

2207        KK    S706
2208        KM   Sub-Basin   S706
2209        KM
2210        KM      The Clark Unit Hydrograph is used for this basin.
2211        KM          The Natural time-area relation is used for this basin.
2212        KM
2213        KM      Time of Concentration for this sub-basin is based on the following:
2214        KM          An rainfall areal reduction factor of 1.000
2215        KM
2216        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2217        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2218        KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2219        KM
2220        KM          L=   2.022 miles, S=  185 feet/mile, Kb= .10
2221        KM
2222        BA   0.713
2223        LG    0.29    0.39    5.70    0.20    7.00
2224        UC   0.738   0.562
2225        UA       0       3       5       8      12      20      43      75      90      96
2226        UA     100
            *

2227        KK    S707
2228        KM   Sub-Basin   S707
2229        KM
2230        KM      The Clark Unit Hydrograph is used for this basin.
2231        KM          The Natural time-area relation is used for this basin.
2232        KM
2233        KM      Time of Concentration for this sub-basin is based on the following:
2234        KM          An rainfall areal reduction factor of 1.000
2235        KM
2236        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2237        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2238        KM   .26 .26 .26 .25 .25 .25 .02 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
2239        KM
2240        KM          L=   2.256 miles, S=  217 feet/mile, Kb= .10
2241        KM
2242        BA   0.638
2243        LG    0.28    0.39    6.20    0.16    8.00
2244        UC   0.725   0.641
2245        UA       0       3       5       8      12      20      43      75      90      96
2246        UA     100
            *
1                                          HEC-1 INPUT                                          PAGE 51

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2247        KK    S728
2248        KM   Sub-Basin   S728
2249        KM
2250        KM      The Clark Unit Hydrograph is used for this basin.
2251        KM          The Natural time-area relation is used for this basin.
2252        KM
2253        KM      Time of Concentration for this sub-basin is based on the following:
2254        KM          An rainfall areal reduction factor of 1.000
2255        KM
2256        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2257        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2258        KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
2259        KM
2260        KM          L=   1.550 miles, S=   77 feet/mile, Kb= .07
2261        KM
2262        BA   0.276
2263        LG    0.35    0.37    5.20    0.22    0.00
2264        UC   0.696   0.732
2265        UA       0       3       5       8      12      20      43      75      90      96
2266        UA     100
            *
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2267        KK    WEST
2268        KM        Dummy combine for all operations in the stack, west of the Agua Fria R.
2269        HC       5
            *

2270        KK    S708
2271        KM   Sub-Basin   S708
2272        KM
2273        KM      The Clark Unit Hydrograph is used for this basin.
2274        KM          The Natural time-area relation is used for this basin.
2275        KM
2276        KM      Time of Concentration for this sub-basin is based on the following:
2277        KM          An rainfall areal reduction factor of 1.000
2278        KM
2279        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2280        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2281        KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2282        KM
2283        KM          L=   1.594 miles, S=  194 feet/mile, Kb= .10
2284        KM
2285        BA   0.706
2286        LG    0.22    0.25    9.70    0.04    0.00
2287        UC   0.550   0.337
2288        UA       0       3       5       8      12      20      43      75      90      96
2289        UA     100
            *
1                                          HEC-1 INPUT                                          PAGE 52

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2290        KK    S709
2291        KM   Sub-Basin   S709
2292        KM
2293        KM      The Clark Unit Hydrograph is used for this basin.
2294        KM          The Natural time-area relation is used for this basin.
2295        KM
2296        KM      Time of Concentration for this sub-basin is based on the following:
2297        KM          An rainfall areal reduction factor of 1.000
2298        KM
2299        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2300        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2301        KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2302        KM
2303        KM          L=   1.417 miles, S=  155 feet/mile, Kb= .09
2304        KM
2305        BA   0.441
2306        LG    0.30    0.19   11.20    0.02    0.00
2307        UC   0.508   0.368
2308        UA       0       3       5       8      12      20      43      75      90      96
2309        UA     100
            *

2310        KK   C709O
2311        KM        Storage routing at crossing structure no. (South of 95)
2312        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2313        KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2314        KM        Detour, Jan 4, 1985
2315        RS       1    STOR       0
2316        SQ       0     120     240     360     480     600     720     840     903    1080
2317        SQ    1200
2318        SE    1496 1500.80 1505.20 1512.68 1523.15 1525.11 1525.18 1525.23 1525.26 1525.33
2319        SE  1525.4
2320        SV     0.0    1.59    4.55    8.36   13.04   20.12   29.31   42.75   51.34   63.40
2321        SV   78.92   97.91
2322        SE    1496    1500    1504    1508    1512    1516    1520    1524    1528    1532
2323        SE    1536    1540
            *

2324        KK  709710
2325        KM        Normal depth route from S709 to C710
2326        KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2327        RS       3    FLOW      -1
2328        RC     .05    .035     .05    2683   .0261
2329        RX     100     160     200     220     255     265     280     305
2330        RY    1448    1444    1440    1436    1436    1440    1444    1448
            *

2331        KK    S710
2332        KM   Sub-Basin   S710
2333        KM
2334        KM      The Clark Unit Hydrograph is used for this basin.
2335        KM          The Natural time-area relation is used for this basin.
2336        KM
2337        KM      Time of Concentration for this sub-basin is based on the following:
1                                          HEC-1 INPUT                                          PAGE 53

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2338        KM          An rainfall areal reduction factor of 1.000
2339        KM
2340        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2341        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2342        KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
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2343          KM
2344          KM          L=   0.633 miles, S=  198 feet/mile, Kb= .10
2345          KM
2346          BA   0.112
2347          LG    0.15    0.22   10.10    0.03    0.00
2348          UC   0.333   0.264
2349          UA       0       3       5       8      12      20      43      75      90      96
2350          UA     100
              *

2351          KK   C710I
2352          KM        Combine routed hydrograph 709710 w/runoff from S710
2353          HC       2
              *

2354          KK   C710O
2355          KM        Storage routing at crossing structure no. 58
2356          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2357          KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2358          KM        Detour, Jan 4, 1985
2359          RS       1    STOR       0
2360          SQ       0     120     240     360     480     600     720     840     960    1058
2361          SQ    1200
2362          SE  1424.2 1428.52 1431.70 1436.37 1442.23 1442.33 1442.39 1442.45 1442.50 1442.54
2363          SE  1442.6
2364          SV     0.0    1.08    3.46    7.13   13.17   22.51
2365          SE    1424    1428    1432    1436    1440    1444
              *

2366          KK    S711
2367          KM   Sub-Basin   S711
2368          KM
2369          KM      The Clark Unit Hydrograph is used for this basin.
2370          KM          The Natural time-area relation is used for this basin.
2371          KM
2372          KM      Time of Concentration for this sub-basin is based on the following:
2373          KM          An rainfall areal reduction factor of 1.000
2374          KM
2375          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2376          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2377          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2378          KM
2379          KM          L=   0.520 miles, S=  154 feet/mile, Kb= .10
2380          KM
2381          BA   0.159
2382          LG    0.28    0.19   11.20    0.02    0.00
2383          UC   0.325   0.180
2384          UA       0       3       5       8      12      20      43      75      90      96
2385          UA     100
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2386          KK   C711O
2387          KM        Storage routing at crossing structure no. 71
2388          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2389          KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2390          KM        Detour, Jan 4, 1985
2391          RS       1    STOR       0
2392          SQ       0      60     120     180     240     300     360     420     480     483
2393          SQ     600
2394          SE  1496.1 1499.98 1504.58 1512.31 1524.39 1525.07 1525.12 1525.15 1525.19 1525.19
2395          SE  1525.2
2396          SV     0.0    0.20    0.59    3.79    7.98   16.27   27.64   42.75   63.25
2397          SE  1496.1    1500    1504    1508    1512    1516    1520    1524    1528
              *

2398          KK  711712
2399          KM        Normal depth route from S711 to C712
2400          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2401          RS       1    FLOW      -1
2402          RC     .05    .035     .05    1586   .0441
2403          RX     100     135     190     215     250     285     335     395
2404          RY    1488    1484    1480    1476    1476    1480    1484    1488
              *

2405          KK    S712
2406          KM   Sub-Basin   S712
2407          KM
2408          KM      The Clark Unit Hydrograph is used for this basin.
2409          KM          The Natural time-area relation is used for this basin.
2410          KM
2411          KM      Time of Concentration for this sub-basin is based on the following:
2412          KM          An rainfall areal reduction factor of 1.000
2413          KM
2414          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2415          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2416          KM   .29 .29 .29 .29 .29 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2417          KM
2418          KM          L=   0.312 miles, S=  271 feet/mile, Kb= .08
2419          KM
2420          BA   0.068
2421          LG    0.17    0.22   10.10    0.03    0.00
```

```
2422          UC   0.188   0.105
2423          UA       0       3       5       8      12      20      43      75      90      96
2424          UA     100
              *

2425          KK   C712I
2426          KM        Combine routed hydrograph 711712 w/runoff from S712
2427          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE 55

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2428          KK   C712O
2429          KM        Storage routing at crossing structure no. 60
2430          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2431          KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2432          KM        Detour, Jan 4, 1985
2433          RS       1    STOR       0
2434          SQ       0      90     180     270     360     450     540     630     658     810
2435          SQ     900
2436          SE    1432 1435.56 1437.81 1440.49 1444.18 1449.19 1450.09 1450.14 1450.16 1450.24
2437          SE  1450.2
2438          SV     0.0    0.14    0.36    0.65    1.02    1.56    2.43    3.61    5.10
2439          SE    1432    1433    1434    1435    1436    1437    1438    1439    1440
              *

2440          KK  712714
2441          KM        Normal depth route from C712 to C714
2442          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2443          RS       3    FLOW      -1
2444          RC     .05    .035     .05    2032   .0172
2445          RX     100     325     355     370     415     435     450     515
2446          RY    1416    1412    1408    1404    1404    1408    1412    1408
              *

2447          KK    S713
2448          KM   Sub-Basin   S713
2449          KM
2450          KM      The Clark Unit Hydrograph is used for this basin.
2451          KM          The Natural time-area relation is used for this basin.
2452          KM
2453          KM      Time of Concentration for this sub-basin is based on the following:
2454          KM          An rainfall areal reduction factor of 1.000
2455          KM
2456          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2457          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2458          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2459          KM
2460          KM          L=   0.545 miles, S=  220 feet/mile, Kb= .08
2461          KM
2462          BA   0.107
2463          LG    0.15    0.22   10.10    0.03    0.00
2464          UC   0.267   0.188
2465          UA       0       3       5       8      12      20      43      75      90      96
2466          UA     100
              *

2467          KK   C713O
2468          KM        Storage routing at crossing structure no. 59
2469          KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2470          KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2471          KM        Detour, Jan 4, 1985
2472          RS       1    STOR       0
2473          SQ       0      60     120     180     240     300     326     420     480     540
2474          SQ     600
2475          SE    1420 1423.17 1425.30 1428.15 1432.22 1437.97 1438.04 1438.12 1438.15 1438.18
1                                          HEC-1 INPUT                                          PAGE 56

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2476          SE  1438.2
2477          SV     0.0    2.35    5.72   10.11   15.52   26.19
2478          SE    1420    1424    1428    1432    1436    1440
              *

2479          KK  713714
2480          KM        Normal depth route from S713 to C714
2481          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2482          RS       1    FLOW      -1
2483          RC     .05    .035     .05     831   .0421
2484          RX     100     260     270     280     305     315     335     490
2485          RY    1416    1416    1412    1408    1408    1412    1416    1420
              *

2486          KK    S714
2487          KM   Sub-Basin   S714
2488          KM
2489          KM      The Clark Unit Hydrograph is used for this basin.
2490          KM          The Natural time-area relation is used for this basin.
2491          KM
2492          KM      Time of Concentration for this sub-basin is based on the following:
2493          KM          An rainfall areal reduction factor of 1.000
2494          KM
```

```
2495        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2496        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2497        KM   .28 .28 .28 .28 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2498        KM
2499        KM          L=   0.428 miles, S=  129 feet/mile, Kb= .08
2500        KM
2501        BA   0.060
2502        LG    0.35    0.29    8.40    0.06    0.00
2503        UC   0.283   0.230
2504        UA       0       3       5       8      12      20      43      75      90      96
2505        UA     100
            *

2506        KK    C714
2507        KM        Combine routed hydrographs 712714 and 713714 w/runoff from S714
2508        HC       3
            *

2509        KK    S715
2510        KM   Sub-Basin   S715
2511        KM
2512        KM      The Clark Unit Hydrograph is used for this basin.
2513        KM          The Natural time-area relation is used for this basin.
2514        KM
2515        KM      Time of Concentration for this sub-basin is based on the following:
2516        KM          An rainfall areal reduction factor of 1.000
2517        KM
2518        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2519        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2520        KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2521        KM
2522        KM          L=   0.959 miles, S=   63 feet/mile, Kb= .07
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2523        KM
2524        BA   0.220
2525        LG    0.31    0.19   11.20    0.02    0.00
2526        UC   0.483   0.378
2527        UA       0       3       5       8      12      20      43      75      90      96
2528        UA     100
            *

2529        KK    S716
2530        KM   Sub-Basin   S716
2531        KM
2532        KM      The Clark Unit Hydrograph is used for this basin.
2533        KM          The Natural time-area relation is used for this basin.
2534        KM
2535        KM      Time of Concentration for this sub-basin is based on the following:
2536        KM          An rainfall areal reduction factor of 1.000
2537        KM
2538        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2539        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2540        KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2541        KM
2542        KM          L=   2.353 miles, S=   87 feet/mile, Kb= .06
2543        KM
2544        BA   1.128
2545        LG    0.27    0.22   10.10    0.03    1.00
2546        UC   0.708   0.467
2547        UA       0       3       5       8      12      20      43      75      90      96
2548        UA     100
            *

2549        KK   C7160
2550        KM        Storage routing at crossing structure no. 74
2551        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2552        KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2553        KM        Detour, Jan 4, 1985
2554        RS       1    STOR       0
2555        SQ       0     230     460     690     920    1150    1380    1610    1625    2070
2556        SQ    2300
2557        SE  1504.9 1509.94 1516.13 1526.53 1544.42 1592.19 1729.99 2074.29 2108.01 4241.67
2558        SE  6746.9
2559        SV       0    0.40    5.42   17.50   37.71   68.23  111.87
2560        SE  1504.9    1508    1512    1516    1520    1524    1528
            *

2561        KK  716717
2562        KM        Normal depth route from C7160 to C717
2563        KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2564        RS       4    FLOW      -1
2565        RC     .05    .035     .05    4232   .0177
2566        RX     100     115     150     165     195     285     370     425
2567        RY    1504    1500    1496    1492    1492    1496    1500    1504
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2568        KK    S717
2569        KM   Sub-Basin   S717
```

```
2570          KM
2571          KM      The Clark Unit Hydrograph is used for this basin.
2572          KM          The Natural time-area relation is used for this basin.
2573          KM
2574          KM      Time of Concentration for this sub-basin is based on the following:
2575          KM          An rainfall areal reduction factor of 1.000
2576          KM
2577          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2578          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2579          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2580          KM
2581          KM          L=   0.727 miles, S=  131 feet/mile, Kb= .07
2582          KM
2583          BA   0.286
2584          LG    0.25    0.19   11.20    0.02    0.00
2585          UC   0.333   0.173
2586          UA       0       3       5       8      12      20      43      75      90      96
2587          UA     100
              *

2588          KK    C717
2589          KM        Combine routed hydrograph 716717 w/runoff from S717
2590          HC       2
              *

2591          KK  717718
2592          KM        Normal depth route from C717 to C718
2593          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2594          RS      11    FLOW      -1
2595          RC     .05    .045     .05    7146   .0105
2596          RX     100     235     275     325     420     455     465     530
2597          RY    1364    1360    1356    1352    1352    1356    1360    1380
2598          RL                    0.03  1352.0
              *

2599          KK    S718
2600          KM   Sub-Basin   S718
2601          KM
2602          KM      The Clark Unit Hydrograph is used for this basin.
2603          KM          The Natural time-area relation is used for this basin.
2604          KM
2605          KM      Time of Concentration for this sub-basin is based on the following:
2606          KM          An rainfall areal reduction factor of 1.000
2607          KM
2608          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2609          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2610          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2611          KM
2612          KM          L=   2.103 miles, S=   45 feet/mile, Kb= .07
2613          KM
2614          BA   0.442
2615          LG    0.22    0.18   11.20    0.02    2.00
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2616          UC   0.971   1.034
2617          UA       0       3       5       8      12      20      43      75      90      96
2618          UA     100
              *

2619          KK    C718
2620          KM        Combine routed hydrograph 717718 w/runoff from S718
2621          HC       2
              *

2622          KK    S719
2623          KM   Sub-Basin   S719
2624          KM
2625          KM      The Clark Unit Hydrograph is used for this basin.
2626          KM          The Natural time-area relation is used for this basin.
2627          KM
2628          KM      Time of Concentration for this sub-basin is based on the following:
2629          KM          An rainfall areal reduction factor of 1.000
2630          KM
2631          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2632          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2633          KM   .30 .30 .29 .29 .29 .29 .05 .05 .05 .05 .05 .05 .03 .03 .03 .03 .03 .03
2634          KM
2635          KM          L=   1.221 miles, S=   82 feet/mile, Kb= .08
2636          KM
2637          BA   0.154
2638          LG    0.23    0.11   12.40    0.01    4.00
2639          UC   0.554   0.655
2640          UA       0       3       5       8      12      20      43      75      90      96
2641          UA     100
              *

2642          KK  EAST-1
2643          KM        Dummy combine of minor subbasins east of the Agua Fria River
2644          HC       6
              *

2645          KK    S720
2646          KM   Sub-Basin   S720
```

```
2647        KM
2648        KM      The Clark Unit Hydrograph is used for this basin.
2649        KM          The Natural time-area relation is used for this basin.
2650        KM
2651        KM      Time of Concentration for this sub-basin is based on the following:
2652        KM          An rainfall areal reduction factor of 1.000
2653        KM
2654        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2655        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2656        KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2657        KM
2658        KM          L=   1.516 miles, S=   86 feet/mile, Kb= .07
2659        KM
2660        BA   0.370
2661        LG    0.27    0.19   11.20    0.02    1.00
2662        UC   0.579   0.496
1                                          HEC-1 INPUT                                          PAGE 60

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2663        UA       0       3       5       8      12      20      43      75      90      96
2664        UA     100
            *

2665        KK    S721
2666        KM   Sub-Basin   S721
2667        KM
2668        KM      The Clark Unit Hydrograph is used for this basin.
2669        KM          The Natural time-area relation is used for this basin.
2670        KM
2671        KM      Time of Concentration for this sub-basin is based on the following:
2672        KM          An rainfall areal reduction factor of 1.000
2673        KM
2674        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2675        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2676        KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .00 .00 .00 .00 .00
2677        KM
2678        KM          L=   0.832 miles, S=  114 feet/mile, Kb= .07
2679        KM
2680        BA   0.335
2681        LG    0.30    0.33    7.30    0.09    0.00
2682        UC   0.383   0.205
2683        UA       0       3       5       8      12      20      43      75      90      96
2684        UA     100
            *

2685        KK   C7210
2686        KM        Storage routing at crossing structure no. 75
2687        KM        Source: CAP Overchutes Agua Fria FDS, FCD 90-09 in addition to the
2688        KM        CAP Regulatory Storage Division - Waddell Canal AZ Highway 74
2689        KM        Detour, Jan 4, 1985
2690        RS       1    STOR       0
2691        SQ       0     120     240     360     480     600     720     840     866    1080
2692        SQ    1200
2693        SE    1490 1494.74 1499.14 1506.62 1517.09 1534.17 1572.06 1662.33 1693.69 2254.60
2694        SE  2968.5
2695        SV       0    1.83    7.58   17.18   30.63   47.92   69.05   94.03  122.85  155.51
2696        SV  192.02
2697        SE    1490    1493    1496    1499    1502    1505    1508    1511    1514    1517
2698        SE    1520
            *

2699        KK  721722
2700        KM        Normal depth route from C7210 to C722
2701        KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2702        RS       9    FLOW      -1
2703        RC     .05    .035     .05    8812   .0170
2704        RX     100     125     175     200     235     250     270     595
2705        RY    1420    1416    1412    1408    1408    1412    1420    1424
2706        RL                    0.03  1408.0
            *
1                                          HEC-1 INPUT                                          PAGE 61

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2707        KK    S722
2708        KM   Sub-Basin   S722
2709        KM
2710        KM      The Clark Unit Hydrograph is used for this basin.
2711        KM          The Natural time-area relation is used for this basin.
2712        KM
2713        KM      Time of Concentration for this sub-basin is based on the following:
2714        KM          An rainfall areal reduction factor of 1.000
2715        KM
2716        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2717        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2718        KM   .29 .28 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2719        KM
2720        KM          L=   2.334 miles, S=   79 feet/mile, Kb= .06
2721        KM
2722        BA   0.955
2723        LG    0.30    0.25    9.70    0.04    0.00
2724        UC   0.742   0.537
2725        UA       0       3       5       8      12      20      43      75      90      96
```

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2726          UA     100
              *

2727          KK    C722
2728          KM        Combine routed hydrograph 721722 w/runoff from S722
2729          HC       2
              *

2730          KK    S723
2731          KM   Sub-Basin   S723
2732          KM
2733          KM      The Clark Unit Hydrograph is used for this basin.
2734          KM          The Natural time-area relation is used for this basin.
2735          KM
2736          KM      Time of Concentration for this sub-basin is based on the following:
2737          KM          An rainfall areal reduction factor of 1.000
2738          KM
2739          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2740          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2741          KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2742          KM
2743          KM          L=   0.562 miles, S=  178 feet/mile, Kb= .11
2744          KM
2745          BA   0.085
2746          LG    0.29    0.22   10.10    0.03    0.00
2747          UC   0.342   0.289
2748          UA       0       3       5       8      12      20      43      75      90      96
2749          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 62

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2750          KK    S724
2751          KM   Sub-Basin   S724
2752          KM
2753          KM      The Clark Unit Hydrograph is used for this basin.
2754          KM          The Natural time-area relation is used for this basin.
2755          KM
2756          KM      Time of Concentration for this sub-basin is based on the following:
2757          KM          An rainfall areal reduction factor of 1.000
2758          KM
2759          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2760          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2761          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
2762          KM
2763          KM          L=   2.319 miles, S=   97 feet/mile, Kb= .06
2764          KM
2765          BA   1.156
2766          LG    0.27    0.19   11.20    0.02    0.00
2767          UC   0.663   0.423
2768          UA       0       3       5       8      12      20      43      75      90      96
2769          UA     100
              *

2770          KK    S725
2771          KM   Sub-Basin   S725
2772          KM
2773          KM      The Clark Unit Hydrograph is used for this basin.
2774          KM          The Natural time-area relation is used for this basin.
2775          KM
2776          KM      Time of Concentration for this sub-basin is based on the following:
2777          KM          An rainfall areal reduction factor of 1.000
2778          KM
2779          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2780          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2781          KM   .28 .28 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2782          KM
2783          KM          L=   3.038 miles, S=   71 feet/mile, Kb= .06
2784          KM
2785          BA   1.158
2786          LG    0.30    0.27    8.80    0.05    0.00
2787          UC   0.950   0.782
2788          UA       0       3       5       8      12      20      43      75      90      96
2789          UA     100
              *

2790          KK  EAST-2
2791          KM        Dummy combine of minor subbasins east of the Agua Fria River
2792          HC       5
              *
1                                          HEC-1 INPUT                                          PAGE 63

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2793          KK    S726
2794          KM   Sub-Basin   S726
2795          KM
2796          KM      The Clark Unit Hydrograph is used for this basin.
2797          KM          The Natural time-area relation is used for this basin.
2798          KM
2799          KM      Time of Concentration for this sub-basin is based on the following:
2800          KM          An rainfall areal reduction factor of 1.000
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2801          KM
2802          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2803          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2804          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2805          KM
2806          KM          L=   1.036 miles, S=  295 feet/mile, Kb= .07
2807          KM
2808          BA   0.334
2809          LG    0.31    0.39    5.70    0.18    7.00
2810          UC   0.329   0.207
2811          UA       0       3       5       8      12      20      43      75      90      96
2812          UA     100
              *

2813          KK  726727
2814          KM        Normal depth route from C726 to C727
2815          KM        Source: Coe & Van Loo Agua Fria River FPD Study 9/96
2816          RS       5    FLOW      -1
2817          RC     .05    .035     .05    6228   .0185
2818          RX     100     120     145     170     225     240     250     265
2819          RY    1308    1304    1300    1296    1296    1300    1304    1308
              *

2820          KK    S727
2821          KM   Sub-Basin   S727
2822          KM
2823          KM      The Clark Unit Hydrograph is used for this basin.
2824          KM          The Natural time-area relation is used for this basin.
2825          KM
2826          KM      Time of Concentration for this sub-basin is based on the following:
2827          KM          An rainfall areal reduction factor of 1.000
2828          KM
2829          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2830          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2831          KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
2832          KM
2833          KM          L=   1.815 miles, S=   85 feet/mile, Kb= .07
2834          KM
2835          BA   0.375
2836          LG    0.27    0.25    9.70    0.04    0.00
2837          UC   0.671   0.669
2838          UA       0       3       5       8      12      20      43      75      90      96
2839          UA     100
              *
```

1 HEC-1 INPUT PAGE 64

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2840          KK    C727
2841          KM        Combine routed hydrograph 726727 w/runoff from S727
2842          HC       2
              *

2843          KK   TOTAL
2844          KM        Dummy combine of all operations
2845          HC       4
              *
2846          ZZ
```

1

```
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  39        S100
               V
               V
  59      100102
               .
               .
  66           .        S101
               .           .
               .           .
  86       C102R............
               .
               .
  89           .        S102
               .           V
               .           V
 109           .      101102
               .           .
               .           .
 116           .           .        S103
               .           .          .
               .           .          .
 136           .      C102L............
               .           .
               .           .
 139        C102............
               V
               V
 142      102103
               .
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149          .        S104
             .           .
             .           .
169      C103R............
             .
             .
172          .        S105
             .           .
             .           .
192       C103............
             V
             V
195      103104
             .
             .
202          .        S106
             .           .
             .           .
222       C104............
             V
             V
225      104105
             .
             .
232          .        S107
             .           .
             .           .
252      C105L............
             .
             .
255          .        S200
             .           V
             .           V
275          .      200201
             .           .
             .           .
282          .           .        S201
             .           .           .
             .           .           .
302          .       C201............
             .           V
             .           V
305          .      201203
             .           .
             .           .
312          .           .        S202
             .           .           V
             .           .           V
332          .           .      202203
             .           .           .
             .           .           .
339          .           .           .        S203
             .           .           .           .
             .           .           .           .
359          .      C203R........................
             .           .
             .           .
362          .           .        S204
             .           .           .
             .           .           .
382          .       C203............
             .           V
             .           V
385          .      203204
             .           .
             .           .
392          .           .        S205
             .           .           .
             .           .           .
412          .       C204............
             .           V
             .           V
415          .      204205
             .           .
             .           .
422          .           .        S206
             .           .           .
             .           .           .
442          .      C205L............
             .           .
             .           .
445          .           .        S207
             .           .           .
             .           .           .
465          .       C205............
             .           V
             .           V
468          .      205206
             .           .
             .           .
475          .           .        S208
             .           .           .
             .           .           .
495          .       C206............
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                .          V
                .          V
498             .     206207
                .          .
                .          .
505             .          .        S209
                .          .          .
                .          .          .
525             .     C207R............
                .          .
                .          .
528             .          .        S210
                .          .          .
                .          .          .
548             .      C207............
                .          V
                .          V
551             .     207105
                .          .
                .          .
558             .          .        S211
                .          .          .
                .          .          .
578             .     C105R............
                .          .
                .          .
581        C105............
                .
                .
584             .      S300
                .          .
                .          .
604             .          .        S301
                .          .          .
                .          .          .
624             .      C300............
                .          V
                .          V
627             .     300301
                .          .
                .          .
634             .          .        S302
                .          .          .
                .          .          .
654             .      C301............
                .          V
                .          V
657             .     301302
                .          .
                .          .
664             .          .        S303
                .          .          .
                .          .          .
684             .      C302............
                .          V
                .          V
687             .     302303
                .          .
                .          .
694             .          .        S304
                .          .          .
                .          .          .
714             .      C303............
                .          .
                .          .
717        WEST-1............
                .
                .
720             .      S400
                .          V
                .          V
740             .     C4000
                .          V
                .          V
748             .     400401
                .          .
                .          .
755             .          .        S401
                .          .          .
                .          .          .
775             .      C401............
                .          V
                .          V
778             .     401402
                .          .
                .          .
785             .          .        S402
                .          .          .
                .          .          .
805             .      C402............
                .          V
                .          V
808             .     402403
                .          .
                .          .
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816          .           .        S403
             .           .           .
             .           .           .
836          .       C403............
             .           V
             .           V
839          .      403404
             .           .
             .           .
847          .           .        S404
             .           .           .
             .           .           .
867          .       C404............
             .           .
             .           .
870     WEST-2............
             .
             .
873          .       S500
             .           V
             .           V
893          .      500501
             .           .
             .           .
900          .           .        S501
             .           .           .
             .           .           .
920          .       C501............
             .           V
             .           V
923          .      501502
             .           .
             .           .
931          .           .        S502
             .           .           .
             .           .           .
951          .      C502L............
             .           .
             .           .
954          .           .        S503
             .           .           .
             .           .           .
974          .      C502I............
             .           V
             .           V
977          .      C502O
             .           V
             .           V
985          .      502505
             .           .
             .           .
993          .           .        S504
             .           .           .
             .           .           .
1013         .      C505L............
             .           .
             .           .
1016         .           .        S505
             .           .           V
             .           .           V
1036         .           .       C503O
             .           .           V
             .           .           V
1044         .           .      503505
             .           .           .
             .           .           .
1052         .           .           .        S506
             .           .           .           V
             .           .           .           V
1072         .           .           .       C504O
             .           .           .           V
             .           .           .           V
1080         .           .           .      504505
             .           .           .           .
             .           .           .           .
1087         .           .           .           .        S507
             .           .           .           .           .
             .           .           .           .           .
1107         .           .       C505R.......................
             .           .           .
             .           .           .
1110         .       C505............
             .           V
             .           V
1113         .      505509
             .           .
             .           .
1121         .           .        S508
             .           .           .
             .           .           .
1141         .       C509L............
             .           .
             .           .
1144         .           .        S509
             .           .           V
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```
                 .          .          V
1164             .          .     C506O
                 .          .          V
                 .          .          V
1172             .          .    506508
                 .          .          .
                 .          .          .
1179             .          .          .       S510
                 .          .          .          .
                 .          .          .          .
1199             .          .     C508R............
                 .          .          .
                 .          .          .
1202             .          .          .       S511
                 .          .          .          V
                 .          .          .          V
1222             .          .          .      C507O
                 .          .          .          V
                 .          .          .          V
1230             .          .          .     507508
                 .          .          .          .
                 .          .          .          .
1238             .          .          .          .       S512
                 .          .          .          .          .
                 .          .          .          .          .
1258             .          .          .      C508L............
                 .          .          .          .
                 .          .          .          .
1261             .          .      C508............
                 .          .          V
                 .          .          V
1264             .          .    508509
                 .          .          .
                 .          .          .
1272             .          .          .       S513
                 .          .          .          .
                 .          .          .          .
1292             .          .     C509R............
                 .          .          .
                 .          .          .
1295             .      C509............
                 .          V
                 .          V
1298             .    509510
                 .          .
                 .          .
1306             .          .      S514
                 .          .          .
                 .          .          .
1326             .      C510............
                 .          V
                 .          V
1329             .    510511
                 .          .
                 .          .
1337             .          .      S515
                 .          .          .
                 .          .          .
1357             .      C511............
                 .          V
                 .          V
1360             .    511512
                 .          .
                 .          .
1368             .          .      S516
                 .          .          .
                 .          .          .
1388             .      C512............
                 .          .
                 .          .
1391     WEST-3............
                 .
                 .
1394             .      S600
                 .          V
                 .          V
1414             .    600601
                 .          .
                 .          .
1421             .          .      S601
                 .          .          .
                 .          .          .
1441             .      C601............
                 .          V
                 .          V
1444             .    601602
                 .          .
                 .          .
1451             .          .      S603
                 .          .          .
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1471             .     C602L............
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1474             .          .      S602
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1494            .     C602.....
                .        V
                .        V
1497            .    602603
                .        .
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1505            .        .        S606
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                .        .          .
1525            .    C603L.....
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1528            .        .        S605
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1548            .        .          .        S604
                .        .          .          .
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1568            .     C603.......................
                .        V
                .        V
1571            .    603604
                .        .
                .        .
1579            .        .        S609
                .        .          .
                .        .          .
1599            .    C604R.....
                .        .
                .        .
1602            .        .        S607
                .        .          .
                .        .          .
1622            .     C604.....
                .        V
                .        V
1625            .    604605
                .        .
                .        .
1632            .        .        S608
                .        .          .
                .        .          .
1652            .     C605.....
                .        V
                .        V
1655            .    605606
                .        .
                .        .
1663            .        .        S610
                .        .          .
                .        .          .
1683            .    C606L.....
                .        .
                .        .
1686            .        .        S612
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                .        .          .
1706            .     C606.....
                .        V
                .        V
1709            .    606608
                .        .
                .        .
1717            .        .        S611
                .        .          V
                .        .          V
1737            .        .      607608
                .        .          .
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1744            .        .          .        S613
                .        .          .          .
                .        .          .          .
1764            .     C608.......................
                .        V
                .        V
1767            .    608609
                .        .
                .        .
1775            .        .        S614
                .        .          .
                .        .          .
1795            .     C609.....
                .        V
                .        V
1798            .    609611
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1806            .        .        S617
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1826            .     C611R.....
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1829          .           .        S615
              .           .           V
              .           .           V
1849          .           .      610611
              .           .           .
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1856          .           .           .        S616
              .           .           .           .
              .           .           .           .
1876          .           .      C611L............
              .           .           .
              .           .           .
1879          .       C611............
              .           V
              .           V
1882          .      611613
              .           .
              .           .
1890          .           .        S618
              .           .           .
              .           .           .
1910          .      C613R............
              .           .
              .           .
1913          .           .        S619
              .           .           V
              .           .           V
1933          .           .      612613
              .           .           .
              .           .           .
1940          .           .           .        S620
              .           .           .           .
              .           .           .           .
1960          .           .      C613L............
              .           .           .
              .           .           .
1963          .       C613............
              .           V
              .           V
1966          .      613614
              .           .
              .           .
1974          .           .        S621
              .           .           .
              .           .           .
1994          .       C614............
              .           V
              .           V
1997          .      614615
              .           .
              .           .
2005          .           .        S622
              .           .           .
              .           .           .
2025          .       C615............
              .           .
              .           .
2028     WEST-4............
              .
              .
2031          .       S700
              .           .
              .           .
2051          .           .        S701
              .           .           .
              .           .           .
2071          .           .           .        S702
              .           .           .           .
              .           .           .           .
2091          .           .           .           .        S703
              .           .           .           .           .
              .           .           .           .           .
2111          .           .           .           .           .        S704
              .           .           .           .           .           V
              .           .           .           .           .           V
2131          .           .           .           .           .      704705
              .           .           .           .           .           .
              .           .           .           .           .           .
2138          .           .           .           .           .           .        S705
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
2158          .           .           .           .           .        C705............
              .           .           .           .           .           V
              .           .           .           .           .           V
2161          .           .           .           .           .      C7050
              .           .           .           .           .           V
              .           .           .           .           .           V
2174          .           .           .           .           .      7050AF
              .           .           .           .           .           .
              .           .           .           .           .           .
2181          .           .           .           .           .           .        S705AF
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
2201          .           .           .           .           .      C705AF............
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2204          WEST-5.............................................
2207                  S706
2227                          S707
2247                                  S728
2267      WEST.............................................
2270          S708
2290                  S709
                          V
                          V
2310                  C7090
                          V
                          V
2324                709710
2331                          S710
2351                  C710I............
                          V
                          V
2354                  C710O
2366                          S711
                                  V
                                  V
2386                          C711O
                                  V
                                  V
2398                        711712
2405                                  S712
2425                          C712I............
                                  V
                                  V
2428                          C712O
                                  V
                                  V
2440                        712714
2447                                  S713
                                          V
                                          V
2467                                  C713O
                                          V
                                          V
2479                                713714
2486                                          S714
2506                          C714........................
2509                                  S715
2529                                          S716
                                                  V
                                                  V
2549                                          C716O
                                                  V
                                                  V
2561                                        716717
2568                                                      S717
2588                                          C717............
                                                  V
                                                  V
2591                                        717718
2599                                                      S718
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 2619           .         .         .         .         .       C718.........
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 2622           .         .         .         .         .         .       S719
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
 2642           .      EAST-1.......................................................
                .         .
                .         .
 2645           .         .       S720
                .         .         .
                .         .         .
 2665           .         .         .       S721
                .         .         .          V
                .         .         .          V
 2685           .         .         .      C7210
                .         .         .          V
                .         .         .          V
 2699           .         .         .     721722
                .         .         .         .
                .         .         .         .
 2707           .         .         .         .       S722
                .         .         .         .         .
                .         .         .         .         .
 2727           .         .         .      C722............
                .         .         .         .
                .         .         .         .
 2730           .         .         .         .       S723
                .         .         .         .         .
                .         .         .         .         .
 2750           .         .         .         .         .       S724
                .         .         .         .         .         .
                .         .         .         .         .         .
 2770           .         .         .         .         .         .       S725
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
 2790           .         .     EAST-2...............................................
                .         .         .
                .         .         .
 2793           .         .         .       S726
                .         .         .          V
                .         .         .          V
 2813           .         .         .     726727
                .         .         .         .
                .         .         .         .
 2820           .         .         .         .       S727
                .         .         .         .         .
                .         .         .         .         .
 2840           .         .         .      C727............
                .         .         .         .
                .         .         .         .
 2843        TOTAL.................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   05FEB01  TIME  07:54:00  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
N. Peoria Area Drainage Master Plan                File:EX100-24.IH1
   For Maricopa County FCD 99-45                Original:05-04-00     MCG
   By Stantec Consulting, Inc. P82000146         Revised:02-01-01     MMZ
```

The N. Peoria ADMP study limits consists of several small tributary watersheds to the Agua Fria River. This model is for the existing condition 100-year, 24-hour storm event. A companion model is also created for the existing condition 100-year, 6-hour storm event. Both models (100-year, 6- and 24-hour) should be referenced for the determination of storm event produces the highest peak discharge.

Modeling of the watersheds is performed using the following:
- 100-year, 24-hour rainfall with FCDMC design rainfall distributions
- Green & Ampt Loss Rate Method
- NMIN = 2 minutes
- Clark Unit Hydrograph
- Modified Puls channel storage routing

Watershed delineation performed using USGS 7.5 Minute Series Quadrangles

```
 21 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
```

```
IT        HYDROGRAPH TIME DATA
                NMIN          2  MINUTES IN COMPUTATION INTERVAL
               IDATE      1   0  STARTING DATE
               ITIME       0000  STARTING TIME
                  NQ       1000  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE      2   0  ENDING DATE
              NDTIME       0918  ENDING TIME
               ICENT         19  CENTURY MARK

          COMPUTATION INTERVAL    0.03 HOURS
               TOTAL TIME BASE   33.30 HOURS

      ENGLISH UNITS
          DRAINAGE AREA           SQUARE MILES
          PRECIPITATION DEPTH     INCHES
          LENGTH, ELEVATION       FEET
          FLOW                    CUBIC FEET PER SECOND
          STORAGE VOLUME          ACRE-FEET
          SURFACE AREA            ACRES
          TEMPERATURE             DEGREES FAHRENHEIT

23 JD         INDEX STORM NO. 1
                STRM         4.20  PRECIPITATION DEPTH
                TRDA         0.01  TRANSPOSITION DRAINAGE AREA

24 PI          PRECIPITATION PATTERN
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

34 JD          INDEX STORM NO. 2
                    STRM        4.18  PRECIPITATION DEPTH
                    TRDA        1.00  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.03      0.03      0.03      0.03      0.03
                 0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

35 JD          INDEX STORM NO. 3
                    STRM        4.07  PRECIPITATION DEPTH
                    TRDA        5.00  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.03      0.03      0.03      0.03      0.03
      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

36 JD           INDEX STORM NO. 4
                     STRM       3.95   PRECIPITATION DEPTH
                     TRDA      10.00   TRANSPOSITION DRAINAGE AREA

 0 PI             PRECIPITATION PATTERN
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.03      0.03      0.03      0.03      0.03
      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.03      0.03      0.03      0.03      0.03
      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
37 JD     INDEX STORM NO. 5
            STRM        3.80  PRECIPITATION DEPTH
            TRDA       25.00  TRANSPOSITION DRAINAGE AREA

0 PI      PRECIPITATION PATTERN
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.03      0.03      0.03      0.03      0.03
      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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38 JD          INDEX STORM NO. 6
                 STRM        3.59   PRECIPITATION DEPTH
                 TRDA       70.00   TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S100	512.	12.43	100.	30.	21.	0.57		
+	ROUTED TO	100102	488.	12.70	100.	30.	21.	0.57		
+	HYDROGRAPH AT	S101	717.	12.30	101.	28.	21.	0.63		
+	2 COMBINED AT	C102R	967.	12.37	200.	58.	42.	1.20		
+	HYDROGRAPH AT	S102	360.	12.53	81.	25.	18.	0.45		
+	ROUTED TO	101102	345.	12.73	81.	25.	18.	0.45		
+	HYDROGRAPH AT	S103	307.	12.57	66.	19.	14.	0.40		
+	2 COMBINED AT	C102L	627.	12.67	147.	43.	31.	0.84		
+	2 COMBINED AT	C102	1464.	12.57	343.	100.	72.	2.05		
+	ROUTED TO	102103	1435.	12.80	343.	100.	72.	2.05		
+	HYDROGRAPH AT	S104	870.	12.47	145.	40.	29.	0.90		
+	2 COMBINED AT	C103R	2058.	12.63	481.	138.	100.	2.95		
+	HYDROGRAPH AT	S105	387.	12.67	96.	27.	19.	0.59		
+	2 COMBINED AT	C103	2424.	12.63	572.	163.	118.	3.54		
+	ROUTED TO	103104	2394.	12.83	571.	163.	118.	3.54		
+	HYDROGRAPH AT	S106	470.	12.47	83.	22.	16.	0.57		
+	2 COMBINED AT	C104	2682.	12.77	649.	184.	133.	4.11		
+	ROUTED TO	104105	2643.	13.00	649.	184.	133.	4.11		
+	HYDROGRAPH AT	S107	618.	12.57	123.	31.	22.	0.94		
+	2 COMBINED AT	C105L	3031.	12.93	763.	212.	154.	5.05		
+	HYDROGRAPH AT	S200	1067.	12.37	179.	56.	40.	0.96		
+	ROUTED TO	200201	1048.	12.40	179.	56.	40.	0.96		

+	HYDROGRAPH AT	S201	387.	12.30	65.	20.	15.	0.35
+	2 COMBINED AT	C201	1396.	12.37	243.	75.	55.	1.31
+	ROUTED TO	201203	1373.	12.47	243.	75.	55.	1.31
+	HYDROGRAPH AT	S202	159.	12.20	24.	7.	5.	0.13
+	ROUTED TO	202203	156.	12.27	24.	7.	5.	0.13
+	HYDROGRAPH AT	S203	280.	12.50	69.	22.	16.	0.37
+	3 COMBINED AT	C203R	1746.	12.47	333.	104.	75.	1.81
+	HYDROGRAPH AT	S204	880.	12.47	171.	53.	38.	0.95
+	2 COMBINED AT	C203	2589.	12.47	497.	154.	112.	2.76
+	ROUTED TO	203204	2574.	12.47	497.	154.	112.	2.76
+	HYDROGRAPH AT	S205	369.	12.40	68.	20.	14.	0.41
+	2 COMBINED AT	C204	2913.	12.47	562.	173.	125.	3.17
+	ROUTED TO	204205	2844.	12.57	562.	173.	125.	3.17
+	HYDROGRAPH AT	S206	581.	12.67	151.	45.	33.	0.85
+	2 COMBINED AT	C205L	3378.	12.60	705.	216.	156.	4.03
+	HYDROGRAPH AT	S207	674.	12.67	178.	55.	40.	0.96
+	2 COMBINED AT	C205	3995.	12.60	874.	268.	194.	4.98
+	ROUTED TO	205206	3802.	12.93	873.	268.	194.	4.98
+	HYDROGRAPH AT	S208	804.	12.70	195.	57.	42.	1.10
+	2 COMBINED AT	C206	4421.	12.93	1050.	320.	232.	6.09
+	ROUTED TO	206207	4372.	13.00	1050.	320.	232.	6.09
+	HYDROGRAPH AT	S209	624.	12.43	103.	29.	21.	0.65
+	2 COMBINED AT	C207R	4573.	13.00	1140.	345.	250.	6.74
+	HYDROGRAPH AT	S210	496.	12.33	65.	17.	12.	0.48
+	2 COMBINED AT	C207	4651.	13.00	1197.	359.	261.	7.22
+	ROUTED TO	207105	4562.	13.07	1197.	359.	261.	7.22
+	HYDROGRAPH AT	S211	428.	12.43	69.	18.	13.	0.49
+	2 COMBINED AT	C105R	4684.	13.07	1256.	375.	272.	7.70
+	2 COMBINED AT	C105	7297.	13.07	1942.	565.	410.	12.75
+	HYDROGRAPH AT	S300	499.	12.50	106.	31.	23.	0.62
+	HYDROGRAPH AT	S301	959.	12.43	185.	58.	42.	0.99
	2 COMBINED AT							

+		C300	1433.	12.47	288.	88.	64.	1.61
+	ROUTED TO	300301	1401.	12.57	288.	88.	64.	1.61
+	HYDROGRAPH AT	S302	481.	12.40	79.	23.	17.	0.47
+	2 COMBINED AT	C301	1787.	12.53	364.	111.	80.	2.07
+	ROUTED TO	301302	1708.	12.83	364.	111.	80.	2.07
+	HYDROGRAPH AT	S303	651.	12.43	102.	28.	20.	0.71
+	2 COMBINED AT	C302	2042.	12.77	461.	137.	99.	2.78
+	ROUTED TO	302303	2017.	12.90	461.	137.	99.	2.78
+	HYDROGRAPH AT	S304	596.	12.53	114.	29.	21.	0.82
+	2 COMBINED AT	C303	2414.	12.83	568.	165.	119.	3.60
+	2 COMBINED AT	WEST-1	9221.	13.03	2440.	710.	515.	16.36
+	HYDROGRAPH AT	S400	967.	12.53	177.	49.	35.	1.05
+	ROUTED TO	C400O	453.	13.10	177.	49.	35.	1.05
+	ROUTED TO	400401	452.	13.40	177.	49.	35.	1.05
+	HYDROGRAPH AT	S401	549.	12.53	94.	25.	18.	0.65
+	2 COMBINED AT	C401	808.	12.60	268.	73.	53.	1.69
+	ROUTED TO	401402	789.	12.97	268.	73.	53.	1.69
+	HYDROGRAPH AT	S402	705.	12.43	107.	27.	20.	0.74
+	2 COMBINED AT	C402	1115.	12.83	369.	99.	72.	2.43
+	ROUTED TO	402403	1077.	13.17	369.	99.	71.	2.43
+	HYDROGRAPH AT	S403	444.	12.63	101.	25.	18.	0.56
+	2 COMBINED AT	C403	1362.	13.13	465.	123.	89.	2.99
+	ROUTED TO	403404	1351.	13.23	464.	123.	89.	2.99
+	HYDROGRAPH AT	S404	383.	12.17	41.	10.	7.	0.26
+	2 COMBINED AT	C404	1352.	13.23	503.	133.	96.	3.26
+	2 COMBINED AT	WEST-2	10222.	13.03	2868.	823.	596.	19.61
+	HYDROGRAPH AT	S500	731.	12.70	196.	61.	44.	1.05
+	ROUTED TO	500501	718.	12.83	195.	61.	44.	1.05
+	HYDROGRAPH AT	S501	582.	12.40	102.	30.	22.	0.61
+	2 COMBINED AT	C501	1041.	12.73	294.	90.	65.	1.67
+	ROUTED TO	501502	1028.	12.80	291.	87.	63.	1.67
+	HYDROGRAPH AT	S502	449.	12.30	61.	17.	12.	0.40

+	2 COMBINED AT C502L	1174.	12.67	349.	103.	74.	2.07
+	HYDROGRAPH AT S503	1009.	12.43	167.	47.	34.	0.99
+	2 COMBINED AT C502I	2088.	12.47	508.	148.	107.	3.07
+	ROUTED TO C502O	1829.	12.70	508.	148.	107.	3.07
+	ROUTED TO 502505	1800.	12.93	497.	138.	100.	3.07
+	HYDROGRAPH AT S504	154.	12.70	39.	10.	7.	0.33
+	2 COMBINED AT C505L	1927.	12.90	533.	147.	106.	3.39
+	HYDROGRAPH AT S505	202.	12.10	21.	6.	4.	0.14
+	ROUTED TO C503O	89.	12.33	21.	6.	4.	0.14
+	ROUTED TO 503505	87.	12.83	21.	5.	4.	0.14
+	HYDROGRAPH AT S506	190.	12.20	24.	6.	5.	0.15
+	ROUTED TO C504O	84.	12.53	24.	6.	5.	0.15
+	ROUTED TO 504505	83.	12.97	24.	6.	5.	0.15
+	HYDROGRAPH AT S507	590.	12.50	94.	24.	17.	0.67
+	3 COMBINED AT C505R	712.	12.50	138.	35.	25.	0.96
+	2 COMBINED AT C505	2420.	12.77	662.	180.	130.	4.35
+	ROUTED TO 505509	2368.	13.10	641.	164.	118.	4.35
+	HYDROGRAPH AT S508	279.	12.37	39.	10.	7.	0.29
+	2 COMBINED AT C509L	2425.	13.07	677.	173.	125.	4.65
+	HYDROGRAPH AT S509	235.	12.17	29.	9.	6.	0.17
+	ROUTED TO C506O	87.	12.47	29.	9.	6.	0.17
+	ROUTED TO 506508	87.	12.67	29.	9.	6.	0.17
+	HYDROGRAPH AT S510	133.	12.33	22.	6.	4.	0.13
+	2 COMBINED AT C508R	214.	12.33	51.	14.	10.	0.30
+	HYDROGRAPH AT S511	484.	12.23	67.	19.	14.	0.38
+	ROUTED TO C507O	95.	12.90	67.	19.	14.	0.38
+	ROUTED TO 507508	95.	13.20	66.	19.	14.	0.38
+	HYDROGRAPH AT S512	211.	12.43	38.	10.	7.	0.21
+	2 COMBINED AT C508L	286.	12.43	104.	29.	21.	0.60
+	2 COMBINED AT C508	493.	12.40	155.	43.	31.	0.90
+	ROUTED TO 508509	463.	12.93	151.	42.	30.	0.90
+	HYDROGRAPH AT S513	376.	12.90	107.	27.	20.	0.78

+	2 COMBINED AT C509R	830.	12.90	254.	68.	49.	1.67
+	2 COMBINED AT C509	3160.	13.03	909.	236.	170.	6.32
+	ROUTED TO 509510	3145.	13.13	907.	235.	169.	6.32
+	HYDROGRAPH AT S514	462.	12.67	113.	28.	20.	0.65
+	2 COMBINED AT C510	3455.	13.10	1007.	260.	187.	6.97
+	ROUTED TO 510511	3379.	13.47	1003.	260.	187.	6.97
+	HYDROGRAPH AT S515	1040.	12.63	215.	54.	39.	1.10
+	2 COMBINED AT C511	3737.	13.43	1187.	307.	221.	8.07
+	ROUTED TO 511512	3662.	13.77	1180.	306.	221.	8.07
+	HYDROGRAPH AT S516	303.	12.70	70.	17.	13.	0.54
+	2 COMBINED AT C512	3744.	13.73	1232.	321.	231.	8.61
+	2 COMBINED AT WEST-3	11731.	13.10	3927.	1096.	796.	28.22
+	HYDROGRAPH AT S600	1804.	12.47	313.	92.	67.	2.02
+	ROUTED TO 600601	1778.	12.53	313.	92.	67.	2.02
+	HYDROGRAPH AT S601	1116.	12.33	195.	62.	45.	0.90
+	2 COMBINED AT C601	2687.	12.43	501.	152.	110.	2.92
+	ROUTED TO 601602	2651.	12.53	501.	152.	110.	2.92
+	HYDROGRAPH AT S603	972.	12.20	141.	44.	32.	0.67
+	2 COMBINED AT C602L	3097.	12.47	636.	195.	140.	3.58
+	HYDROGRAPH AT S602	1738.	12.50	349.	109.	78.	1.88
+	2 COMBINED AT C602	4746.	12.47	968.	298.	215.	5.47
+	ROUTED TO 602603	4583.	12.70	924.	254.	183.	5.47
+	HYDROGRAPH AT S606	651.	12.37	126.	39.	28.	0.66
+	2 COMBINED AT C603L	4966.	12.67	1038.	290.	209.	6.13
+	HYDROGRAPH AT S605	1008.	12.47	204.	63.	46.	1.09
+	HYDROGRAPH AT S604	1851.	12.73	488.	152.	110.	2.66
+	3 COMBINED AT C603	7308.	12.67	1662.	485.	350.	9.87
+	ROUTED TO 603604	7114.	12.83	1613.	438.	316.	9.87
+	HYDROGRAPH AT S609	393.	12.50	94.	28.	21.	0.56
+	2 COMBINED AT C604R	7372.	12.80	1695.	463.	334.	10.43
+	HYDROGRAPH AT S607	713.	12.47	160.	49.	35.	0.82
	2 COMBINED AT						

+	C604	7817.	12.80	1835.	506.	365.	11.25
ROUTED TO +	604605	7773.	12.83	1835.	506.	365.	11.25
HYDROGRAPH AT +	S608	638.	12.30	105.	32.	23.	0.51
2 COMBINED AT +	C605	7954.	12.83	1926.	535.	386.	11.76
ROUTED TO +	605606	7845.	12.93	1917.	528.	381.	11.76
HYDROGRAPH AT +	S610	510.	12.53	122.	38.	28.	0.60
2 COMBINED AT +	C606L	8146.	12.93	2024.	562.	405.	12.36
HYDROGRAPH AT +	S612	719.	12.47	162.	49.	35.	0.81
2 COMBINED AT +	C606	8535.	12.93	2165.	605.	436.	13.17
ROUTED TO +	606608	8520.	12.93	2162.	602.	434.	13.17
HYDROGRAPH AT +	S611	699.	12.27	107.	33.	24.	0.57
ROUTED TO +	607608	662.	12.47	107.	33.	24.	0.57
HYDROGRAPH AT +	S613	1406.	12.70	335.	104.	75.	1.80
3 COMBINED AT +	C608	9840.	12.90	2547.	722.	521.	15.53
ROUTED TO +	608609	9748.	13.03	2535.	713.	514.	15.53
HYDROGRAPH AT +	S614	831.	12.63	201.	62.	45.	1.08
2 COMBINED AT +	C609	10248.	13.00	2706.	767.	553.	16.61
ROUTED TO +	609611	10067.	13.17	2677.	740.	533.	16.61
HYDROGRAPH AT +	S617	635.	12.50	116.	34.	25.	0.68
2 COMBINED AT +	C611R	10241.	13.17	2774.	769.	554.	17.29
HYDROGRAPH AT +	S615	1027.	12.60	252.	82.	59.	1.05
ROUTED TO +	610611	1001.	12.77	252.	82.	59.	1.05
HYDROGRAPH AT +	S616	248.	12.97	83.	24.	18.	0.50
2 COMBINED AT +	C611L	1210.	12.80	332.	105.	76.	1.56
2 COMBINED AT +	C611	11048.	13.17	3061.	861.	621.	18.85
ROUTED TO +	611613	11000.	13.20	3051.	851.	613.	18.85
HYDROGRAPH AT +	S618	818.	12.50	166.	48.	35.	0.96
2 COMBINED AT +	C613R	11263.	13.20	3189.	892.	643.	19.81
HYDROGRAPH AT +	S619	1040.	12.40	180.	56.	40.	0.83
ROUTED TO +	612613	1007.	12.57	180.	56.	40.	0.83
HYDROGRAPH AT +	S620	414.	12.43	94.	29.	21.	0.44
2 COMBINED AT +	C613L	1389.	12.53	272.	84.	61.	1.27

+	2 COMBINED AT C613	11746.	13.17	3420.	964.	695.	21.08
+	ROUTED TO 613614	11667.	13.23	3408.	953.	687.	21.08
+	HYDROGRAPH AT S621	1009.	12.33	125.	32.	23.	0.92
+	2 COMBINED AT C614	11709.	13.23	3509.	978.	705.	22.00
+	ROUTED TO 614615	11625.	13.33	3497.	968.	698.	22.00
+	HYDROGRAPH AT S622	628.	12.63	124.	32.	23.	0.90
+	2 COMBINED AT C615	11824.	13.33	3596.	994.	716.	22.90
+	2 COMBINED AT WEST-4	21626.	13.27	7131.	1978.	1432.	51.12
+	HYDROGRAPH AT S700	497.	12.47	87.	23.	16.	0.61
+	HYDROGRAPH AT S701	382.	12.77	116.	33.	24.	0.72
+	HYDROGRAPH AT S702	222.	12.33	36.	9.	7.	0.26
+	HYDROGRAPH AT S703	257.	12.30	34.	8.	6.	0.26
+	HYDROGRAPH AT S704	472.	12.27	61.	17.	12.	0.41
+	ROUTED TO 704705	438.	12.50	61.	17.	12.	0.41
+	HYDROGRAPH AT S705	733.	12.40	122.	32.	23.	0.75
+	2 COMBINED AT C705	1146.	12.43	182.	49.	35.	1.16
+	ROUTED TO C705O	622.	12.83	182.	49.	35.	1.16
+	ROUTED TO 705OAF	621.	13.03	182.	49.	35.	1.16
+	HYDROGRAPH AT S705AF	237.	12.30	44.	11.	8.	0.18
+	2 COMBINED AT C705AF	712.	12.83	225.	60.	43.	1.34
+	5 COMBINED AT WEST-5	1681.	12.63	485.	130.	94.	3.19
+	HYDROGRAPH AT S706	610.	12.47	109.	29.	21.	0.71
+	HYDROGRAPH AT S707	528.	12.47	104.	28.	20.	0.64
+	HYDROGRAPH AT S728	196.	12.47	38.	10.	7.	0.28
+	5 COMBINED AT WEST	22813.	13.23	7683.	2125.	1539.	55.94
+	HYDROGRAPH AT S708	969.	12.30	157.	40.	29.	0.71
+	HYDROGRAPH AT S709	609.	12.30	114.	30.	22.	0.44
+	ROUTED TO C709O	362.	12.63	114.	30.	22.	0.44
+	ROUTED TO 709710	361.	12.73	114.	30.	22.	0.44
+	HYDROGRAPH AT S710	179.	12.17	28.	7.	5.	0.11
+	2 COMBINED AT C710I	433.	12.50	142.	37.	27.	0.55
+	ROUTED TO C710O	376.	13.00	142.	37.	27.	0.55

+	HYDROGRAPH AT	S711	282.	12.13	42.	11.	8.	0.16
+	ROUTED TO	C711O	156.	12.37	42.	11.	8.	0.16
+	ROUTED TO	711712	156.	12.43	42.	11.	8.	0.16
+	HYDROGRAPH AT	S712	132.	12.03	17.	4.	3.	0.07
+	2 COMBINED AT	C712I	259.	12.07	58.	15.	11.	0.23
+	ROUTED TO	C712O	206.	12.23	58.	15.	11.	0.23
+	ROUTED TO	712714	206.	12.30	58.	15.	11.	0.23
+	HYDROGRAPH AT	S713	189.	12.10	26.	7.	5.	0.11
+	ROUTED TO	C713O	131.	12.27	26.	7.	5.	0.11
+	ROUTED TO	713714	131.	12.30	26.	7.	5.	0.11
+	HYDROGRAPH AT	S714	96.	12.13	12.	3.	2.	0.06
+	3 COMBINED AT	C714	416.	12.20	96.	25.	18.	0.39
+	HYDROGRAPH AT	S715	302.	12.27	57.	15.	11.	0.22
+	HYDROGRAPH AT	S716	1328.	12.43	271.	70.	50.	1.13
+	ROUTED TO	C716O	572.	13.10	271.	70.	50.	1.13
+	ROUTED TO	716717	572.	13.23	271.	70.	50.	1.13
+	HYDROGRAPH AT	S717	511.	12.13	75.	20.	14.	0.29
+	2 COMBINED AT	C717	739.	12.20	343.	89.	64.	1.41
+	ROUTED TO	717718	670.	12.57	342.	89.	64.	1.41
+	HYDROGRAPH AT	S718	333.	12.70	115.	31.	23.	0.44
+	2 COMBINED AT	C718	989.	12.63	454.	119.	86.	1.86
+	HYDROGRAPH AT	S719	165.	12.37	45.	13.	9.	0.15
+	6 COMBINED AT	EAST-1	2732.	12.40	925.	243.	175.	3.88
+	HYDROGRAPH AT	S720	443.	12.37	97.	26.	19.	0.37
+	HYDROGRAPH AT	S721	521.	12.17	58.	15.	11.	0.34
+	ROUTED TO	C721O	214.	12.50	58.	15.	11.	0.34
+	ROUTED TO	721722	212.	12.80	58.	15.	10.	0.34
+	HYDROGRAPH AT	S722	1019.	12.47	209.	53.	38.	0.95
+	2 COMBINED AT	C722	1123.	12.50	265.	67.	48.	1.29
+	HYDROGRAPH AT	S723	131.	12.17	20.	5.	4.	0.09
+	HYDROGRAPH AT	S724	1462.	12.40	300.	79.	57.	1.16
	HYDROGRAPH AT							

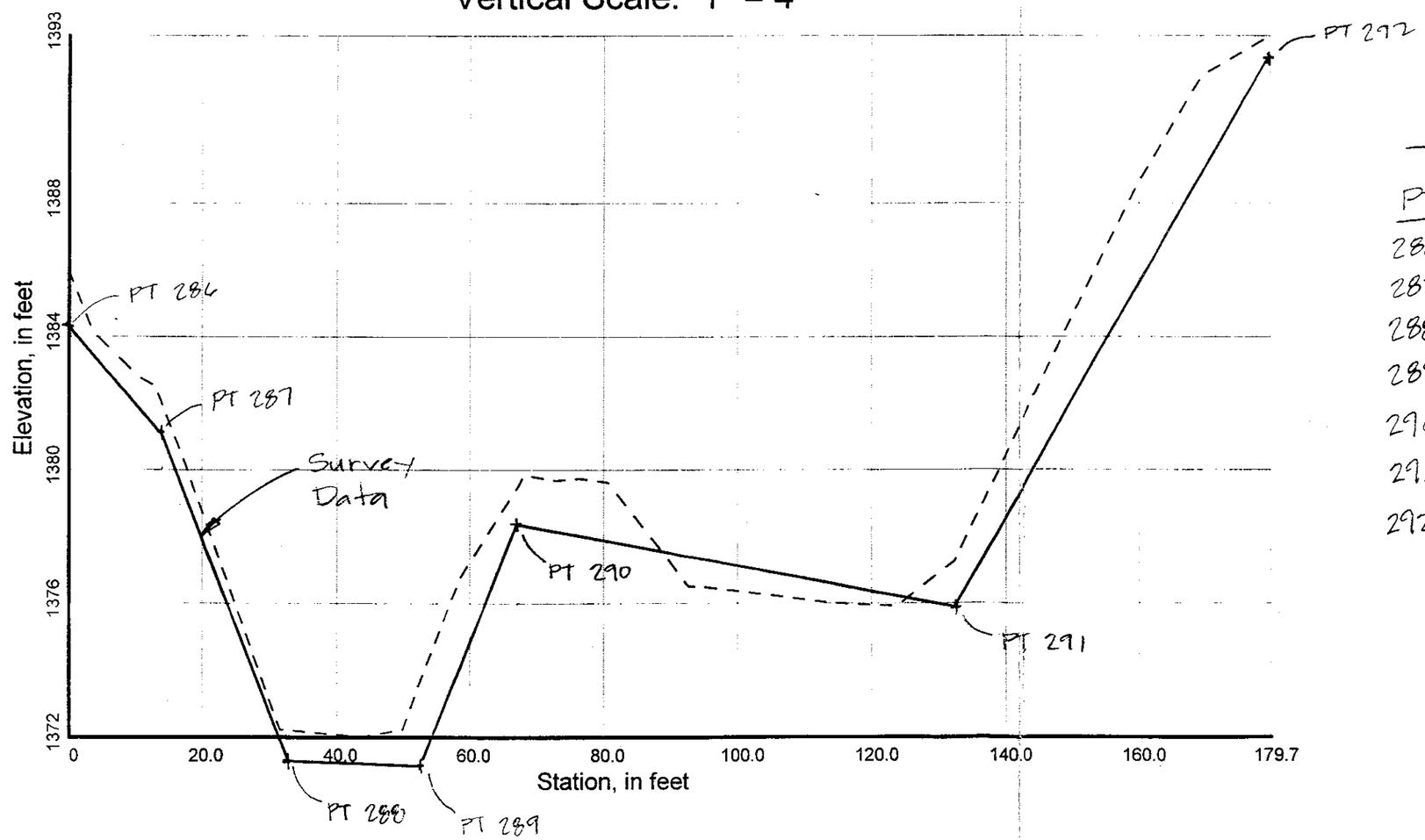
```
+                          S725      946.  12.63       237.       60.       43.      1.16
          5 COMBINED AT
+                       EAST-2     3751.  12.47       892.      229.      165.      4.06
          HYDROGRAPH AT
+                          S726      484.  12.17        53.       14.       10.      0.33
          ROUTED TO
+                       726727      454.  12.33        53.       14.       10.      0.33
          HYDROGRAPH AT
+                          S727      361.  12.43        83.       21.       15.      0.38
          2 COMBINED AT
+                          C727      796.  12.37       135.       35.       25.      0.71
          4 COMBINED AT
+                         TOTAL    25792.  13.20      9204.     2518.     1821.     64.59

*** NORMAL END OF HEC-1 ***
```

APPENDIX I: CROSS SECTION CHECK PLOTS

check Sect. 1

Unnamed Wash 1, ~~RM 0.48~~
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 4'

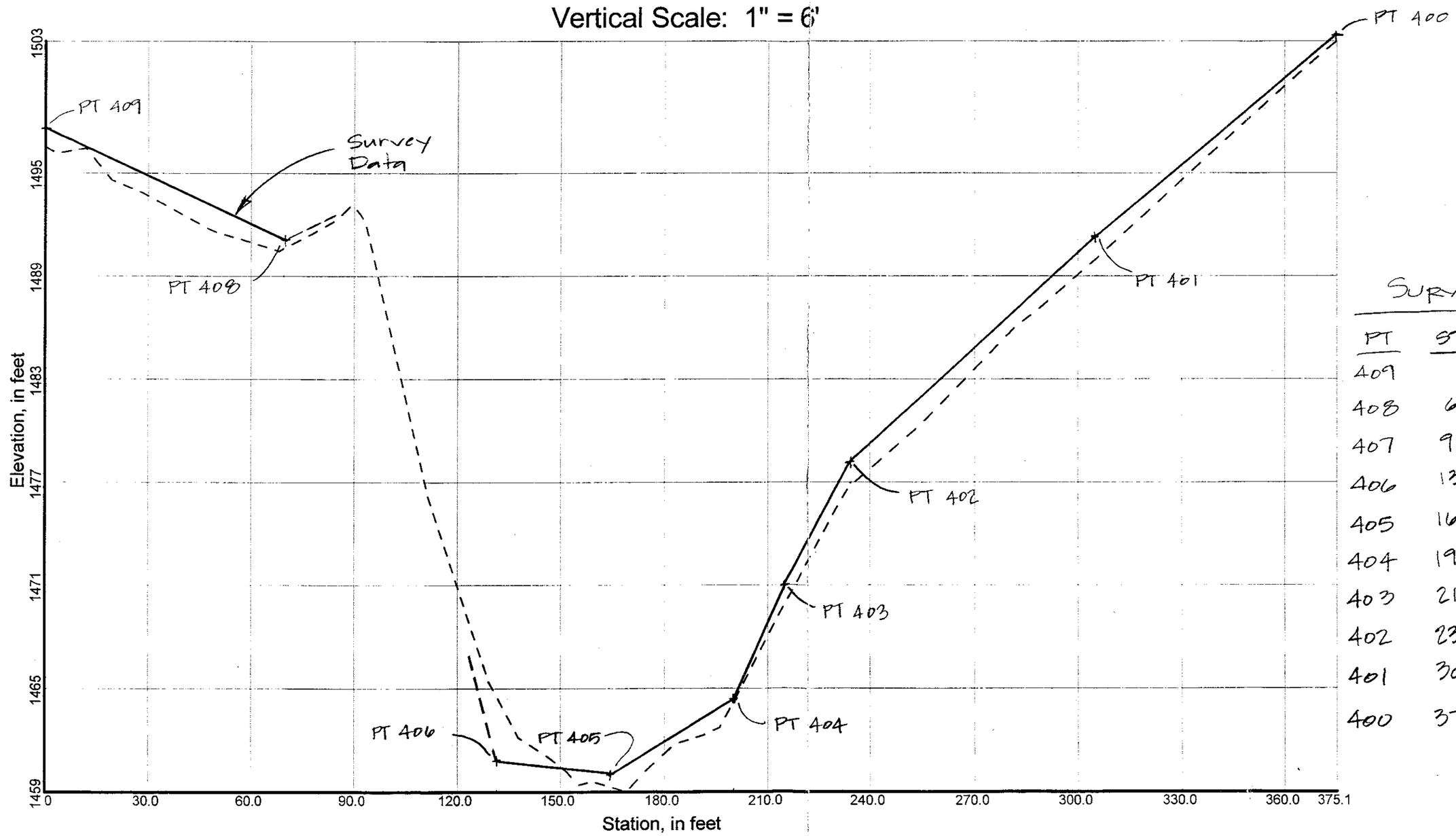


SURVEY DATA

PT	STATION	ELEVATION
286	0	1384.3
287	13.9	1381.1
288	32.3	1371.3
289	52.6	1371.2
290	67.2	1378.4
291	132.8	1375.7
292	179.9	1392.4

Check Sect. 2

Unnamed Wash 1, ~~RM 1.48~~
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 6'

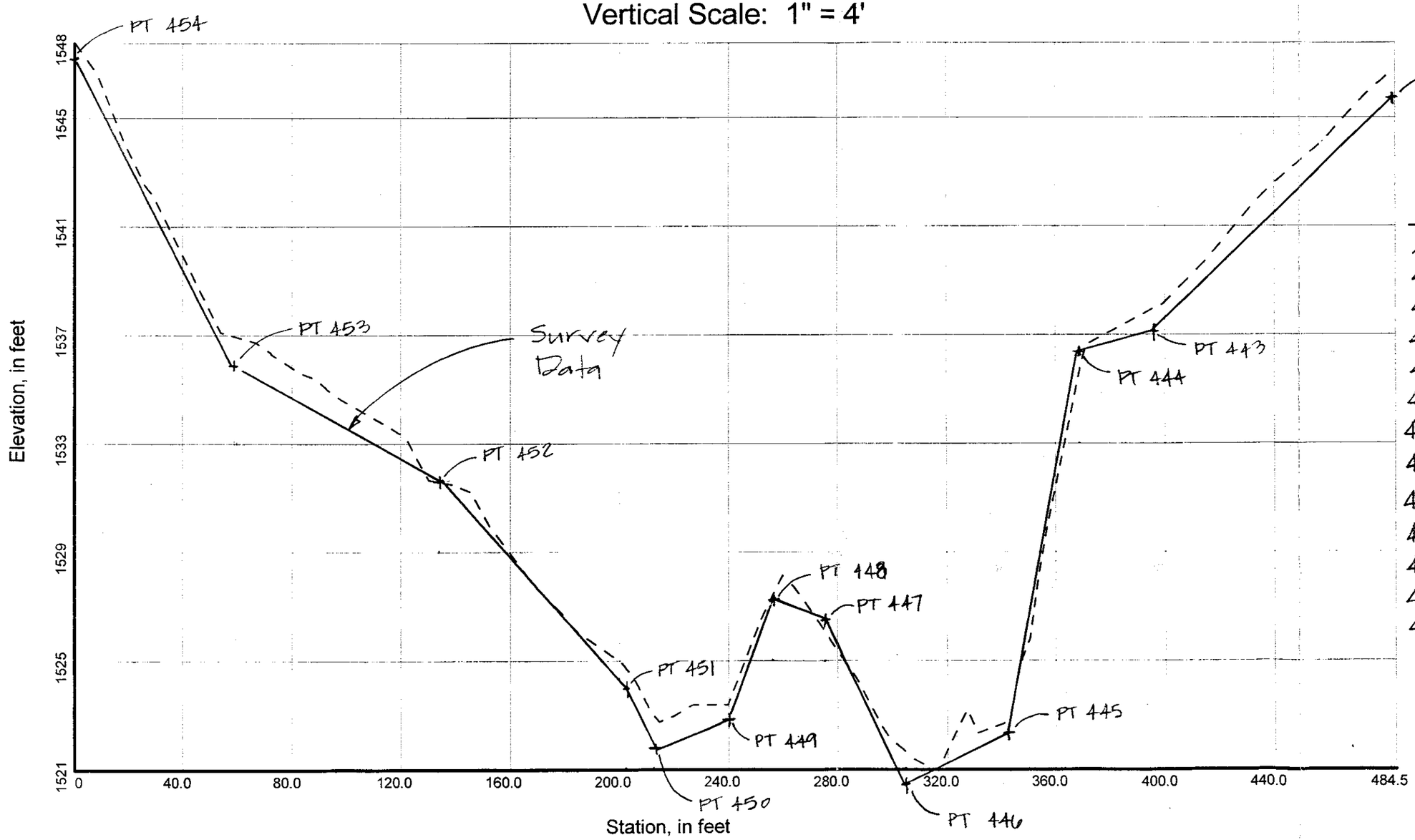


SURVEY DATA

PT	STATION	ELEVATION
409	0	1497.7
408	69.2	1491.2
407	91.8	1512.8
406	131.1	1460.8
405	164.6	1460.1
404	199.9	1464.4
403	214.4	1471.0
402	234.8	1478.3
401	305.3	1491.3
400	374.9	1503.3

Check Sect. 3

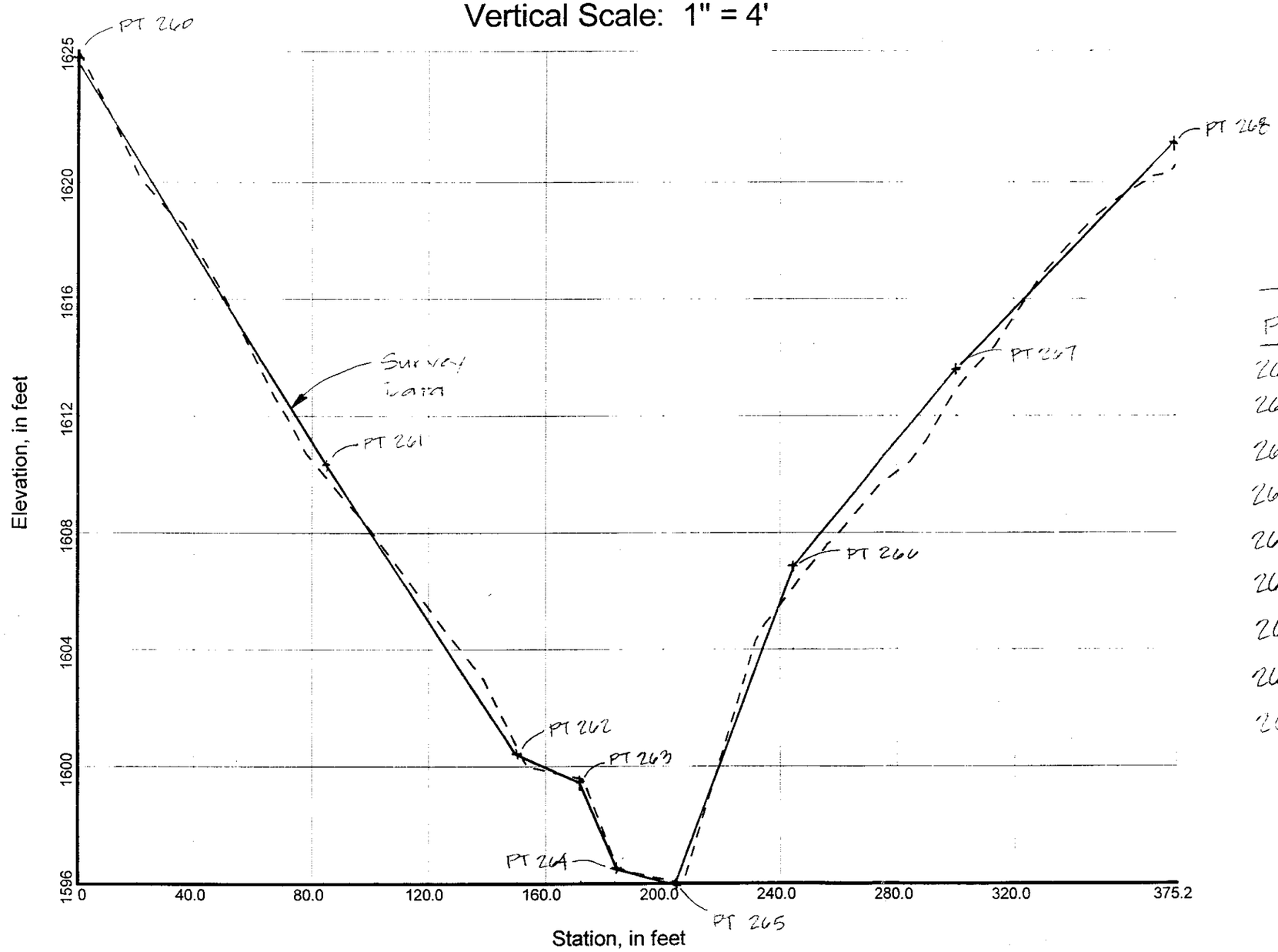
Unnamed Wash 1, ~~RM 2.23~~ (Revised 10-26-00)
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 4'



SURVEY DATA

PT	STA	ELEV
454	0	1547.2
453	59.9	1535.9
452	133.6	1531.6
451	202.5	1524.0
450	212.4	1521.7
449	240.0	1522.9
448	256.7	1527.2
447	275.1	1526.5
446	305.1	1520.4
445	344.5	1522.4
444	369.0	1536.4
443	396.0	1537.1
442	484.4	1545.7

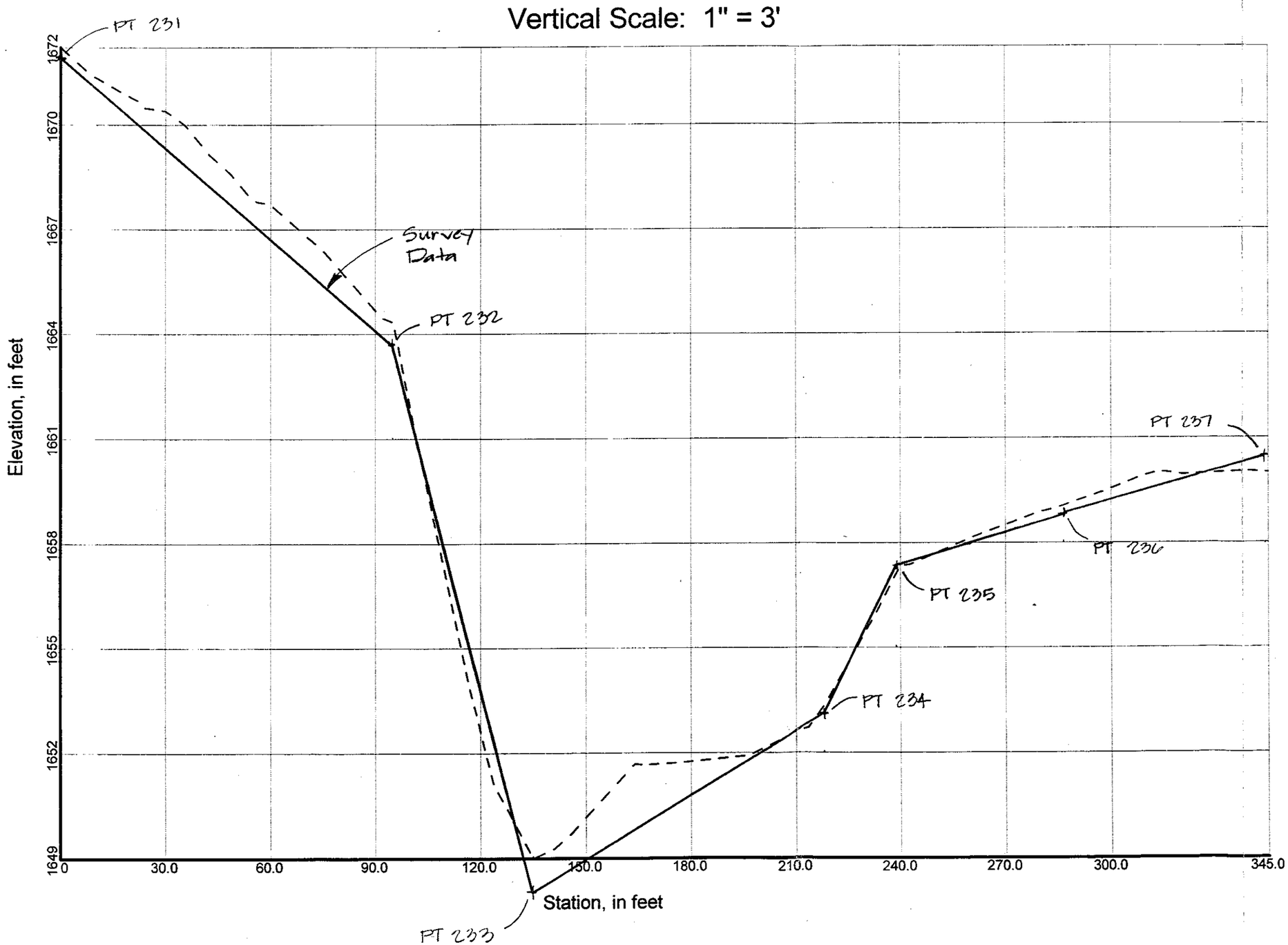
Unnamed Wash 1, ~~RM 3.19~~ Check Sect. 4
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 4'



SURVEY DATA

PT	STATION	ELEVATION
260	0	1624.3
261	84.5	1610.4
262	150.3	1600.4
263	172.0	1597.5
264	183.8	1596.6
265	204.6	1596.0
266	244.6	1606.9
267	300.3	1622.6
268	374.8	1621.4

Unnamed Wash 1, ~~RM 4.17~~ Check Sect. 5
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 3'



SURVEY DATA

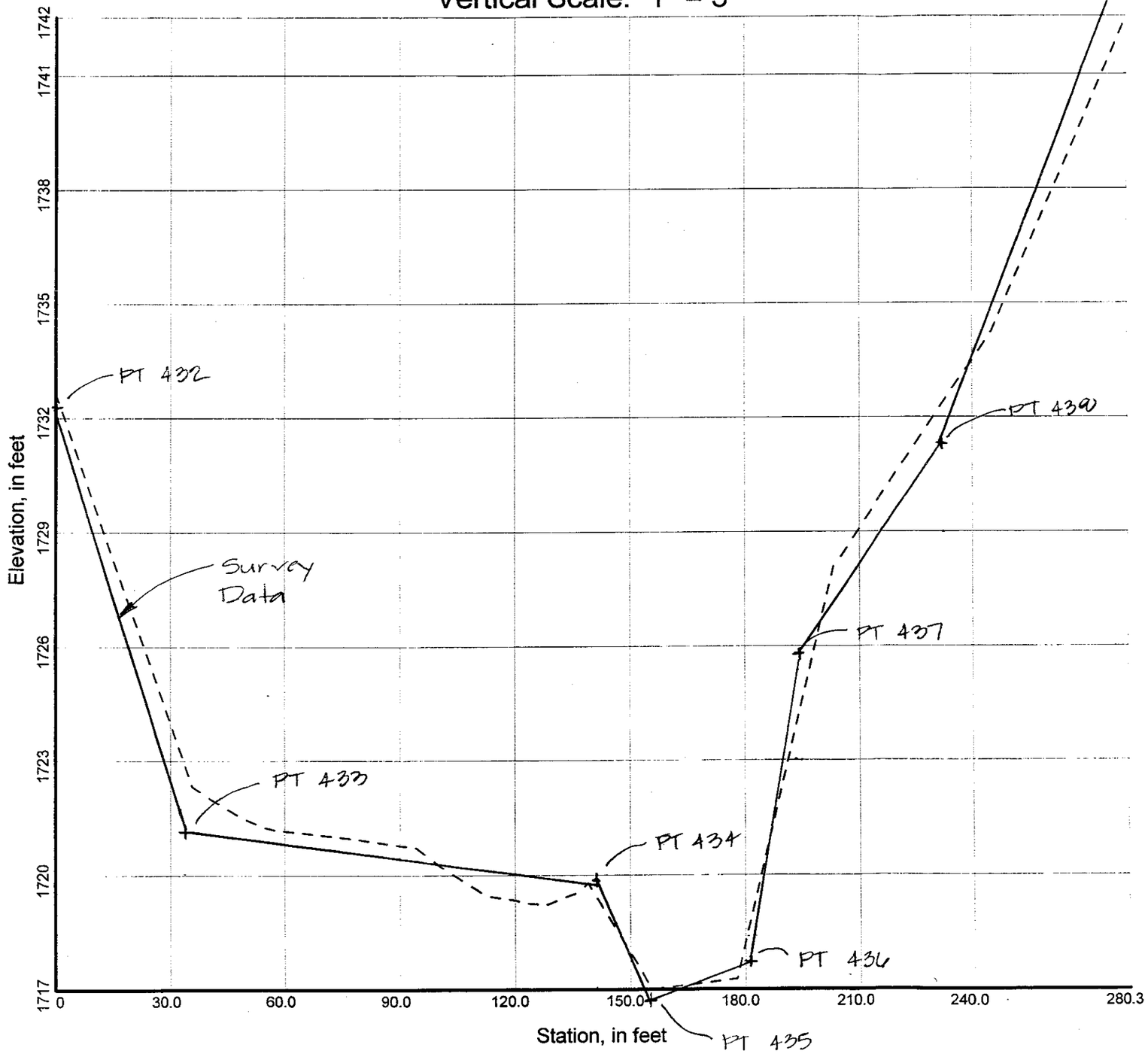
PT	STATION	ELEVATION
231	0	1671.9
232	94.9	1663.7
233	134.9	1648.0
234	217.9	1653.1
235	238.6	1657.4
236	286.4	1658.8
237	344.1	1660.5

Check Sect. 6

Unnamed Wash 1, ~~RM 5.31~~ (Revised 10-26-00)

Horizontal Scale: 1" = 30'

Vertical Scale: 1" = 3'

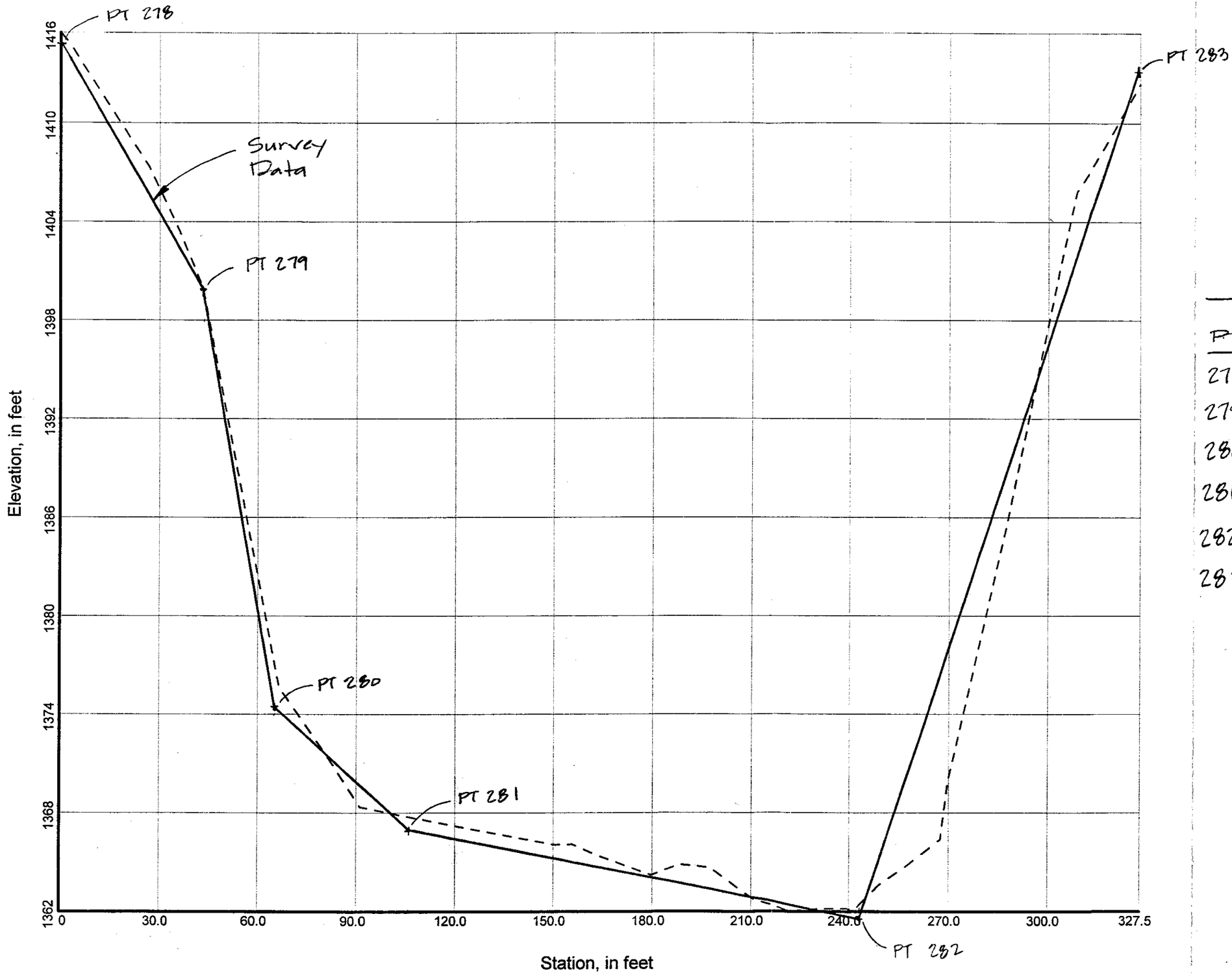


SURVEY DATA

PT	STATION	ELEVATION
432	0	1732.3
433	43.9	1721.2
434	141.2	1719.7
435	155.+	1716.8
436	181.+	1717.8
437	193.3	1725.8
438	232.4	1731.3
439	279.4	1744.2

Check Sect. 1

Unnamed Wash 2, ~~RM 0.36~~
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 6'

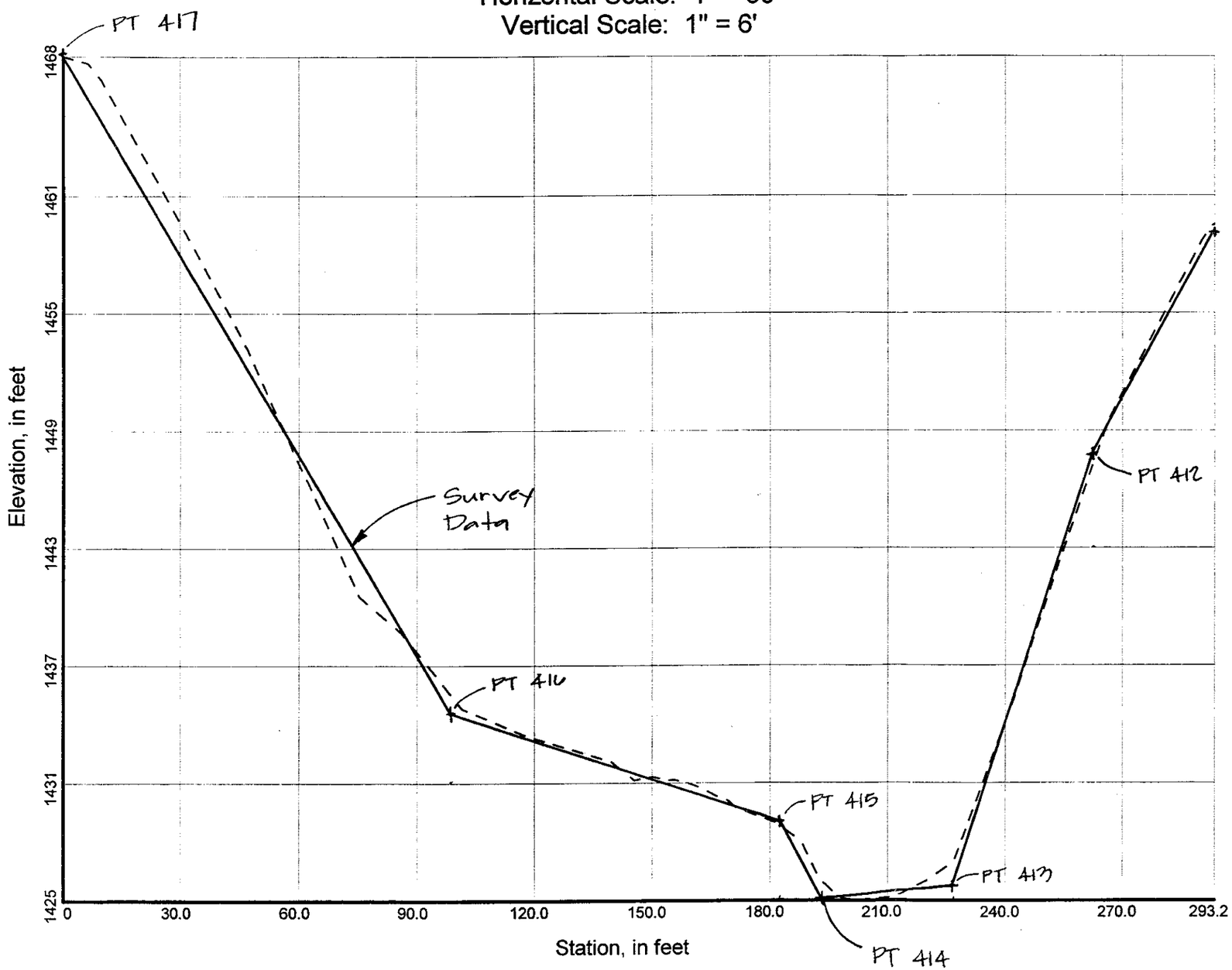


SURVEY DATA

PT	STATION	ELEVATION
278	0	1414.8
279	43.8	1399.9
280	65.0	1374.4
281	105.3	1366.9
282	243.2	1361.5
283	326.3	1413.1

Check Sect. 2

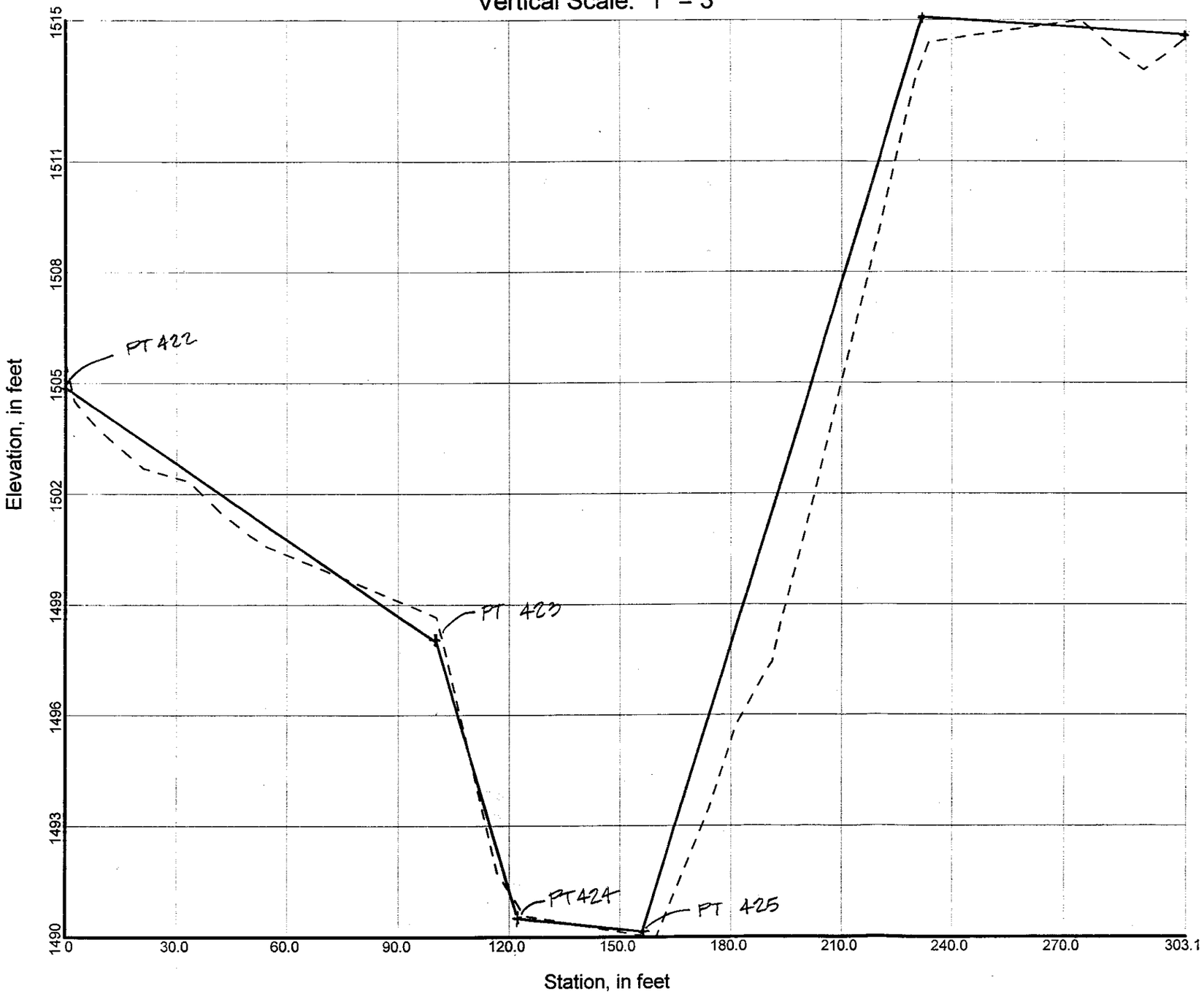
Unnamed Wash 2, R~~M 1.18~~
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 6'



SURVEY DATA

PT	STATION	ELEVATION
417	0	1468.2
416	98.8	1434.6
415	182.5	1429.1
414	193.2	1425.1
413	227.2	1425.7
412	262.4	1447.8
411	293.3	1459.1

Unnamed Wash 2, ~~RM 1.95~~ Check Sect. 3
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 3'

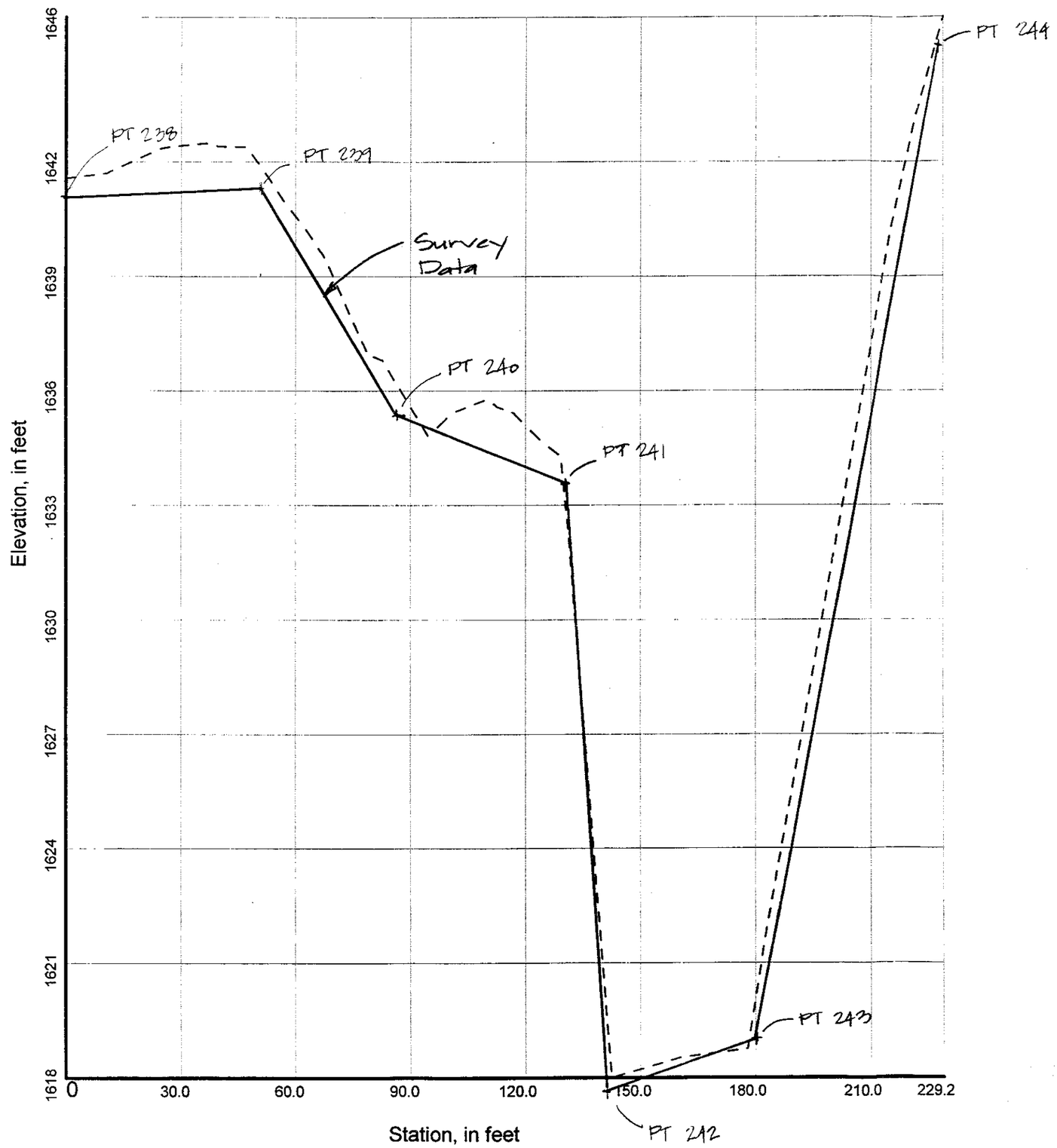


SURVEY DATA

PT	STATION	ELEVATION
422	0	1504.8
423	100.0	1498.0
424	121.4	1490.5
425	156.8	1490.2
426	231.5	1515.1
427	302.2	1514.6

Check Sect. 4

Unnamed Wash 2, ~~RM 3.75~~
Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 3'



SURVEY DATA

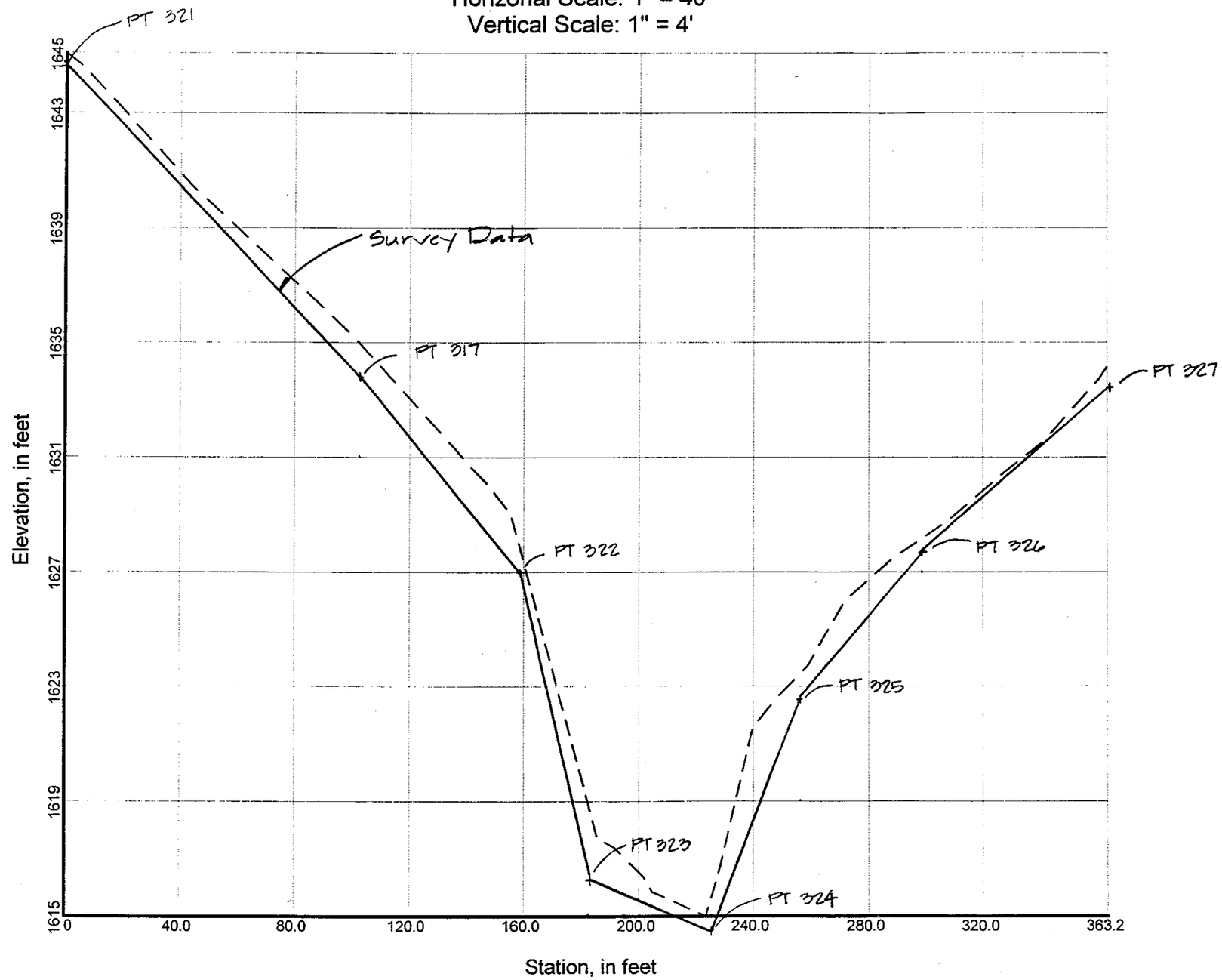
PT	STATION	ELEVATION
238	0	1641.1
239	50.9	1641.3
240	86.5	1635.4
241	130.7	1633.6
242	141.4	1617.6
243	180.0	1619.0
244	228.1	1645.3

Unnamed Wash 3

Check Section at ~~RM 4.214~~ 4

Horizonal Scale: 1" = 40'

Vertical Scale: 1" = 4'



SURVEY DATA

PT	STATION	ELEVATION
321	0	1644.6
317	102.7	1633.8
322	159.5	1627.0
323	182.5	1616.3
324	225.3	1614.5
325	255.9	1622.6
326	298.9	1627.7
327	363.3	1633.4

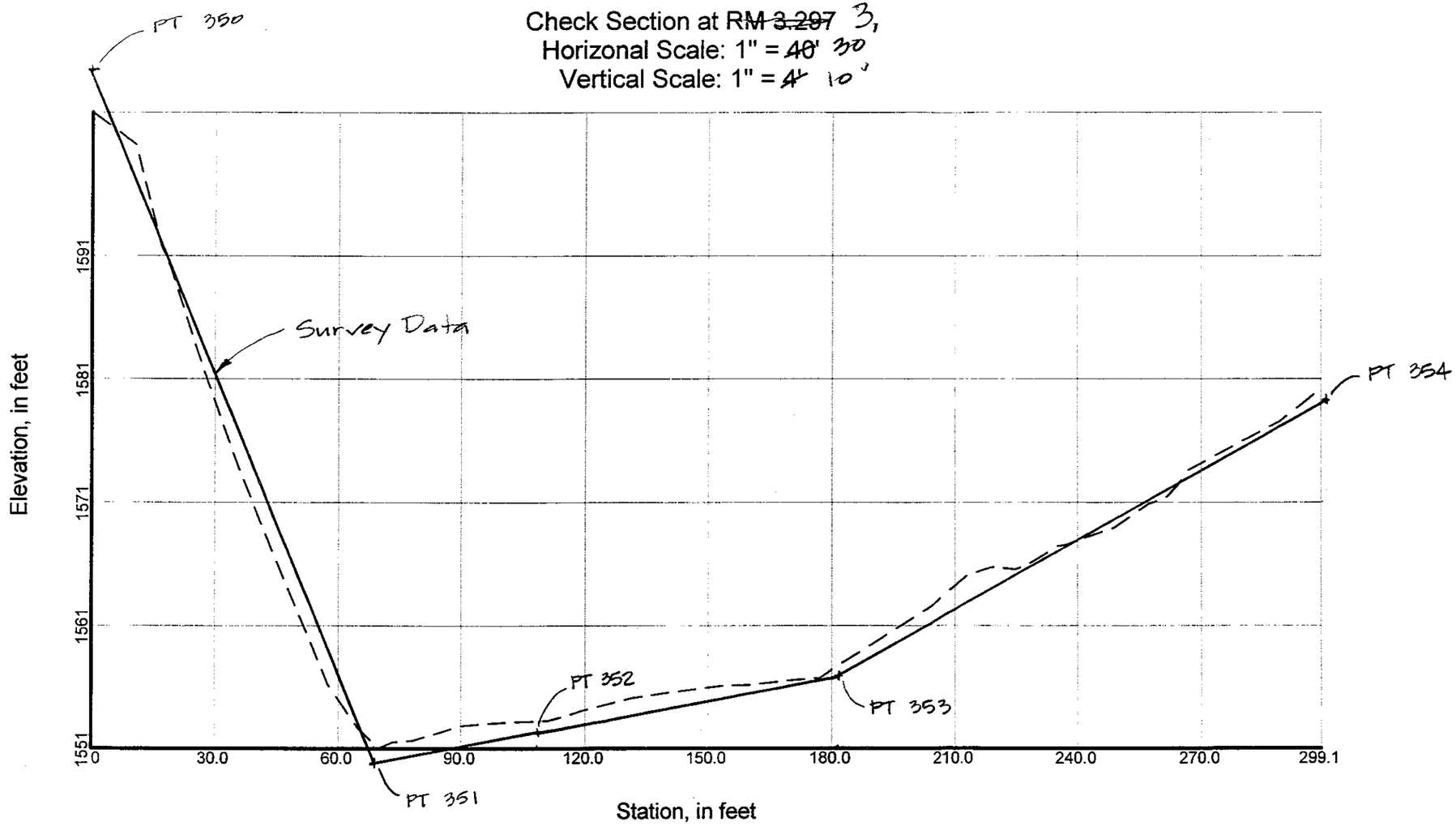
10-2-00 mcg

Unnamed Wash 3

Check Section at ~~RM 3.297~~ 3,

Horizonal Scale: 1" = ~~40'~~ 30

Vertical Scale: 1" = ~~4'~~ 10'

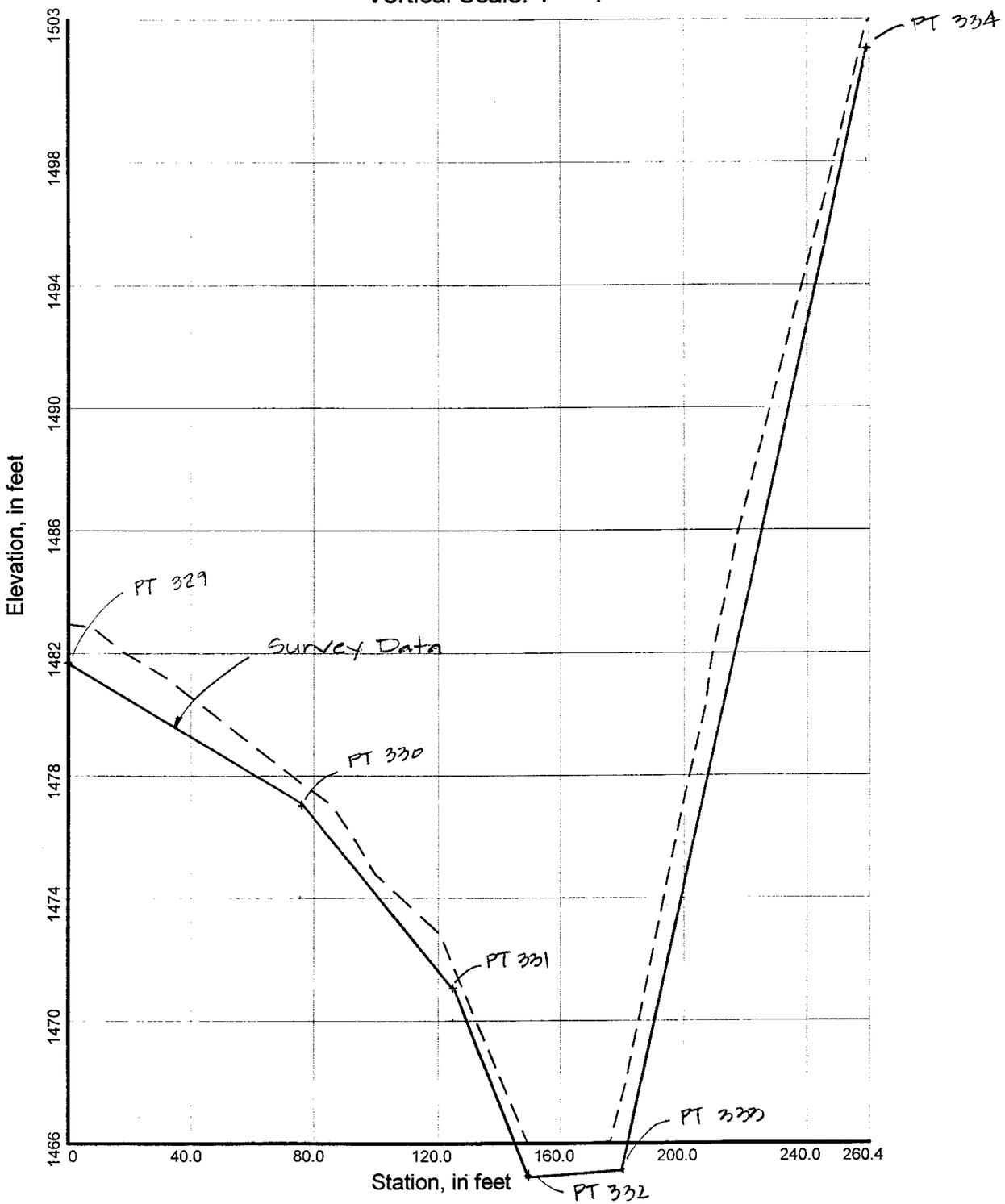


SURVEY DATA

PT	STATION	ELEVATION
350	0	1604.4
351	68.7	1549.9
352	108.3	1552.2
353	181.5	1556.9
354	300.9	1579.7

10-2-00 mce

Unnamed Wash 3
Check Section at RM ~~1.641~~ 2
Horizonal Scale: 1" = 40'
Vertical Scale: 1" = 4'



SURVEY DATA

PT	STATION	ELEVATION
329	0	1481.7
330	75.6	1477.0
331	124.5	1471.1
332	149.5	1464.9
333	179.8	1465.1
334	259.4	1501.7

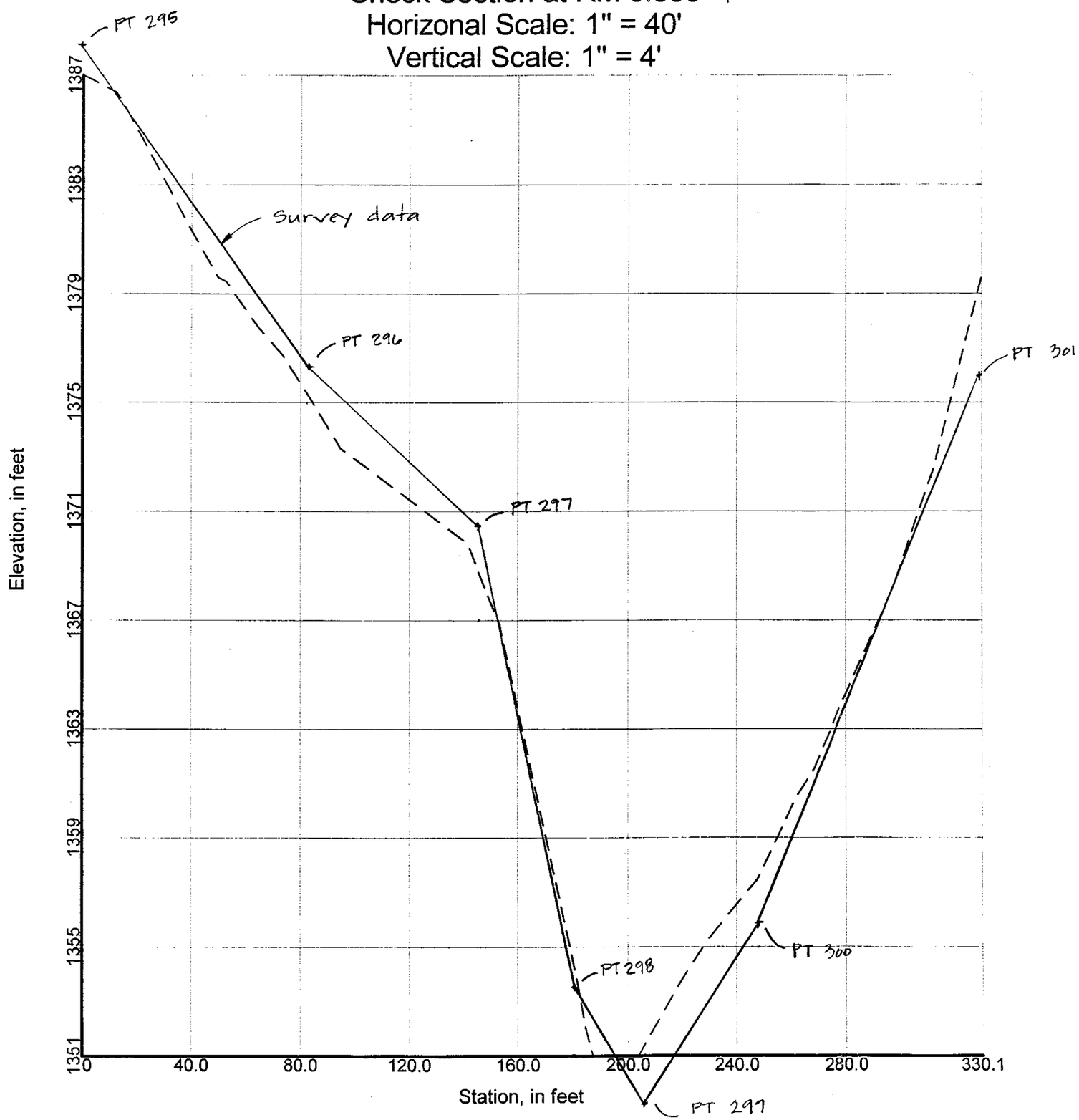
10-2-00 mcg

Unnamed Wash 3

Check Section ~~at RM 0.306~~ I

Horizonal Scale: 1" = 40'

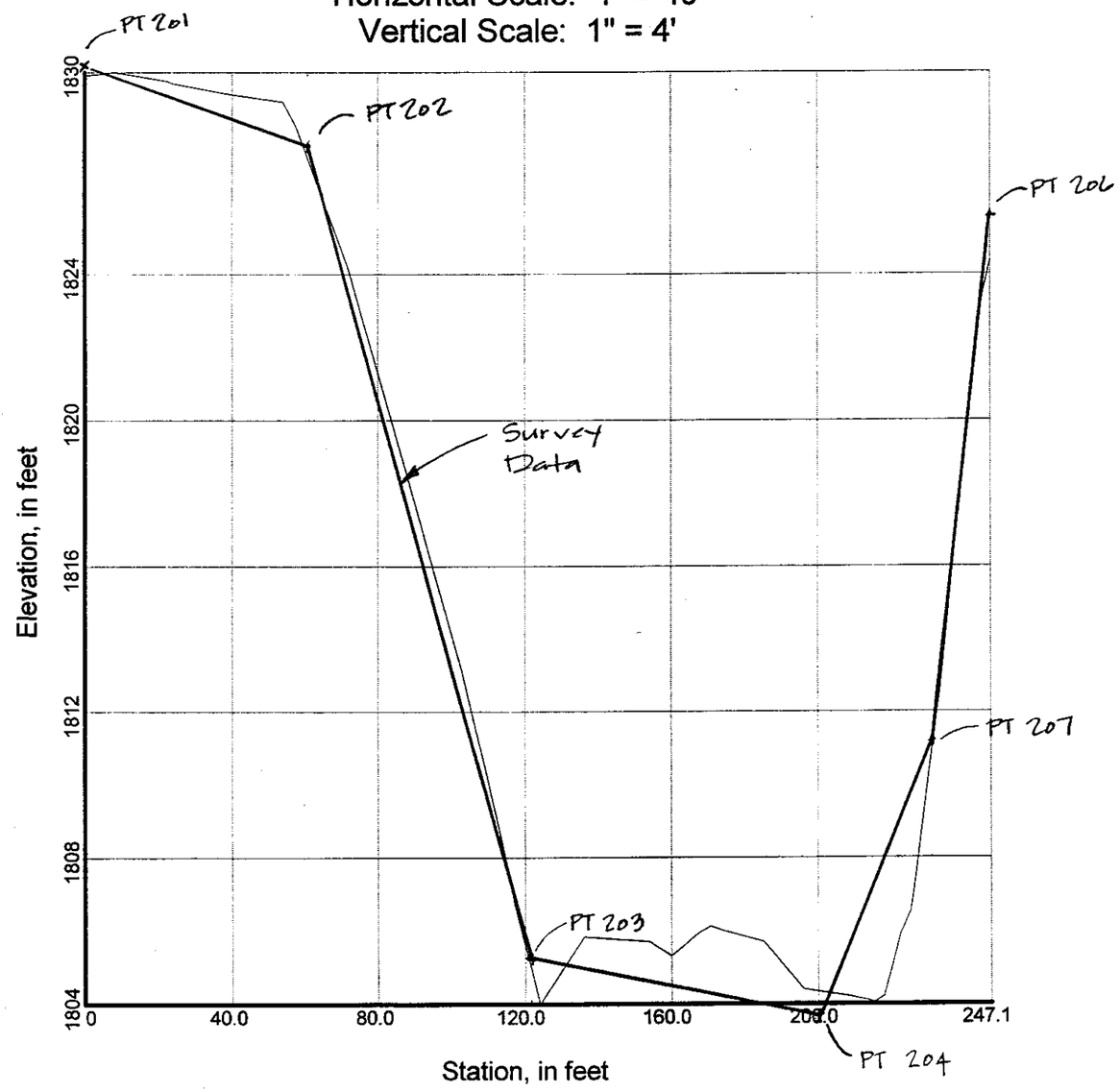
Vertical Scale: 1" = 4'



SURVEY DATA

PT	STATION	ELEVATION
295	0	1388.6
296	82.4	1376.3
297	145.5	1370.5
298	180.7	1353.5
299	206.3	1349.3
300	250.8	1355.9
301	329.8	1376.0

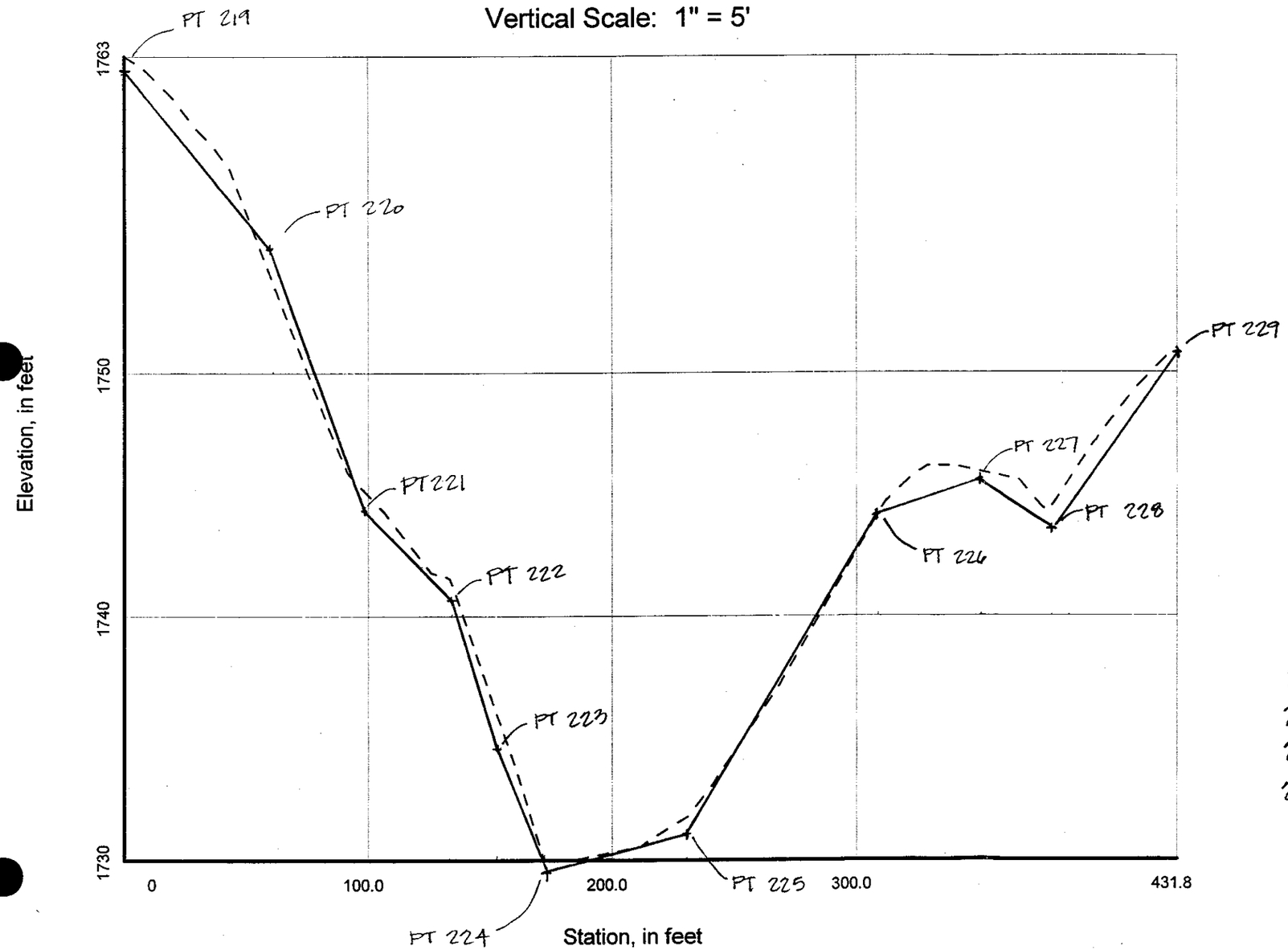
Unnamed Wash 2, ~~RM 6.38~~ Check Sect. 6
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 4'



SURVEY DATA

PT	STATION	ELEVATION
201	0	1829.8
202	60.8	1827.6
203	121.0	1805.3
204	220.0	1803.7
207	231.1	1811.2
205	247.1	1825.6

Unnamed Wash 2, ~~RM 5.37~~ Check Sect. 5
Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 5'



SURVEY DATA

PT	STATION	ELEVATION
219	0	1762.4
220	61.8	1755.1
221	99.5	1744.3
222	134.3	1740.6
223	152.7	1734.5
224	172.7	1729.5
225	230.3	1731.1
226	308.2	1744.2
227	351.3	1745.6
228	380.8	1743.6
229	431.8	1750.8

APPENDIX J: MANNING'S N-VALUE CALCULATIONS AND PHOTOGRAPHS

Manning's n-value Calculation Sheets-Unnamed Wash 1

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-1 By: srg Date: 12-Jun-00
Photo Location WPT34

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.026
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.039	0.051
Round values to the nearest 0.005:					**0.040**	**0.050**
Photograph No.:					2-4	5-7

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-1 **(Appreciable Meander)** By: srg Date: 12-Jun-00
Photo Location WPT34

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.026
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	1.150
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.045	0.059
Round values to the nearest 0.005:					**0.045**	**0.060**
Photograph No.:					2-4	5-7

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-1**(Severe Meander)** By: srg Date: 12-Jun-00
Photo Location WPT34

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.026
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30		1.300	1.300
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.051	0.066
Round values to the nearest 0.005:					**0.050**	**0.065**
Photograph No.:					2-4	5-7

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 By: srg Date: 12-Jun-00
Photo Location WPT35

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.053	0.000
Round values to the nearest 0.005:					**0.055**	
Photograph No.:					8-10	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 By: srg Date: 12-Jun-00
Photo Location WPT36

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.053	0.000
Round values to the nearest 0.005:					**0.055**	
Photograph No.:					13-15	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 **(Appreciable Meander)** By: srg Date: 12-Jun-00
Photo Location WPT36

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.061	0.000
Round values to the nearest 0.005:					**0.060**	
Photograph No.:					13-15	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 By: srg Date: 12-Jun-00
Photo Location WPT37

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025		0.008	
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.053	0.000
Round values to the nearest 0.005:					**0.055**	
Photograph No.:					16-18	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 **(Appreciable Meander)** By: srg Date: 12-Jun-00
Photo Location WPT37

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025		0.008	
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.061	0.000
Round values to the nearest 0.005:					**0.060**	
Photograph No.:					16-18	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 **(Severe Meander)** By: srg Date: 12-Jun-00
Photo Location WPT37

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025		0.008	
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30		1.300	
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.069	0.000
Round values to the nearest 0.005:					**0.070**	
Photograph No.:					16-18	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 By: srg Date: 12-Jun-00
Photo Location WPT38

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.035	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.053	0.000
Round values to the nearest 0.005:					**0.055**	
Photograph No.:					21-23	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-2 **(Appreciable Meander)** By: srg Date: 12-Jun-00
Photo Location WPT38

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.035	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.009	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.066	0.000
Round values to the nearest 0.005:					**0.065**	
Photograph No.:					21-23	

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-3 By: srg Date: 12-Jun-00
Photo Location WPT40

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.025		
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.035
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.050	0.039	0.060
Round values to the nearest 0.005:				**0.050**	**0.040**	**0.060**
Photograph No.:				31-33	28-30	34-36

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-3 **(Appreciable Meander)** By: srg Date: 12-Jun-00
Photo Location WPT40

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.025		
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.035
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15	1.150	1.150	1.150
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.058	0.045	0.069
Round values to the nearest 0.005:				**0.060**	**0.045**	**0.070**
Photograph No.:				31-33	28-30	34-36

Table J-1
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 1
Reach: UN1-3 By: srg Date: 12-Jun-00
Photo Location WPT41

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026	0.025		
	Coarse Sand		0.026 - 0.035			0.035
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.050	0.039	0.060
Round values to the nearest 0.005:				**0.050**	**0.040**	**0.060**
Photograph No.:				40-42	37-39	43-45

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria WMP
Steam: Unnamed Wash 2
Reach: UN2-1 By: srg Date: June 13, 2000
Photo Location WPT22

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.039	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					1-6	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-1 **(Appreciable Meander)** By: srg Date: June 13, 2000
Photo Location WPT22

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.045	0.000
Round values to the nearest 0.005:					**0.045**	
Photograph No.:					1-6	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-1 By: srg Date: June 13, 2000
Photo Location WPT25

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.039	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					9-11	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-1 **(Appreciable Meander)** By: srg Date: June 13, 2000
Photo Location WPT25

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.045	0.000
Round values to the nearest 0.005:					**0.045**	
Photograph No.:					9-11	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-1 By: srg Date: June 13, 2000
Photo Location WPT26

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.030
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.039	0.055
Round values to the nearest 0.005:					**0.040**	**0.055**
Photograph No.:					12-14	15-17

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-1**(Appreciable Meander)** By: srg Date: June 13, 2000
Photo Location WPT26

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.030
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	1.150
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.045	0.063
Round values to the nearest 0.005:					**0.045**	**0.065**
Photograph No.:					12-14	15-17

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-2 By: srg Date: June 13, 2000
Photo Location WPT29

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.025
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.039	0.050
Round values to the nearest 0.005:					**0.040**	**0.050**
Photograph No.:					23-25	26-28

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-2 **(Severe Meander)** By: srg Date: June 13, 2000
Photo Location WPT29

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.025
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30		1.300	1.300
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.051	0.065
Round values to the nearest 0.005:					**0.050**	**0.065**
Photograph No.:					23-25	26-28

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-2 By: srg Date: June 13, 2000
Photo Location WPT30

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026	0.025		
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.050	0.039	0.000
Round values to the nearest 0.005:				**0.050**	**0.040**	
Photograph No.:				32-34	29-31	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-2 **(Appreciable Meander)** By: srg Date: June 13, 2000
Photo Location WPT30

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026	0.025		
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15	1.150	1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.058	0.045	0.000
Round values to the nearest 0.005:				**0.060**	**0.045**	
Photograph No.:				32-34	29-31	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-2 **(Severe Meander)** By: srg Date: June 13, 2000
Photo Location WPT30

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026	0.025		
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30	1.300	1.300	
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.065	0.051	0.000
Round values to the nearest 0.005:				**0.065**	**0.050**	
Photograph No.:				32-34	29-31	

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-3 By: srg Date: June 13, 2000
Photo Location WPT32

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.030
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.039	0.055
Round values to the nearest 0.005:					**0.040**	**0.055**
Photograph No.:					36-38	39-41

Table J-2
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: UN2-3 **(Severe Meander)** By: srg Date: June 13, 2000
Photo Location WPT32

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.030
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30		1.300	1.300
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.051	0.072
Round values to the nearest 0.005:					**0.050**	**0.070**
Photograph No.:					36-38	39-41

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-1 By: mmz Date: 13-Jun-00
Photo Location WPT12

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.025
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035	0.030	0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000		0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.055	0.039	0.050
Round values to the nearest 0.005:				**0.055**	**0.040**	**0.050**
Photograph No.:				4-6	1-3	7-9

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-2 By: mmz Date: 13-Jun-00
Photo Location WPT13

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035	0.030	0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.055	0.039	
Round values to the nearest 0.005:				**0.055**	**0.040**	
Photograph No.:				14-16	11-13	

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-2 **(Appreciable Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035	0.030	0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15	1.150	1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.063	0.045	
Round values to the nearest 0.005:				**0.065**	**0.045**	
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-2 **(Severe Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035	0.030	0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30	1.300	1.300	
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.0715	0.0507	
Round values to the nearest 0.005:				**0.070**	**0.050**	
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: Uun-3-3 By: mmz Date: 13-Jun-00
Photo Location WPT14

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			0.030
	Cobble		0.030 - 0.050		0.040	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$					0.049	0.055
Round values to the nearest 0.005:					**0.050**	**0.055**
Photograph No.:					19-21	22-24

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-3 **(Appreciable Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			0.030
	Cobble		0.030 - 0.050		0.040	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	1.150
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$					0.056	0.063
Round values to the nearest 0.005:					**0.055**	**0.065**
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-4 By: mmz Date: 13-Jun-00
Photo Location WPT15

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.040	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$					0.058	
Round values to the nearest 0.005:					**0.060**	
Photograph No.:					25-27	

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-4**(Appreciable Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.040	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.005	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$					0.067	
Round values to the nearest 0.005:					**0.070**	
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-5 By: mmz Date: 13-Jun-00
Photo Location WPT16

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035	0.026		0.026
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.051	0.039	0.051
Round values to the nearest 0.005:				**0.050**	**0.040**	**0.050**
Photograph No.:				31-33	28-30	34-36

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-5 **(Appreciable Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035	0.026		0.026
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15	1.150	1.150	1.150
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.059	0.045	0.059
Round values to the nearest 0.005:				**0.060**	**0.045**	**0.060**
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-5 By: mmz Date: 13-Jun-00
Photo Location WPT17

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035	0.026		0.026
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000		0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.051	0.039	0.051
Round values to the nearest 0.005:				**0.050**	**0.040**	**0.050**
Photograph No.:				40-42	37-39	43-45

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-5 **(Appreciable Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035	0.026		0.026
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000		0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15	1.150	1.150	1.150
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.059	0.045	0.059
Round values to the nearest 0.005:				**0.060**	**0.045**	**0.060**
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-5 **(Severe Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035	0.026		0.026
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000		0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025	0.025		0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15			
	Severe		1.30	1.300	1.300	1.300
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.066	0.051	0.066
Round values to the nearest 0.005:				**0.065**	**0.050**	**0.065**
Photograph No.:						

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-6 By: mmz Date: 13-Jun-00
Photo Location WPT18

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$					0.044	
Round values to the nearest 0.005:					**0.045**	
Photograph No.:					46-48	

Table J-3
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 3
Reach: UN3-6 **(Appreciable Meander)** By: mmz Date: 13-Jun-00
Photo Location

Channel Conditions	Manning's n Adjustment			Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.008	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.150	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$					0.051	
Round values to the nearest 0.005:					**0.050**	
Photograph No.:						

Manning's n-value Calculation Sheets-Approximate Method Reaches

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Tributary 1 to Unnamed Wash 1
Reach: Tributary 1 Approximate Methods By: PJE Date: 30-Aug-00
Photo Location WPT48

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					46-48	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: Approximate Method By: PJE Date: 30-Aug-00
Photo Location PZA1

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					42-44	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 2
Reach: Approximate Method By: PJE Date: 30-Aug-00
Photo Location PZA2

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					45-47	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Tributary 2 to Unnamed Wash 2
Reach: Tributary 2 By: PJE Date: 30-Aug-00
Photo Location PZA3

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					48-50	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Tributary 2 to Unnamed Wash 2
Reach: Tributay 2 By: PJE Date: 30-Aug-00
Photo Location PZA4

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:				54	51-53	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Tributary 1 to Unnamed Wash 2
Reach: Tributary 1 By: PJE Date: 30-Aug-00
Photo Location PZA5

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.040	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.050	0.000
Round values to the nearest 0.005:					**0.050**	
Photograph No.:					55-57	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Tributary 1 to Unnamed Wash 2
Reach: Tributary 1 By: PJE Date: 30-Aug-00
Photo Location PZA6

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050		0.040	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.050	0.000
Round values to the nearest 0.005:					**0.050**	
Photograph No.:					58-59	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Twin Buttes
Reach: Approximate Method By: PJE Date: 30-Aug-00
Photo Location PZA7

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			0.025
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.050
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					1-3	4-6

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Twin Buttes
Reach: Approximate Method By: PJE Date: 30-Aug-00
Photo Location PZA8

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025		0.025	
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010		0.006	
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.000	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050		0.020	
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.051	0.000
Round values to the nearest 0.005:					**0.050**	
Photograph No.:					7-8	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Twin Buttes
Reach: Approximate Method By: PJE Date: 30-Aug-00
Photo Location PZA9

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			0.030
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			0.025
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.055
Round values to the nearest 0.005:					**0.040**	**0.055**
Photograph No.:					9-11	13-15

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Caterpillar Tanks
Reach: Approximate Method By: PJE Date: 30-Aug-00
Photo Location PZA10

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					16-18	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 4
Reach: UN4-2 By: PJE Date: 30-Aug-00
Photo Location PZA11

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:					19-21	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 5
Reach: Approximate Method By: MMZ Date: 19-Apr-01
Photo Location PZA12

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.035	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000		0.000	
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004			
	Minor		0.005 - 0.015		0.005	
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.005	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000			
	Alternating (occasionally)		0.001 - 0.005		0.001	
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00		1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.046	0.000
Round values to the nearest 0.005:					**0.045**	
Photograph No.:					28-29	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 6
Reach: Approximate Method By: MMZ Date: 19-Apr-01
Photo Location PZA13

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.000	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:				.	26-27	

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 7
Reach: Approximate Method By: MMZ Date: 19-Apr-01
Photo Location

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.000	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:						

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 8
Reach: Approximate Method By: MMZ Date: 19-Apr-01
Photo Location

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.000	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:						

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 9
Reach: Approximate Method By: MMZ Date: 19-Apr-01
Photo Location

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032			
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035		0.030	
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		0.001 - 0.005		0.001	
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010		0.009	
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000		0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00			
	Appreciable		1.15		1.000	
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.000	0.040	0.000
Round values to the nearest 0.005:					**0.040**	
Photograph No.:						

Table J- 4
Determination of Manning's n-value by the FCDMC method

Project: North Peoria Area Drainage Master Plan - FCD Contract # 99-45
Steam: Unnamed Wash 4
Reach: UN4-1 By: PJE Date: 30-Aug-00
Photo Location PZA17

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.026	0.026	
	Fine Sand		0.023 - 0.026			
	Coarse Sand		0.026 - 0.035			
	Gravel		0.028 - 0.035			
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025	0.010	0.020	
	Large		0.025 - 0.050			
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.036	0.046	0.000
Round values to the nearest 0.005:				**0.035**	**0.045**	
Photograph No.:				34	32-33	

Photographs Locations and Descriptions

OVERLAP MATCH TO FIGURE 1.2

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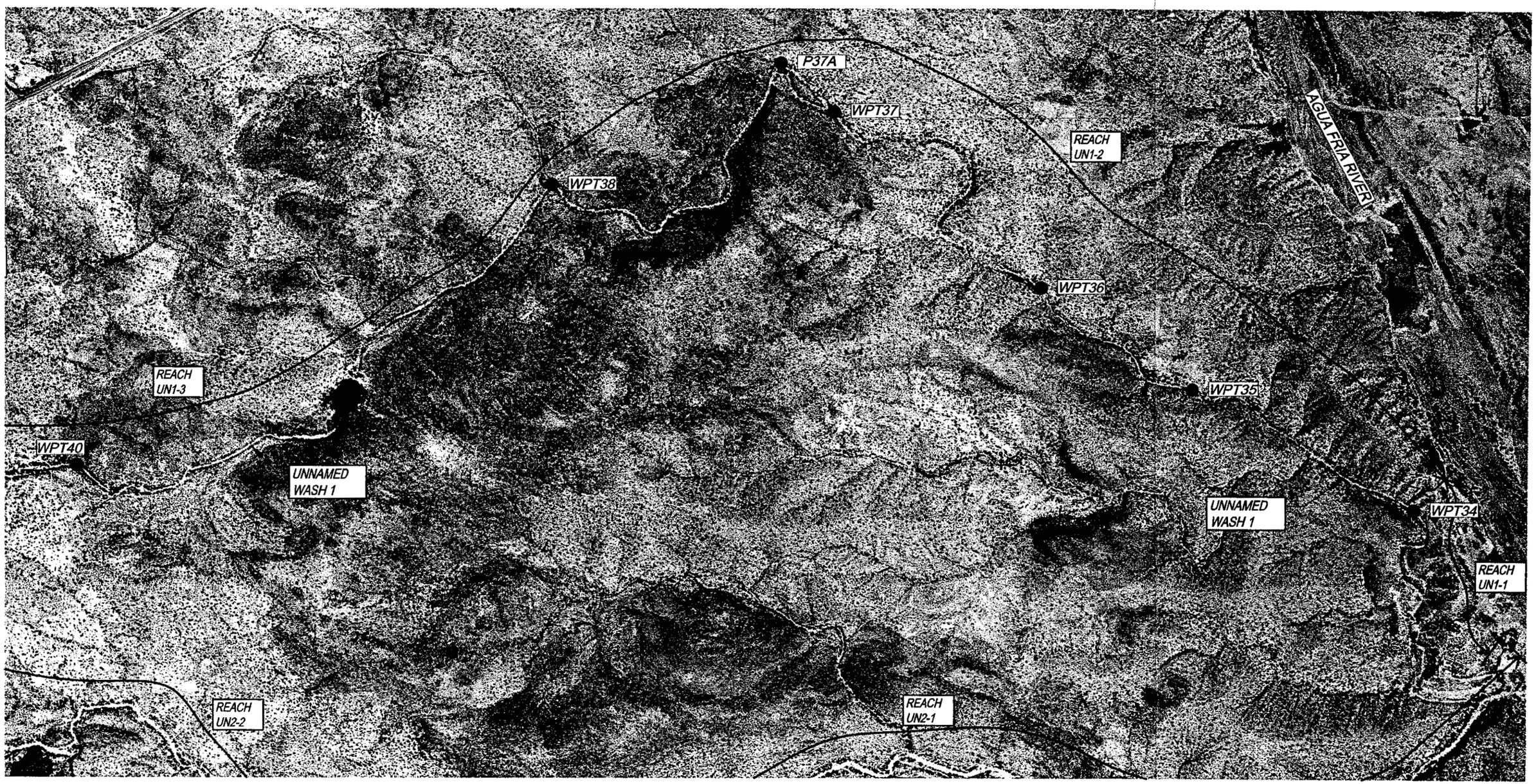
April 20, 2001



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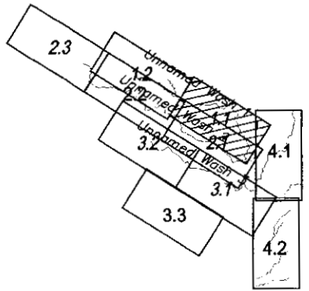


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH — n–VALUE REACH LOCATION

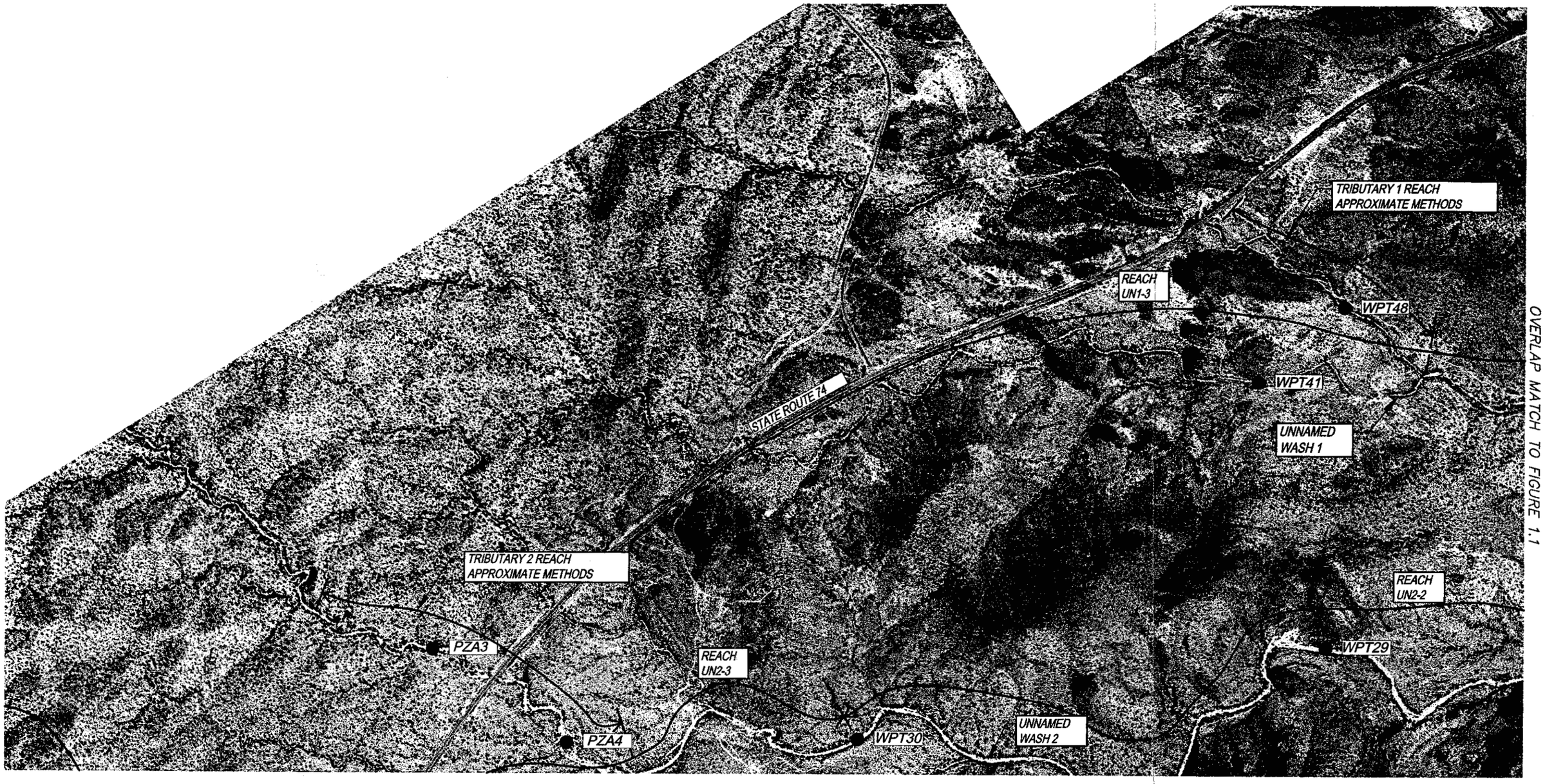
1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 1.1

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146



OVERLAP MATCH TO FIGURE 1.1

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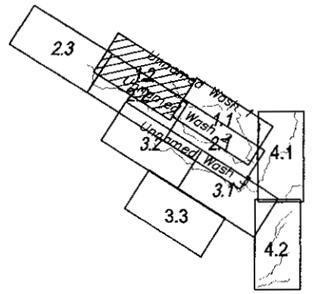

Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH
- n–VALUE REACH LOCATION

1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 1.2

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146

OVERLAP MATCH TO FIGURE 2.2

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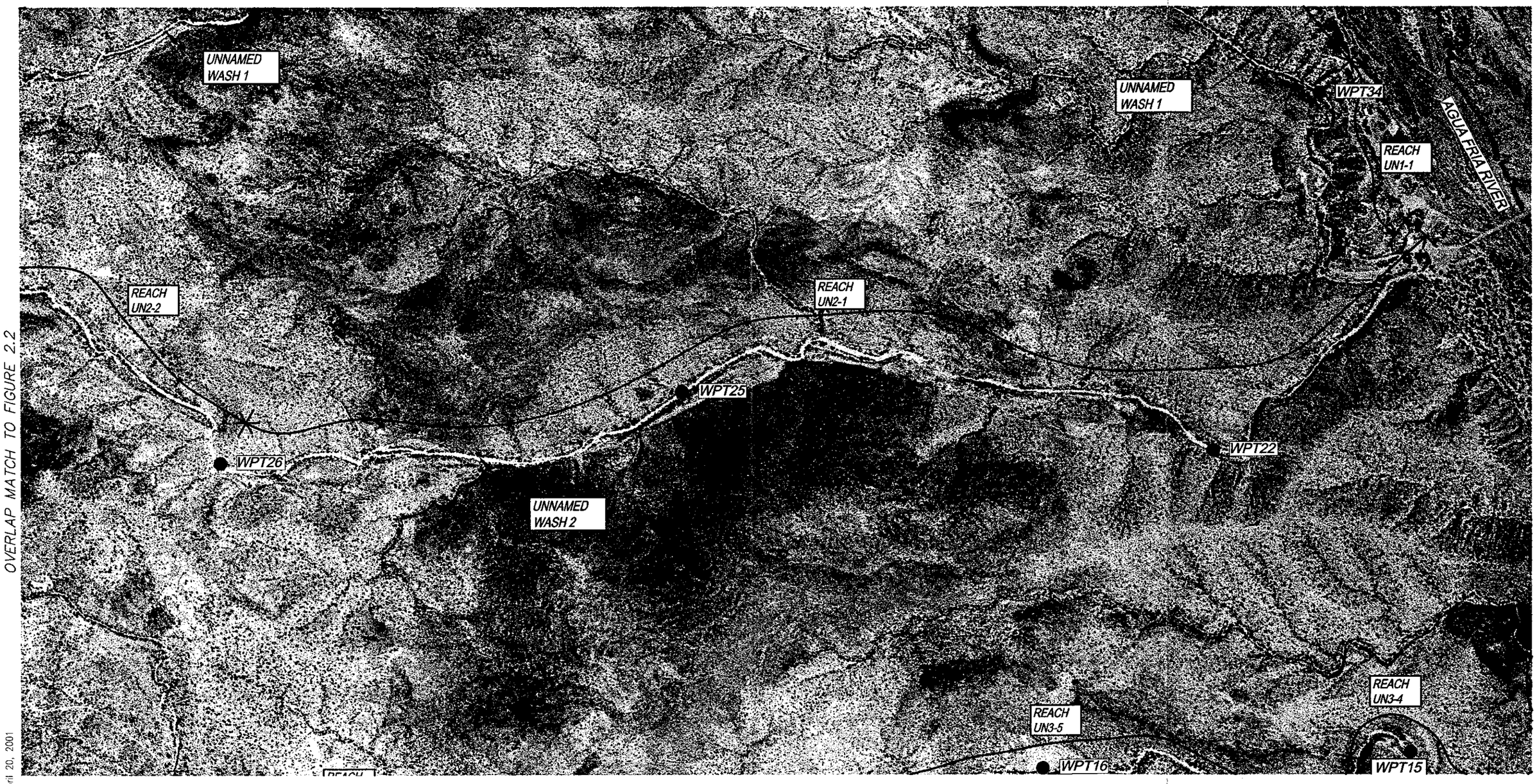
April 20, 2001



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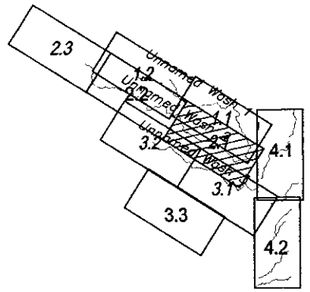


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH
- n–VALUE REACH LOCATION

1" = 1000'

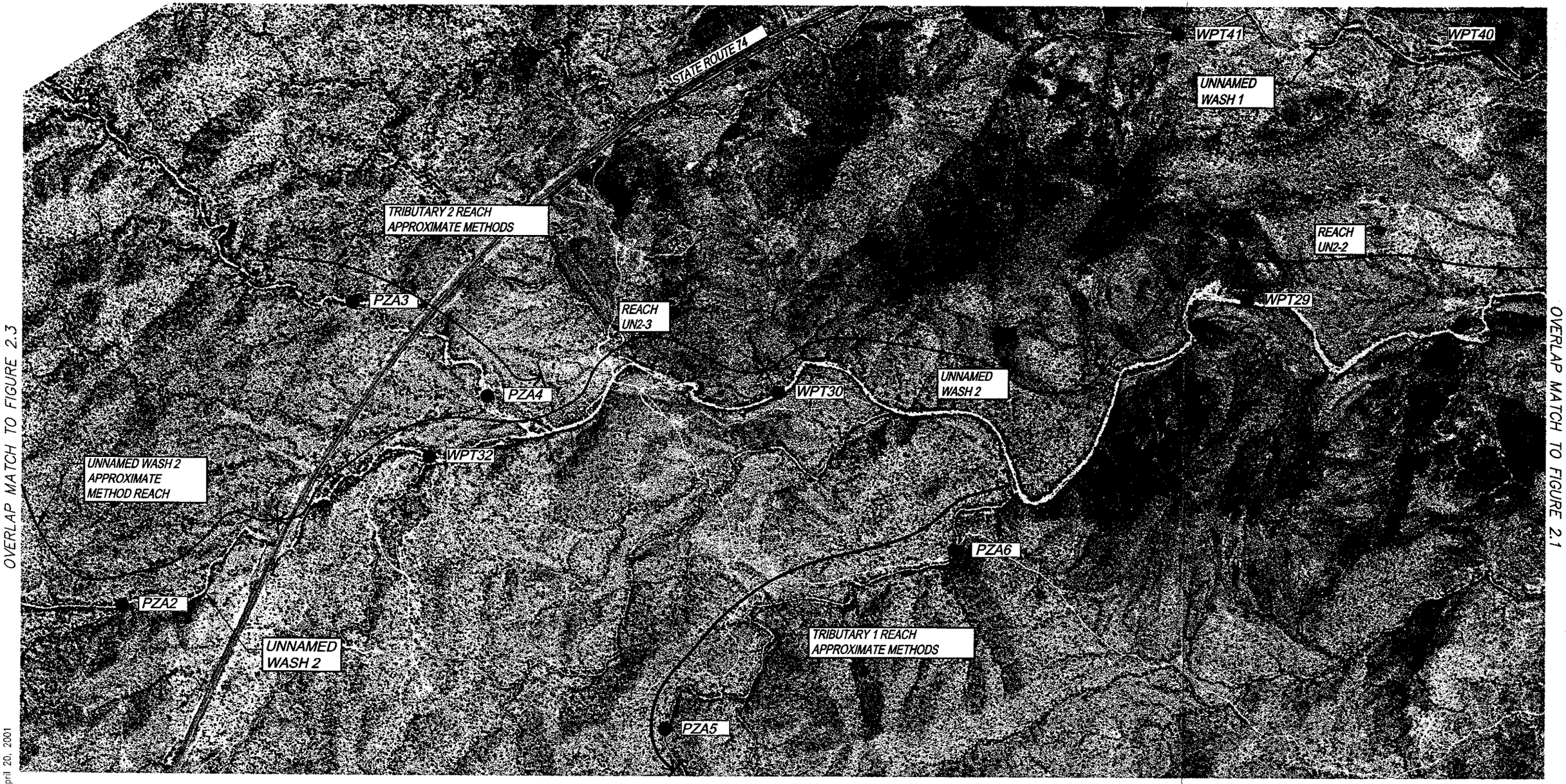
Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 2.1

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146

OVERLAP MATCH TO FIGURE 2.3



OVERLAP MATCH TO FIGURE 2.1

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April 20, 2001

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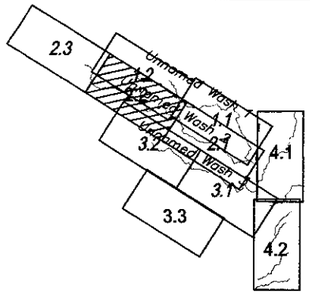


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH — n–VALUE REACH LOCATION

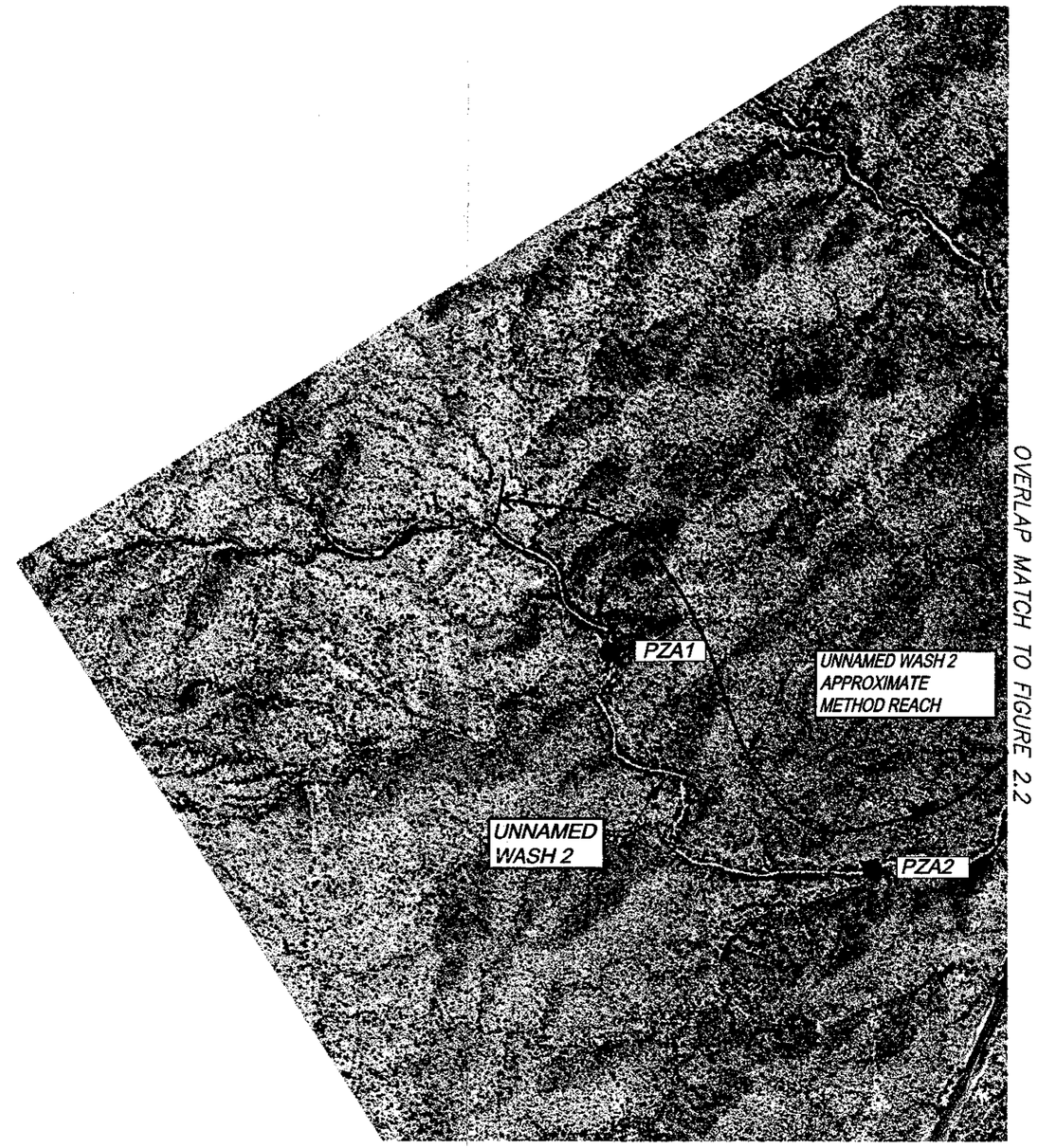
1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 2.2

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146



OVERLAP MATCH TO FIGURE 2.2

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April 20, 2001

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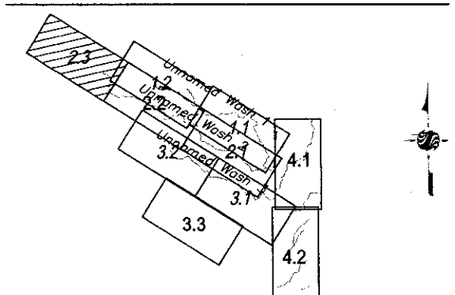

Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH — n-VALUE REACH LOCATION

1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99-45

Figure No.
FIGURE 2.3

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146

OVERLAP MATCH TO FIGURE 3.2

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REACH UN3-2
REACH UN3-1
WPT12
UNNAMED WASH 6
REACH UN3-4
WPT13
REACH UN3-5
WPT16
WPT15
REACH UN3-3
WPT14
REACH UN3-5
UNNAMED WASH 3
REACH UN4-1
PZA17
UNNAMED WASH 4 APPROXIMATE METHODS
REACH UN4-2
PZA11
CATERPILLAR TANK WASH APPROXIMATE METHODS
PZA10

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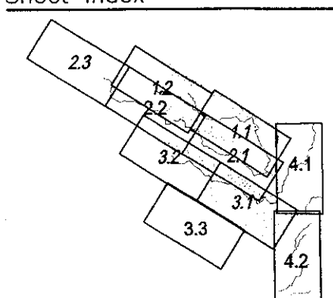


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH — n–VALUE REACH LOCATION

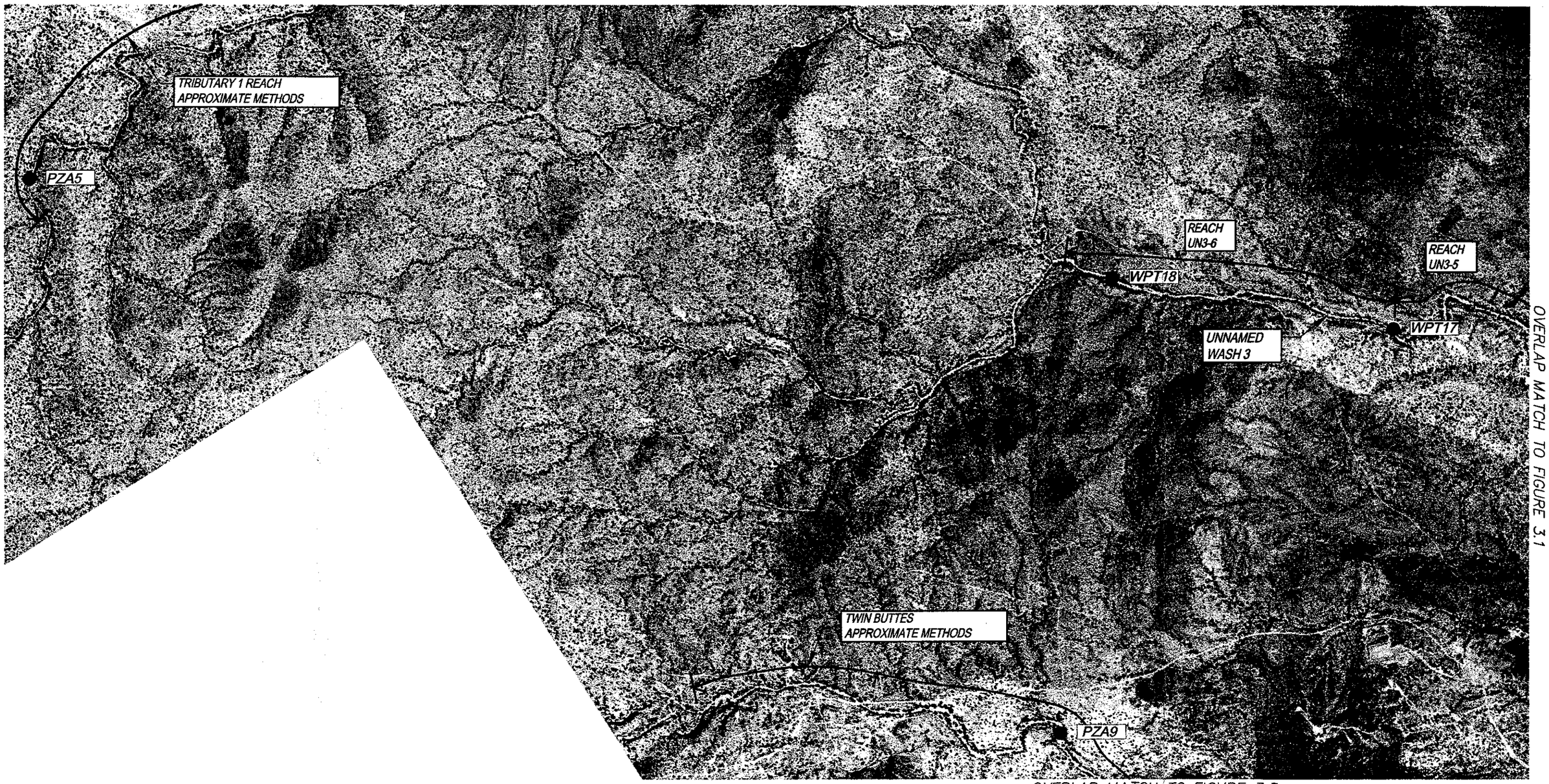
1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 3.1

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146



OVERLAP MATCH TO FIGURE 3.1

OVERLAP MATCH TO FIGURE 3.3

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April 20, 2001

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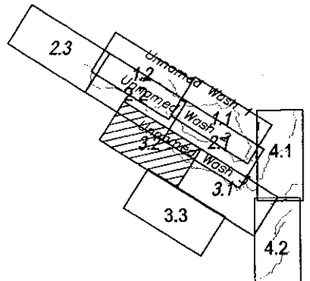


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)

UNNAMED WASH 7 APPROXIMATE METHOD REACH — n–VALUE REACH LOCATION

1" = 1000'

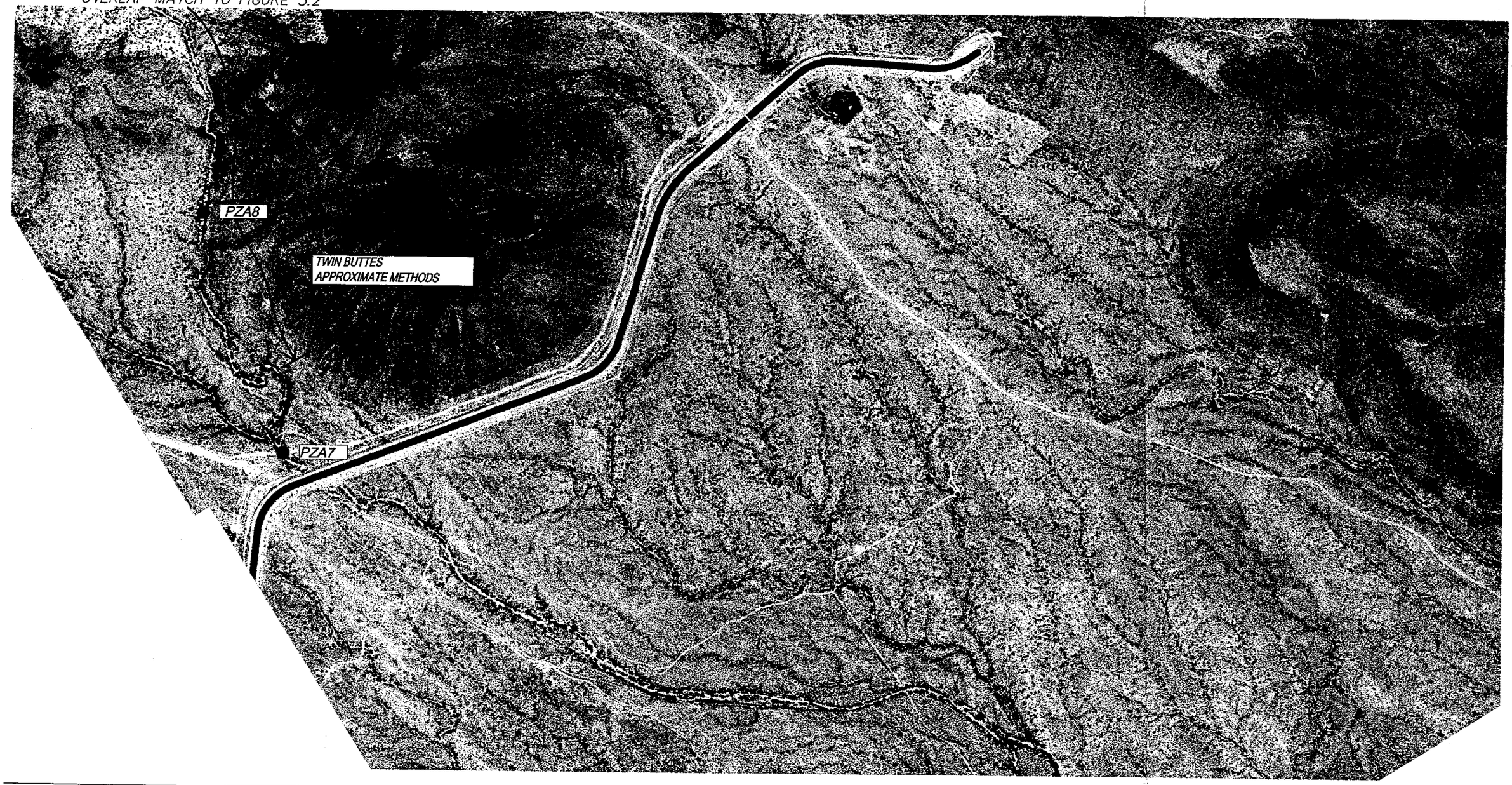
Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 3.2

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146

OVERLAP MATCH TO FIGURE 3.2



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April 20, 2001

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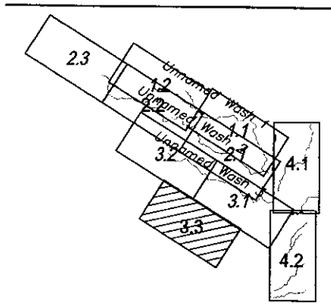


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)

UNNAMED WASH 7 APPROXIMATE METHOD REACH

n–VALUE REACH LOCATION

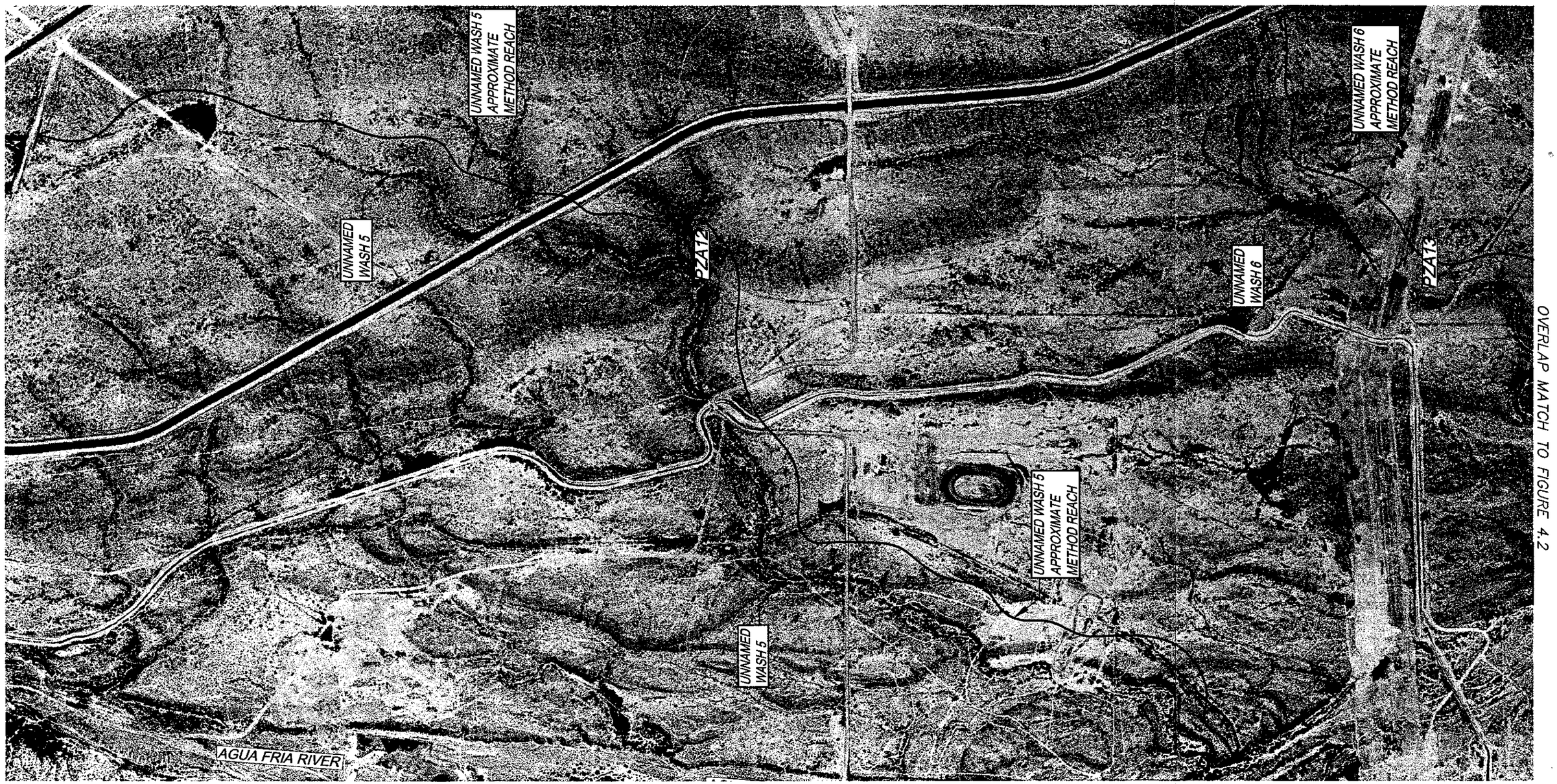
1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 3.3

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

Date: April 20, 2001
Project Number: 82000146



OVERLAP MATCH TO FIGURE 4.2

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Stantec

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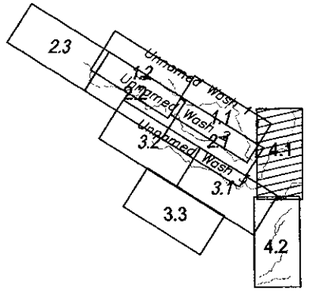


Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH
- n–VALUE REACH LOCATION

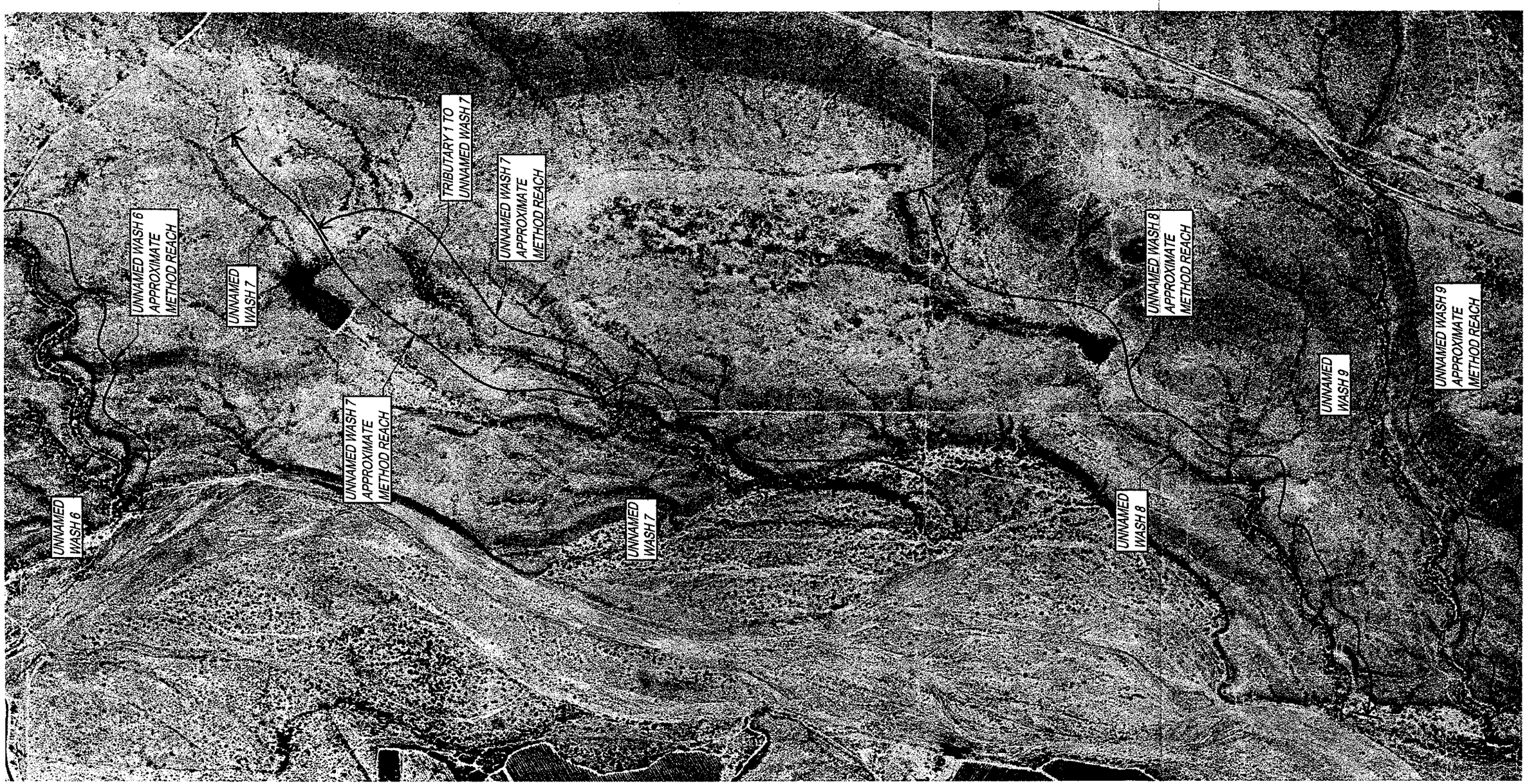
1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

Figure No.
FIGURE 4.1

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

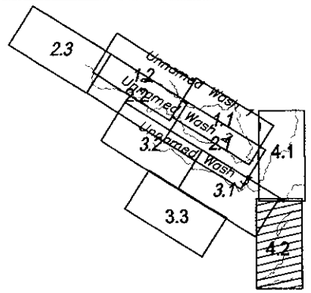
Date: April 20, 2001
Project Number: 82000146



P:\82000146\Dwg\mannings\manph146.dwg
April 20, 2001

Stantec

Sheet Index



Legend

- WPT38 — PHOTOGRAPH LOCATION
- PZA1 — PHOTOGRAPH LOCATION (ZONE A FLOODPLAIN)
- UNNAMED WASH 7 APPROXIMATE METHOD REACH — n–VALUE REACH LOCATION

1" = 1000'

Client/Project
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
N. PEORIA ADMP, FCD 99–45

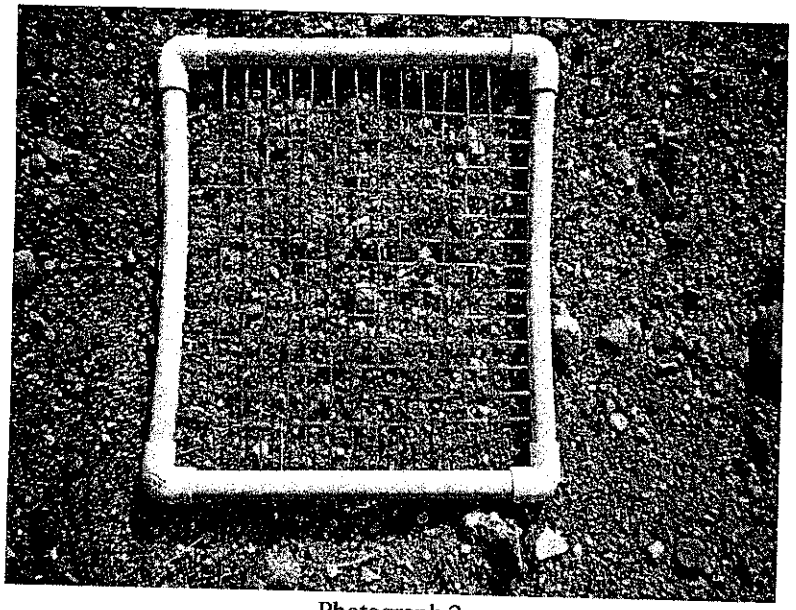
Figure No.
FIGURE 4.2

Title
MANNING'S N-VALUE PHOTO LOCATION MAP FOR DETAIL AND ZONE A FLOODPLAIN DELINEATIONS

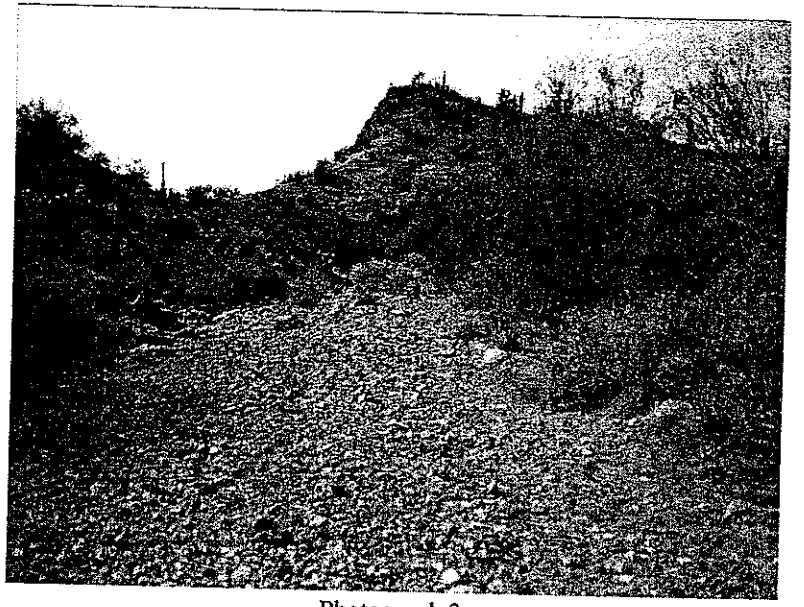
Date: April 20, 2001
Project Number: 82000146

Selected Field Photographs-Unnamed Wash 1

Unnamed Wash 1 Photographs

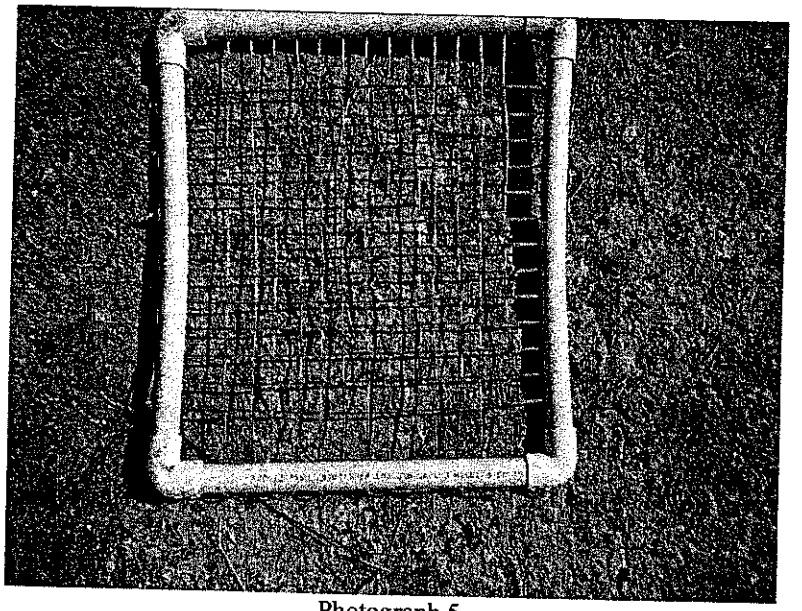


Photograph 2
Main Channel, Bed Material



Photograph 3
Main Channel, Looking Upstream

Photograph 4
Main Channel, Looking Downstream



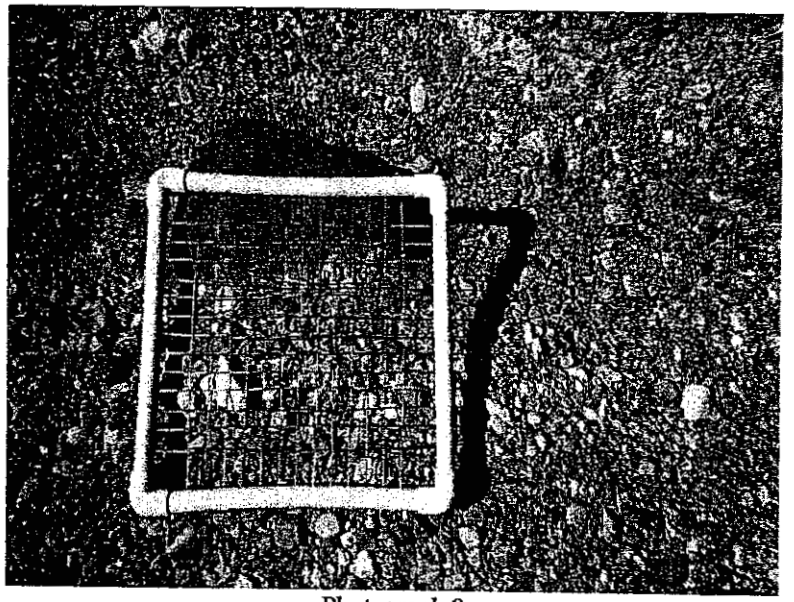
Photograph 5
Right Over Bank, Bed Material

P:\82000146\Data Collection\Photos\Unnamed Wash 1\un1photo.cdr

Unnamed Wash 1 Photographs

Photograph 6
Right Over Bank, Looking Upstream

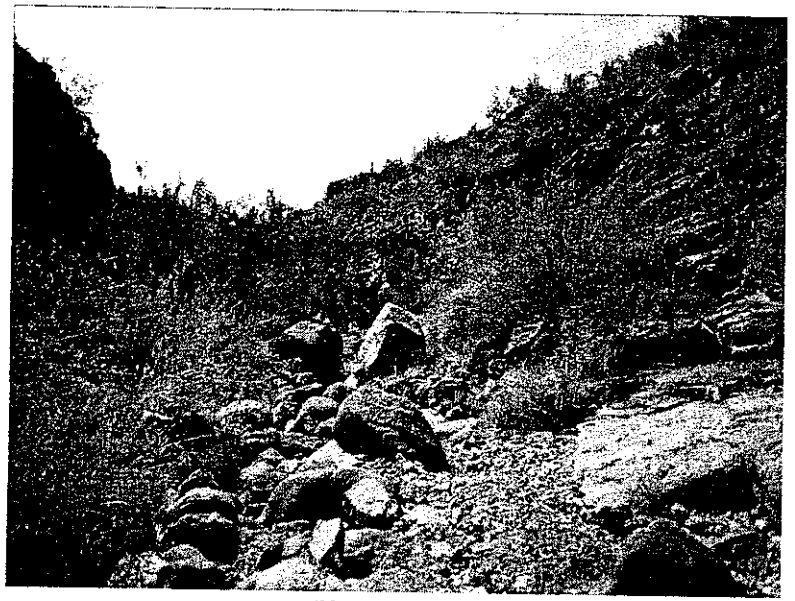
Photograph 7
Right Over Bank, Looking Downstream



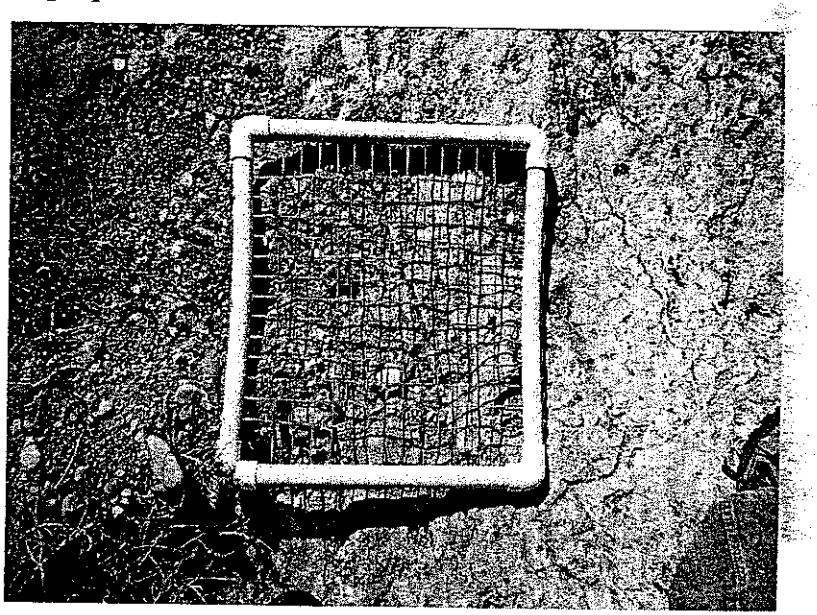
Photograph 8
Main Channel, Bed Material

Photograph 9
Main Channel, Looking Upstream

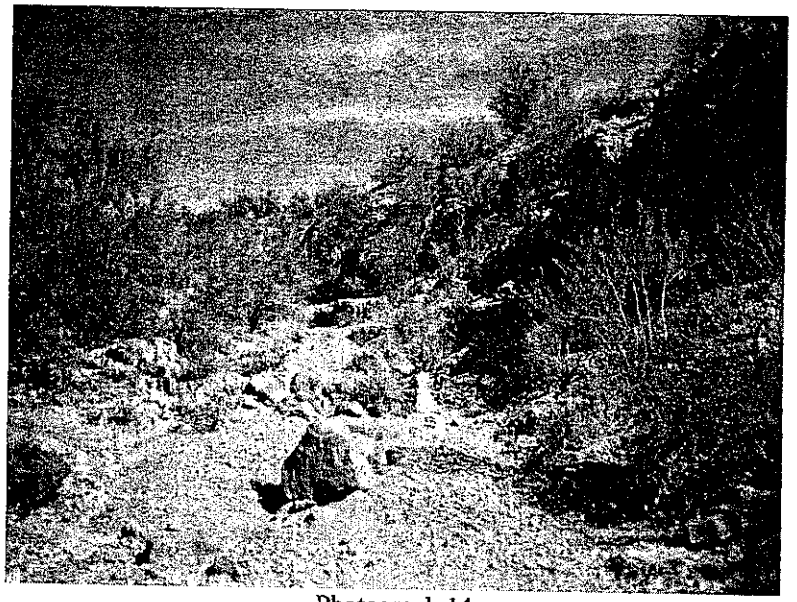
Unnamed Wash 1 Photographs



Photograph 10
Main Channel, Looking Downstream



Photograph 13
Main Channel, Bed Material

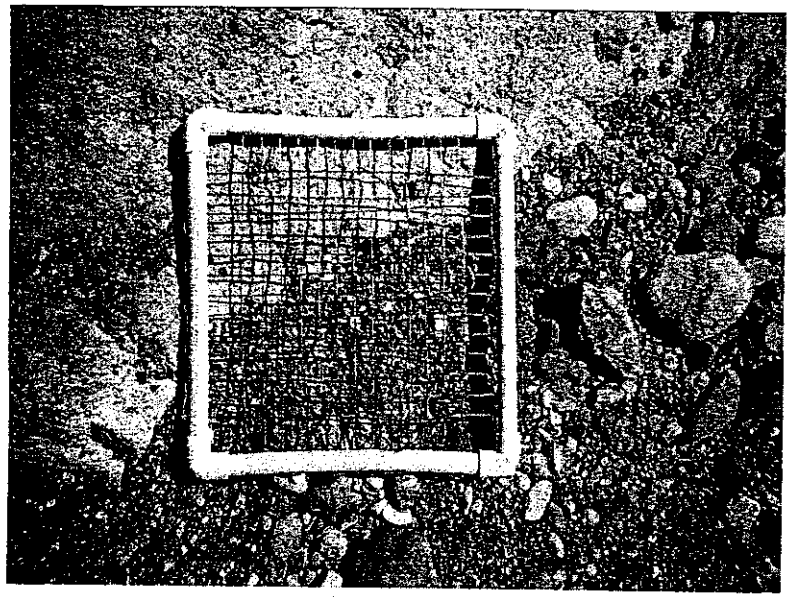


Photograph 14
Main Channel, Looking Upstream

Photograph 15
Main Channel, Looking Downstream

P:\82000146\Data Collection\Photos\Unnamed Wash 1\un1photo.cdr

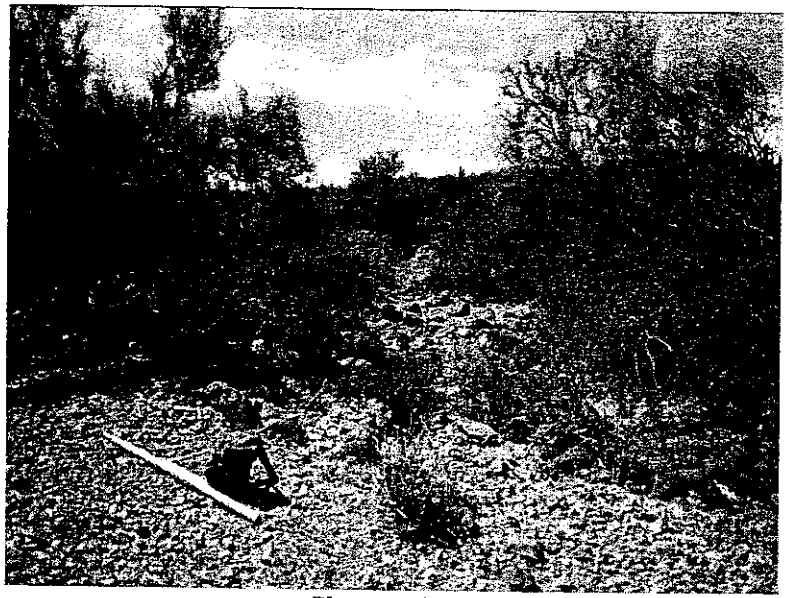
Unnamed Wash 1 Photographs



Photograph 16
Main Channel, Bed Material

Photograph 17
Main Channel, Looking Upstream

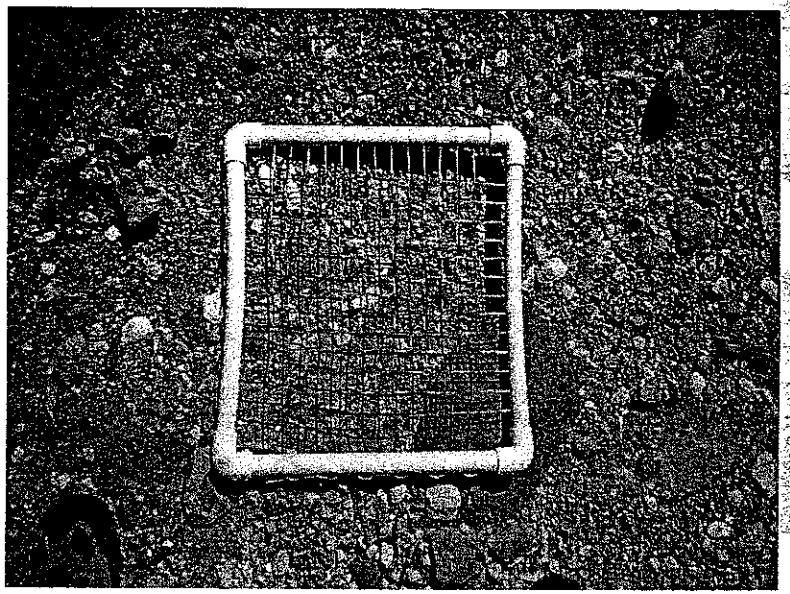
Photograph 18
Main Channel, Looking Downstream



Photograph 19
Main Channel, Bed Material

Unnamed Wash 1 Photographs

Photograph 20
Main Channel, Looking Upstream



Photograph 21
Main Channel, Bed Material

Photograph 22
Main Channel, Looking Upstream

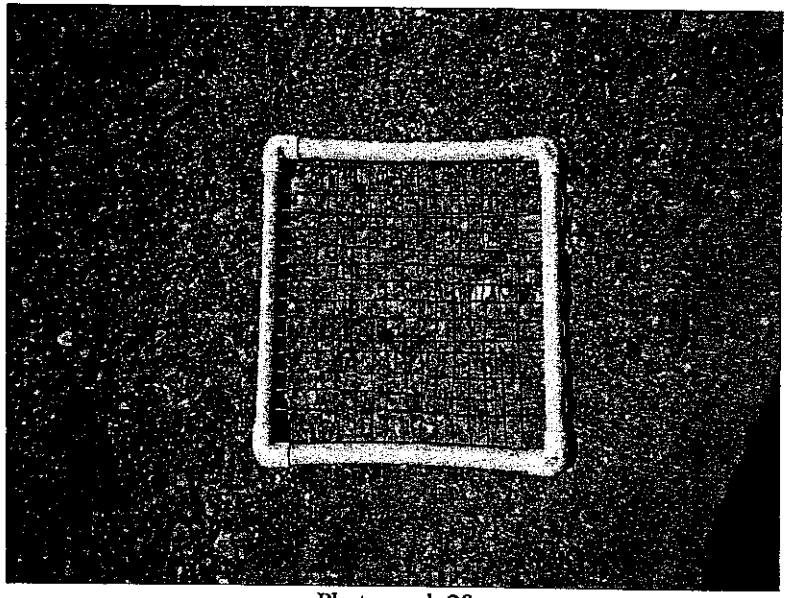
Photograph 23
Main Channel, Looking Downstream

P:\82000146\Data Collection\Photos\Unnamed Wash 1\un1photo.cdr

Unnamed Wash 1 Photographs

Photograph 23
Main Channel, Looking Downstream

Photograph 27
Main Channel, Looking Upstream

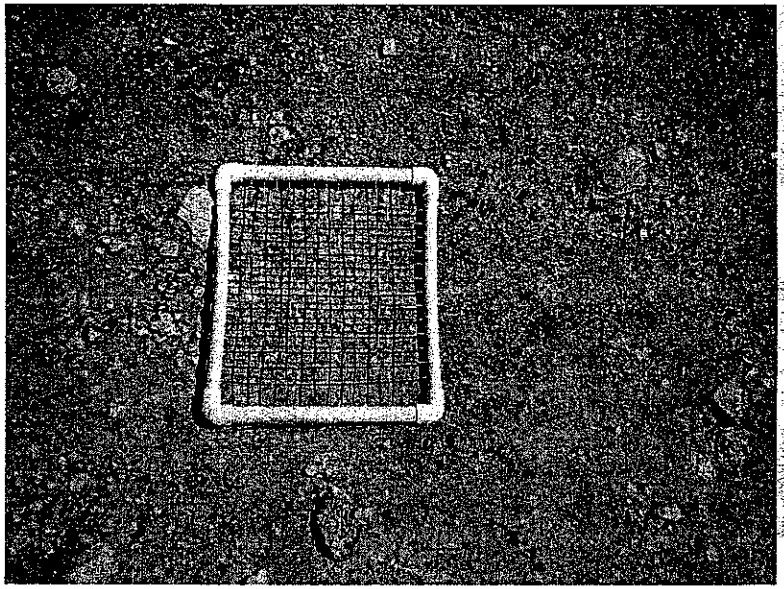


Photograph 28
Main Channel, Bed Material

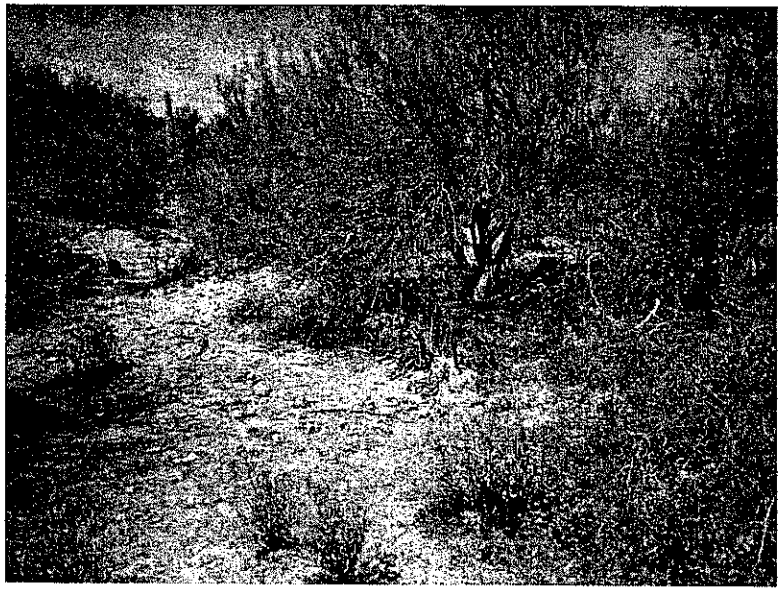
Photograph 29
Main Channel, Looking Upstream

Unnamed Wash 1 Photographs

Photograph 30
Main Channel, Looking Downstream



Photograph 31
Left Over Bank, Bed Material

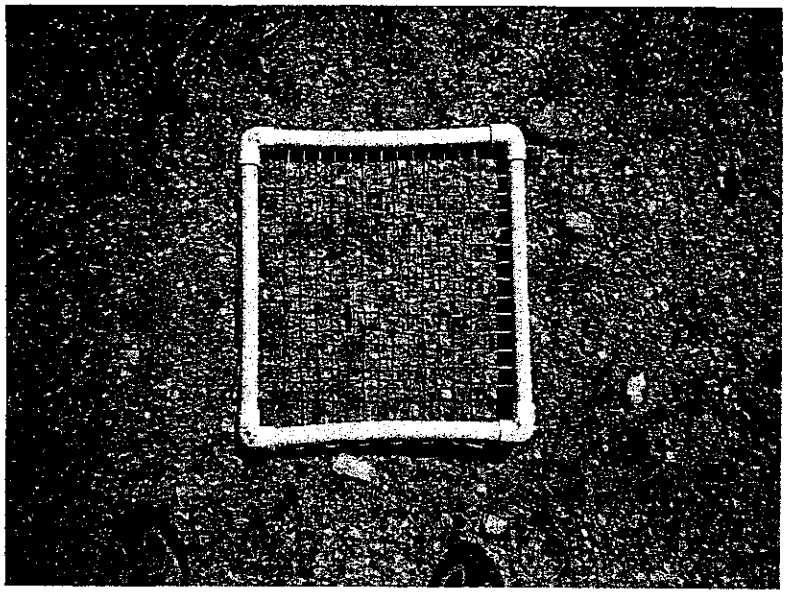


Photograph 32
Left Over Bank, Looking Upstream

Photograph 33
Left Over Bank, Downstream Photo

P:\82000146\Data Collection\Photos\Unnamed Wash 1\un1photo.cdr

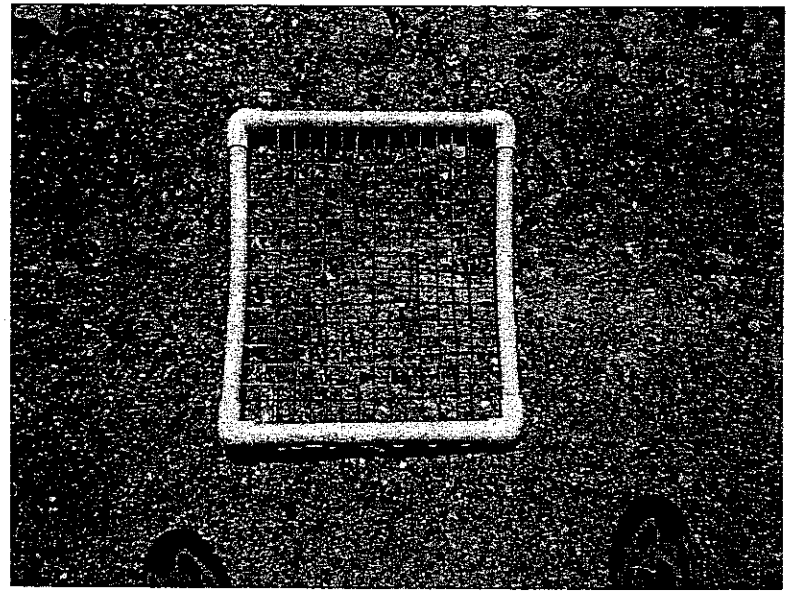
Unnamed Wash 1 Photographs



Photograph 34
Right Over Bank, Bed Material

Photograph 35
Right Over Bank, Looking Upstream

Photograph 36
Right Over Bank, Looking Downstream

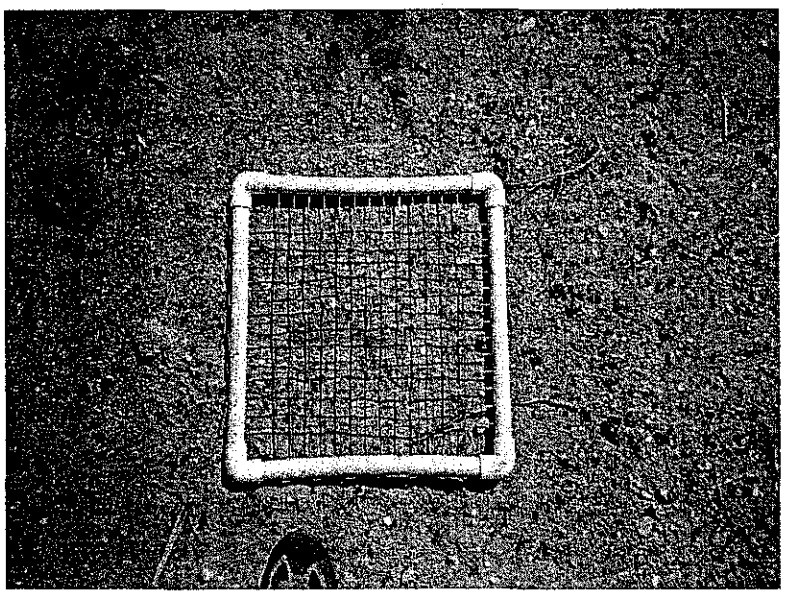


Photograph 37
Main Channel, Bed Material

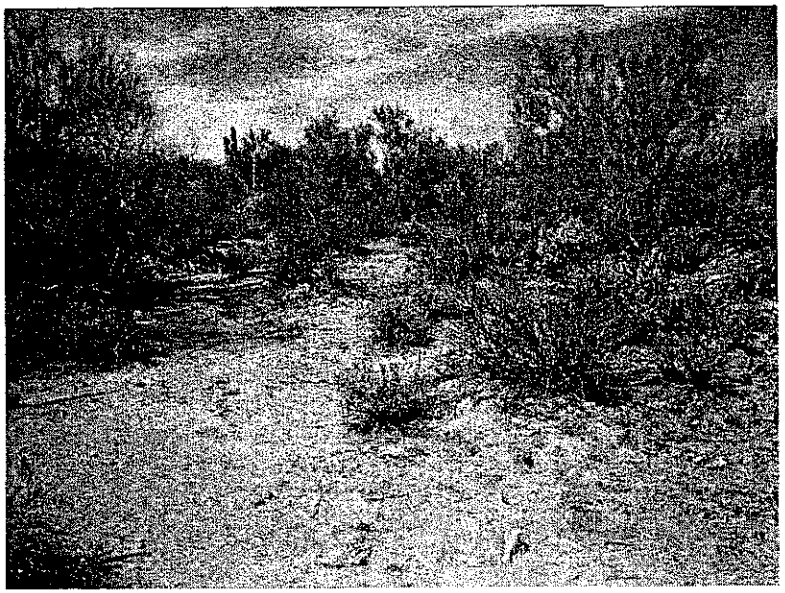
Unnamed Wash 1 Photographs

Photograph 38
Main Channel, Looking Upstream

Photograph 39
Main Channel, Looking Downstream



Photograph 40
Left Over Bank, Bed Material

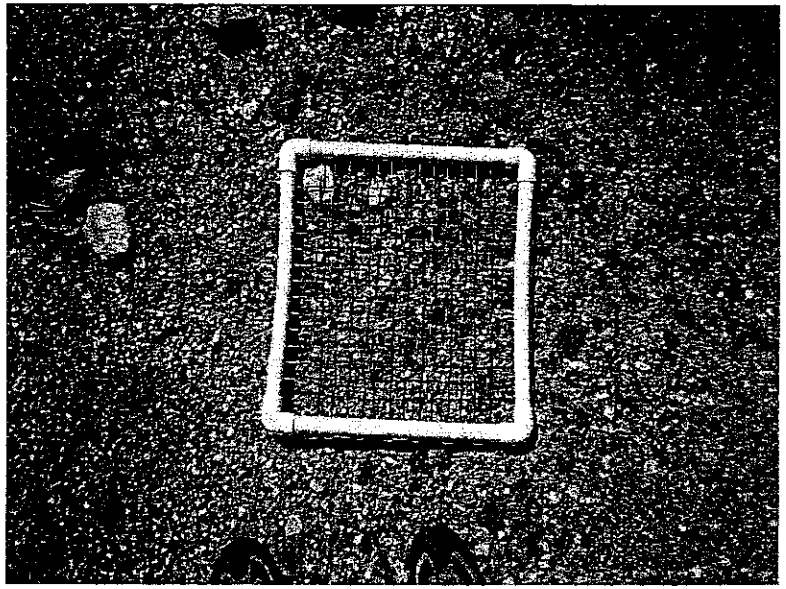


Photograph 41
Left Over Bank, Looking Upstream

P:\82000146\Data Collection\Photos\Unnamed Wash 1\un1photo.cdr

Unnamed Wash 1 Photographs

Photograph 42
Left Over Bank, Looking Downstream



Photograph 43
Right Over Bank, Bed Material

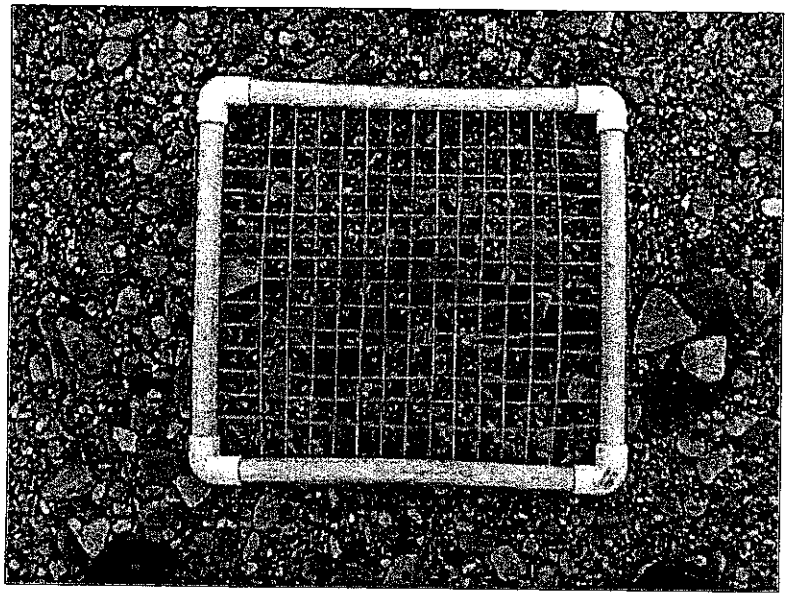
Photograph 44
Right Over Bank, Looking Upstream

Photograph 45
Right Over Bank, Looking Downstream

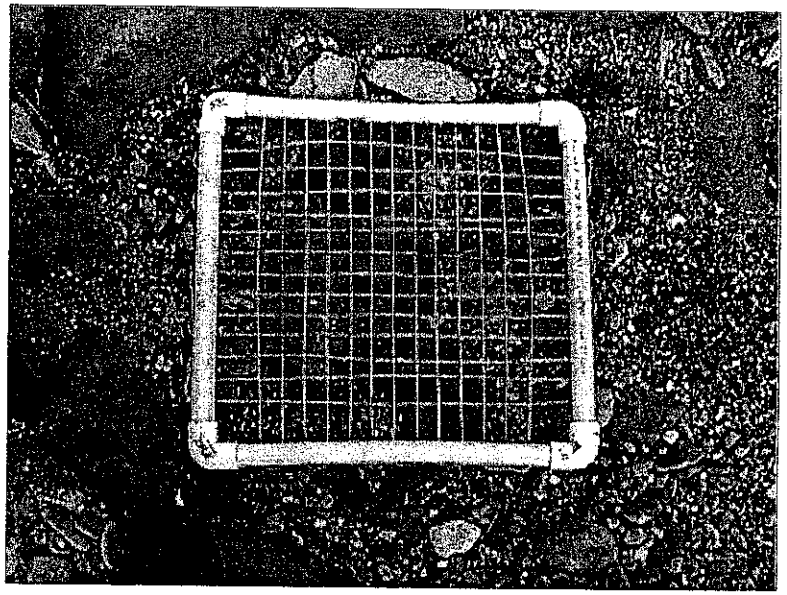
P:\820001461\Data Collection\Photos\Unnamed Wash 1\un1photo.cdr

Selected Field Photographs-Unnamed Wash 2

Unnamed Wash 2 Photographs



Photograph 1
Main Channel, Bed Material



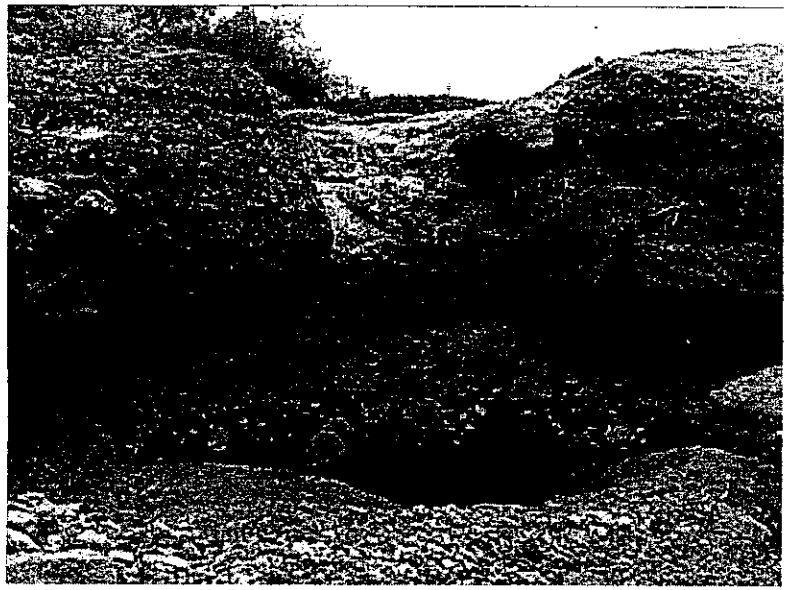
Photograph 4
Main Channel, Bed Material

Photograph 5
Main Channel, Looking Upstream

Photograph 6
Main Channel, Looking Downstream

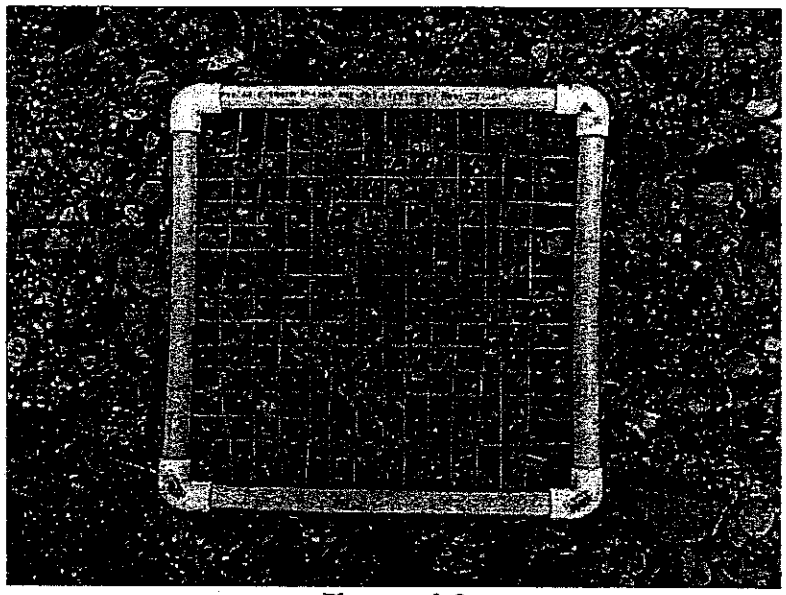
P:\82000146\Data Collection\Photos\Unnamed Wash 2\un2photo.cdr

Unnamed Wash 2 Photographs

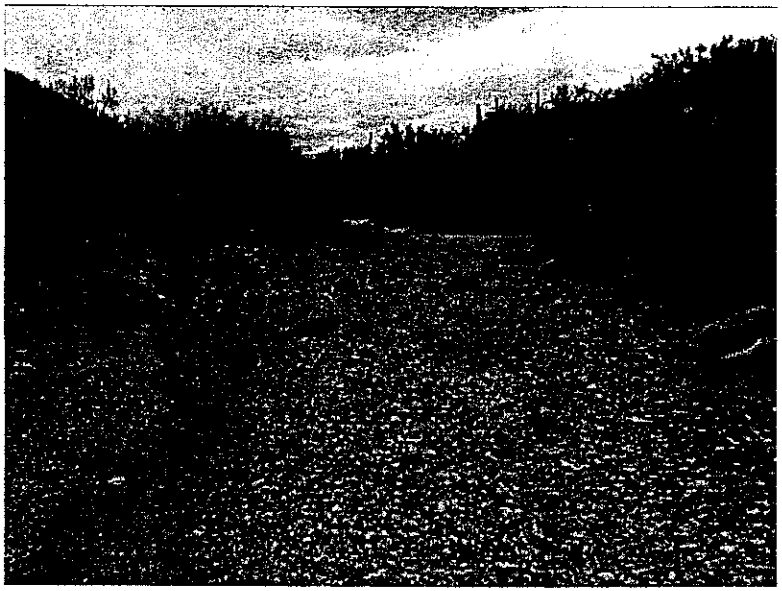


Photograph 7
Main Channel, Looking Upstream

Photograph 8
Main Channel, Bed Material



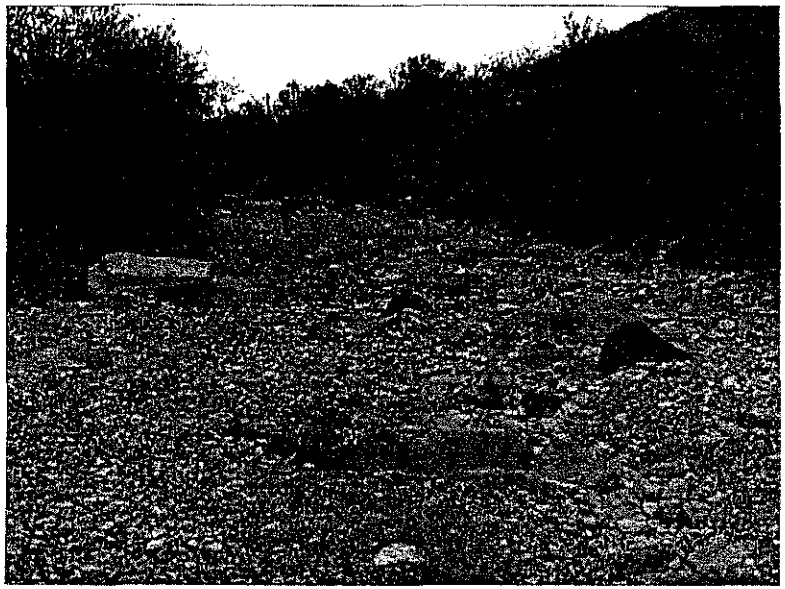
Photograph 9
Main Channel, Bed Material



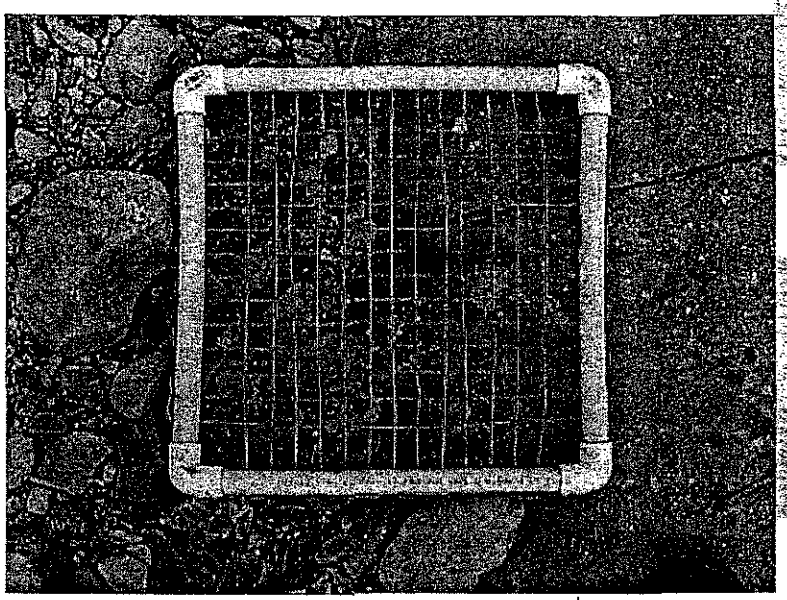
Photograph 10
Main Channel, Looking Upstream

P:\82000146\Data Collection\Photos\Unnamed Wash 2\un2photo.cdr

Unnamed Wash 2 Photographs

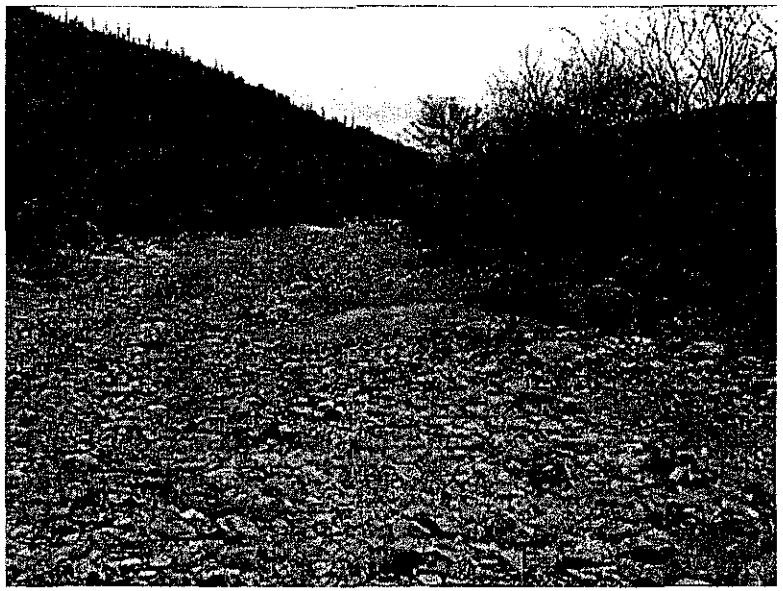


Photograph 11
Main Channel, Looking Downstream



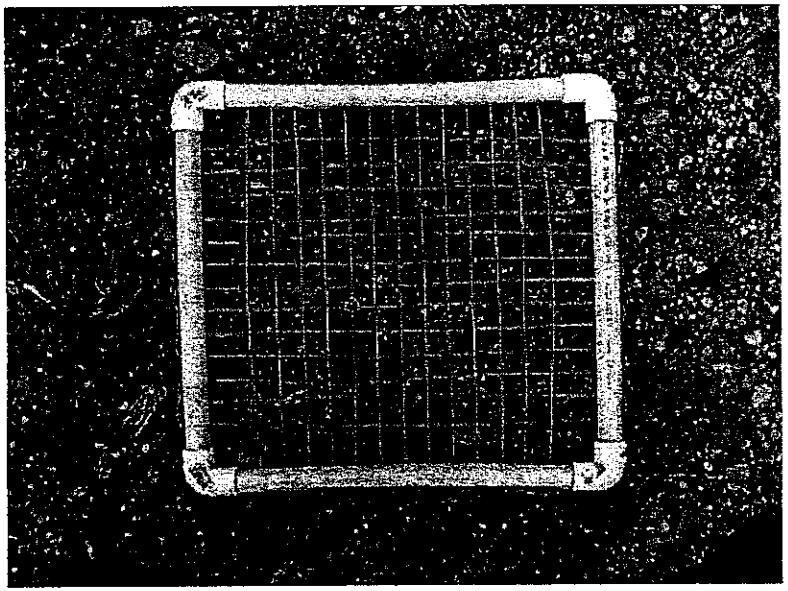
Photograph 12
Main Channel, Bed Material

Photograph 13
Main Channel, Looking Upstream

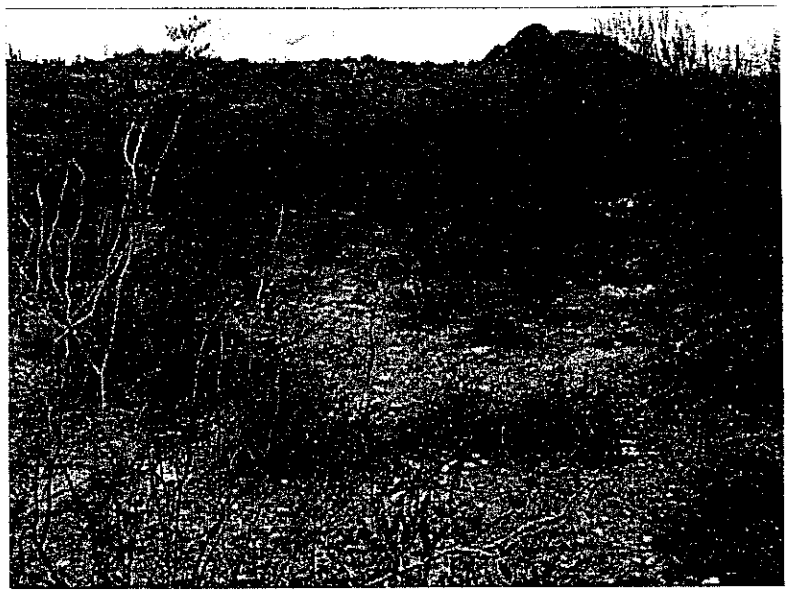


Photograph 14
Right Over Bank, Bed Material

Unnamed Wash 2 Photographs



Photograph 15
Right Over Bank, Bed Material



Photograph 16
Right Over Bank, Looking Upstream

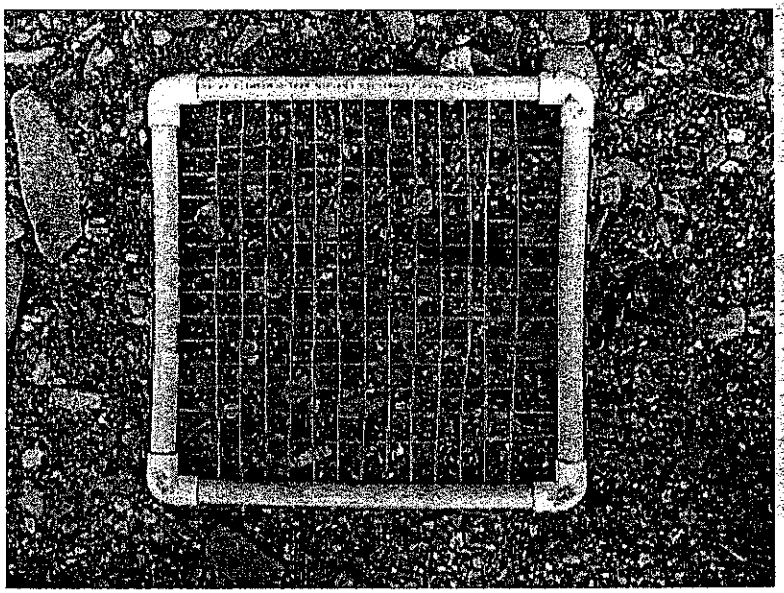
Photograph 17
Right Over Bank, Looking Downstream

Photograph 20
Main Channel, Looking Upstream

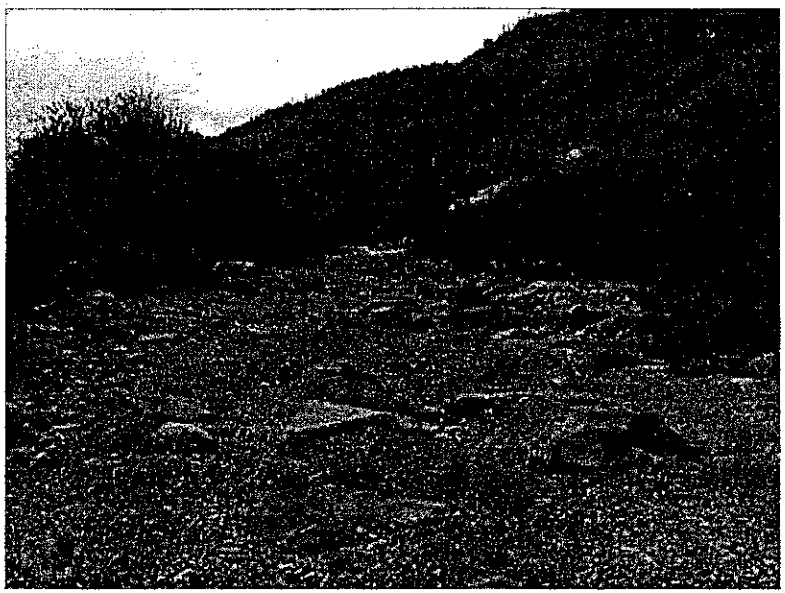
P:\82000146\Data Collection\Photos\Unnamed Wash 2\un2photo.cdr

Unnamed Wash 2 Photographs

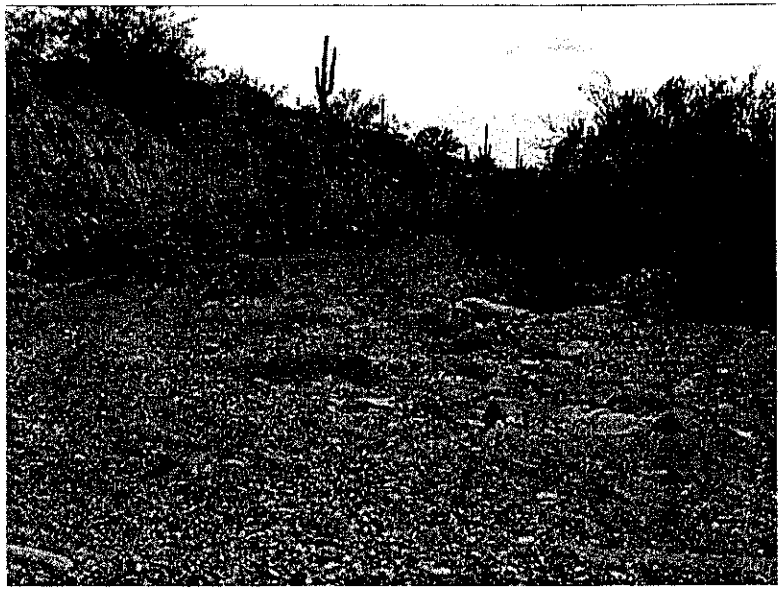
Photograph 21
Right Over Bank, Looking Upstream



Photograph 23
Main Channel, Bed Material

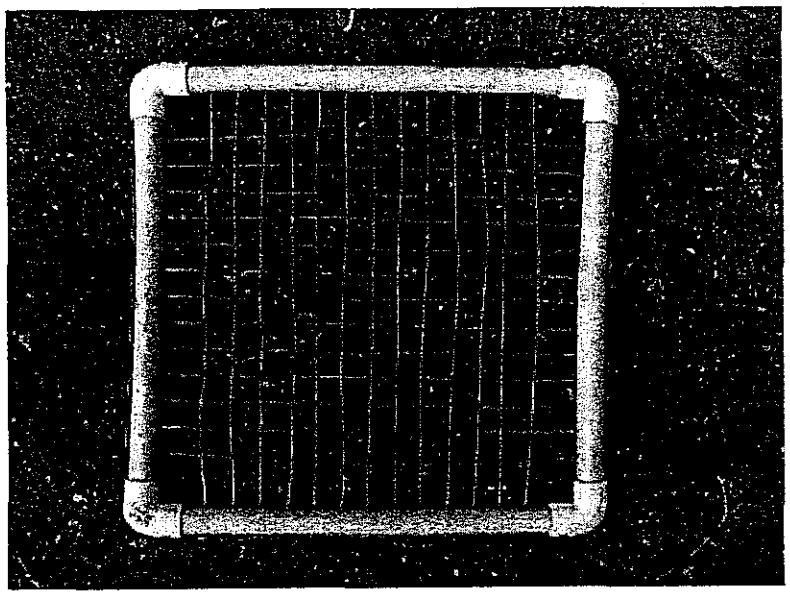


Photograph 24
Main Channel, Looking Upstream



Photograph 25
Main Channel, Looking Downstream

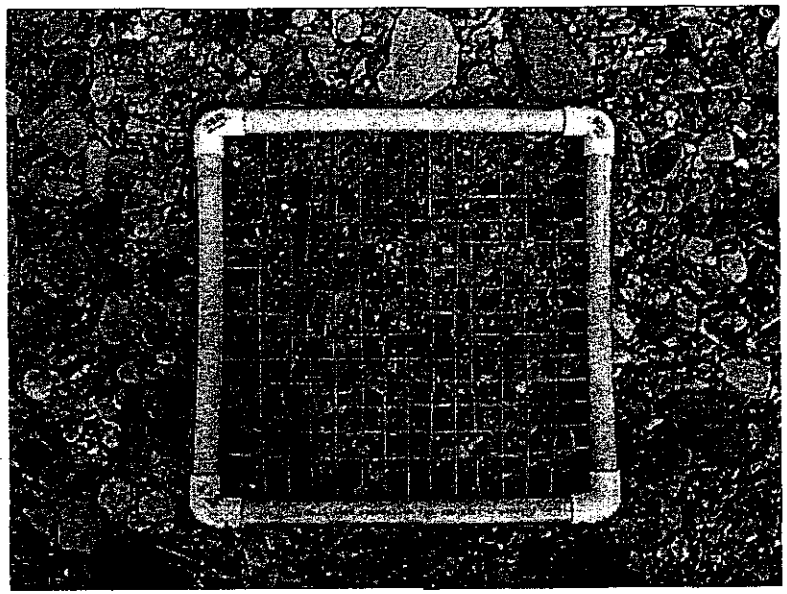
Unnamed Wash 2 Photographs



Photograph 26
Right Over Bank, Bed Material

Photograph 27
Right Over Bank, Looking Upstream

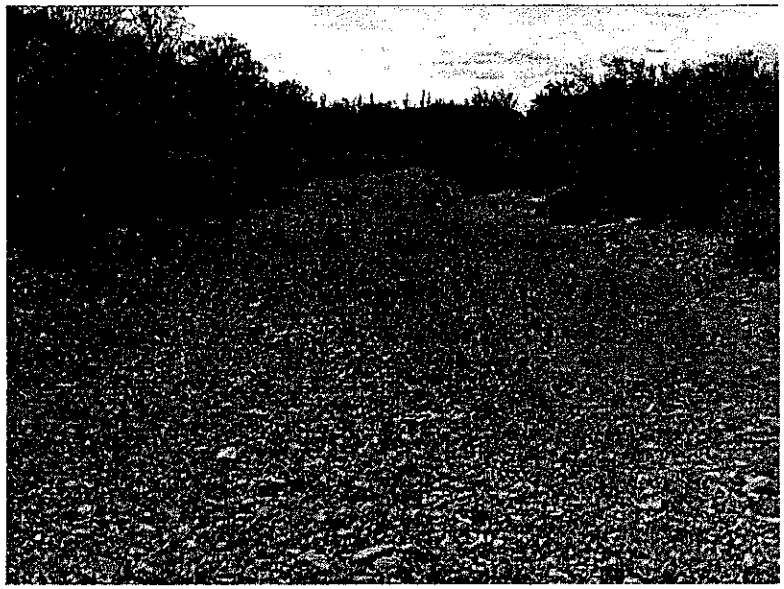
Photograph 28
Right Over Bank, Looking Downstream



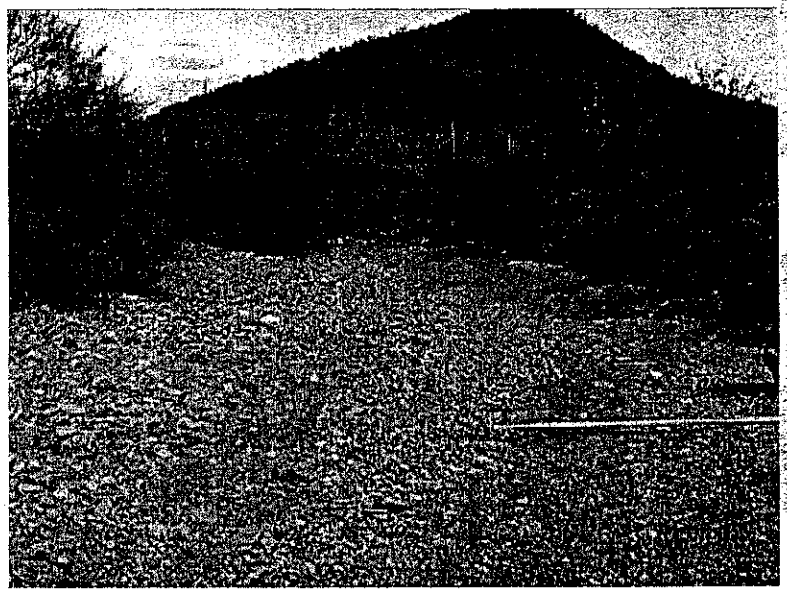
Photograph 29
Main Channel, Bed Material

P:\82000146\Data Collection\Photos\Unnamed Wash 2\un2photo.cdr

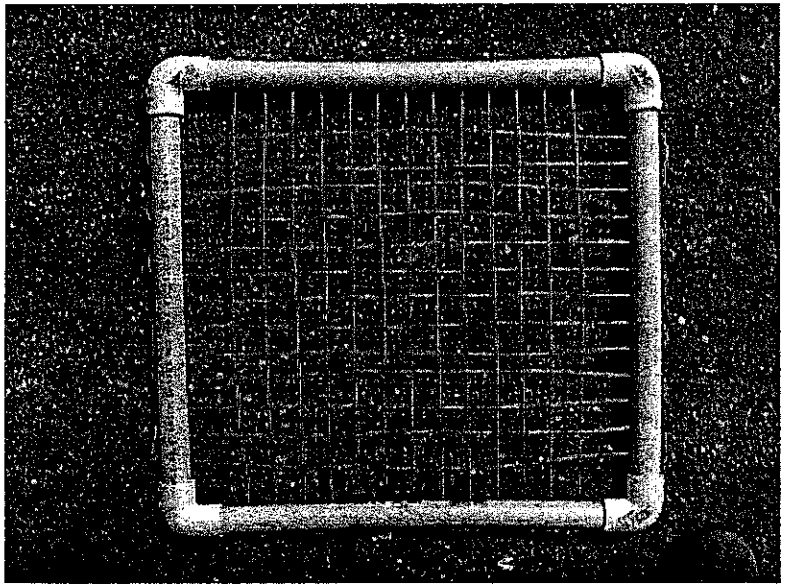
Unnamed Wash 2 Photographs



Photograph 30
Main Channel, Looking Upstream



Photograph 31
Main Channel, Looking Downstream



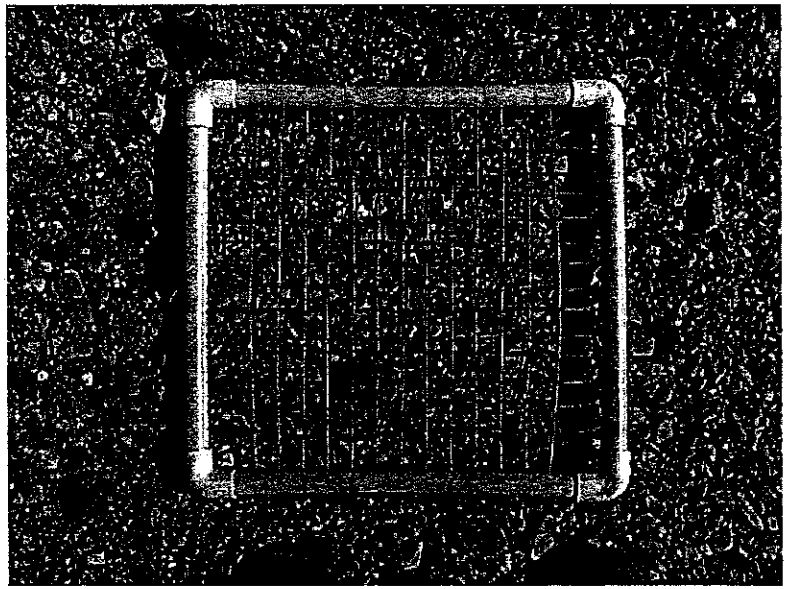
Photograph 32
Left Over Bank, Bed Material

Photograph 33
Left Over Bank, Looking Upstream

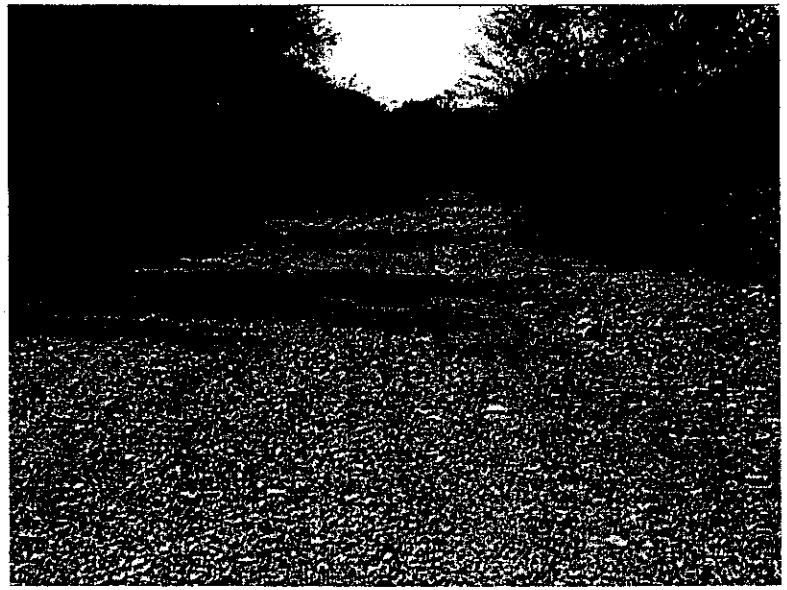
Unnamed Wash 2 Photographs

Photograph 34
Left Over Bank, Looking Downstream

Photograph 35
Main Channel, Looking Upstream



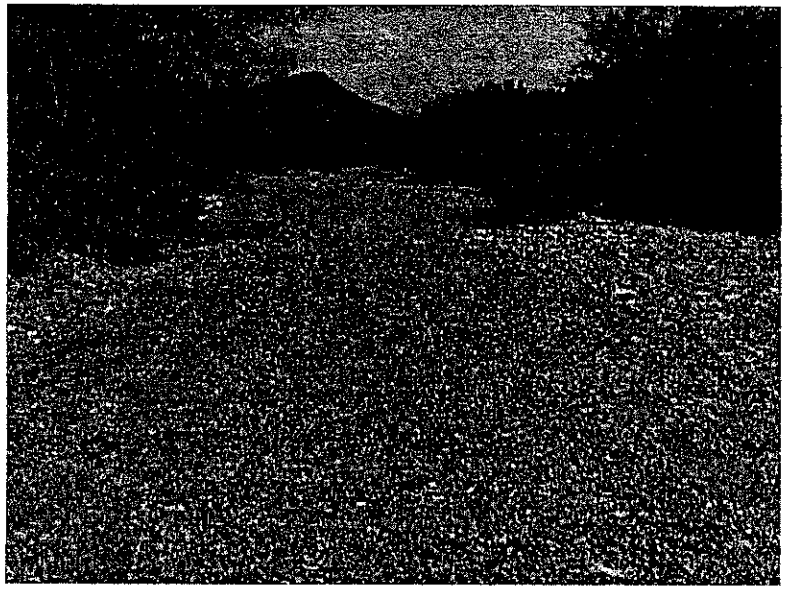
Photograph 36
Main Channel, Bed Material



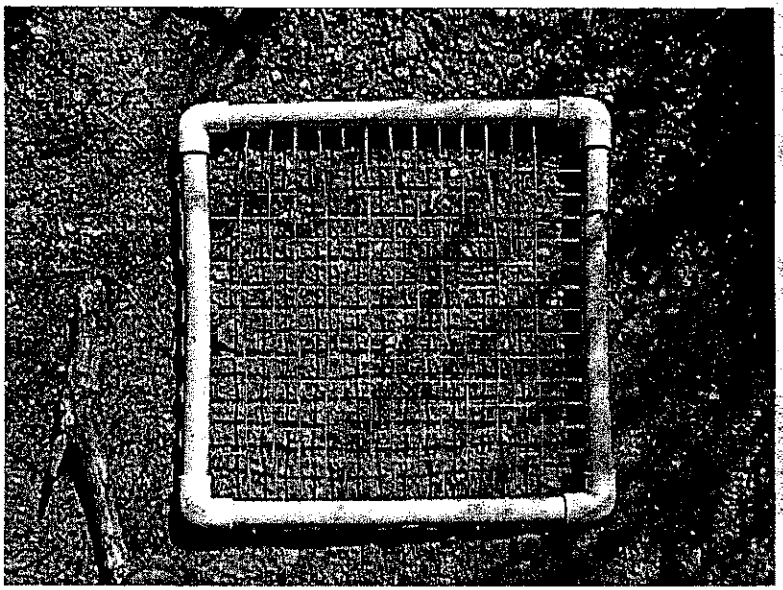
Photograph 37
Right Over Bank, Bed Material

P:\82000146\Data Collection\Photos\Unnamed Wash 2\un2photo.cdr

Unnamed Wash 2 Photographs



Photograph 38
Main Channel, Looking Downstream



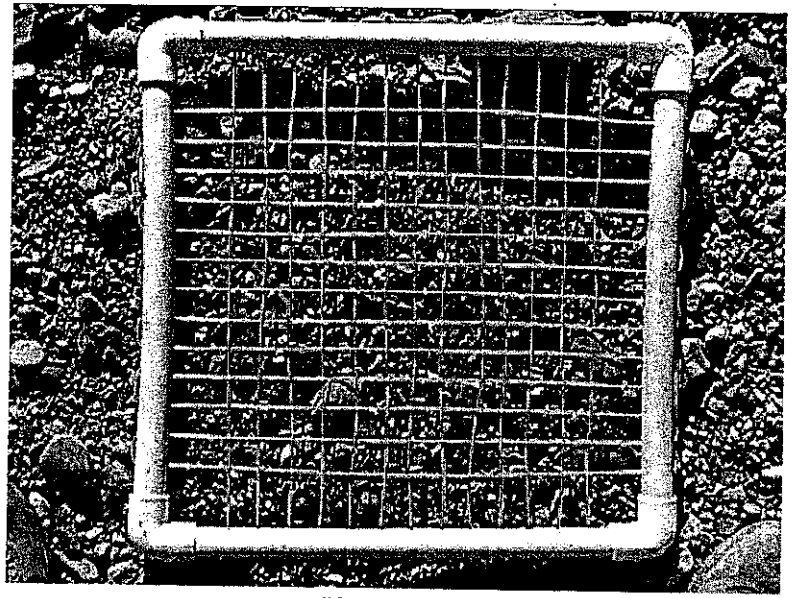
Photograph 39
Left Over Bank, Bed Material

Photograph 40
Left Over Bank, Looking Upstream

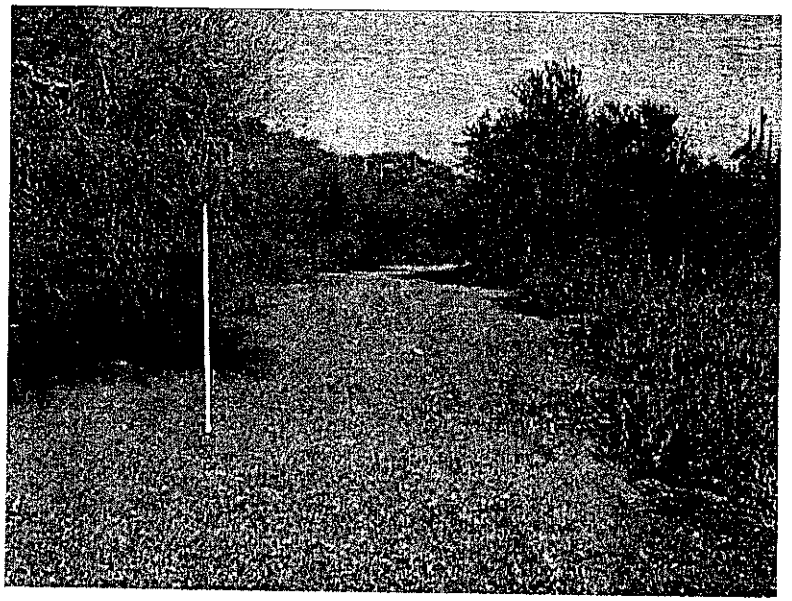
Photograph 41
Left Over Bank, Looking Downstream

Selected Field Photographs-Unnamed Wash 3

Unnamed Wash 3 Photographs

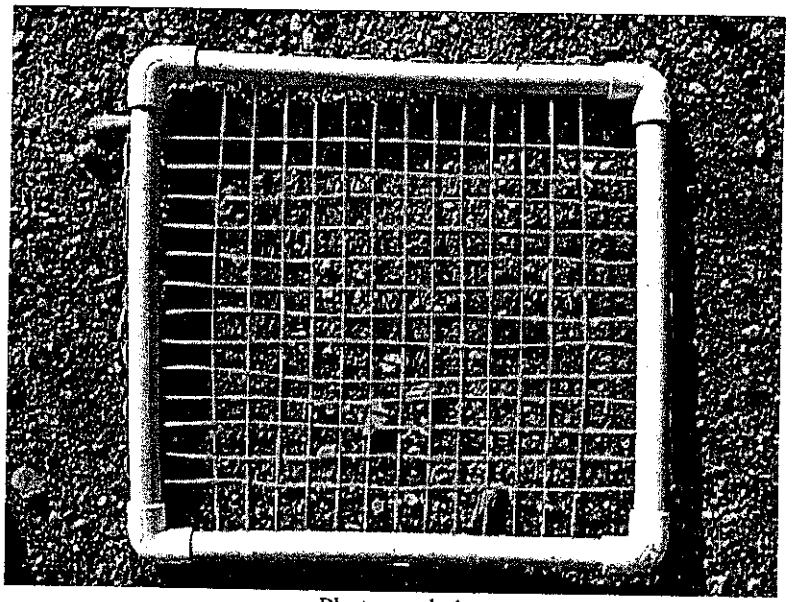


Photograph 1
Main Channel, Bed Material



Photograph 2
Main Channel, Looking Upstream

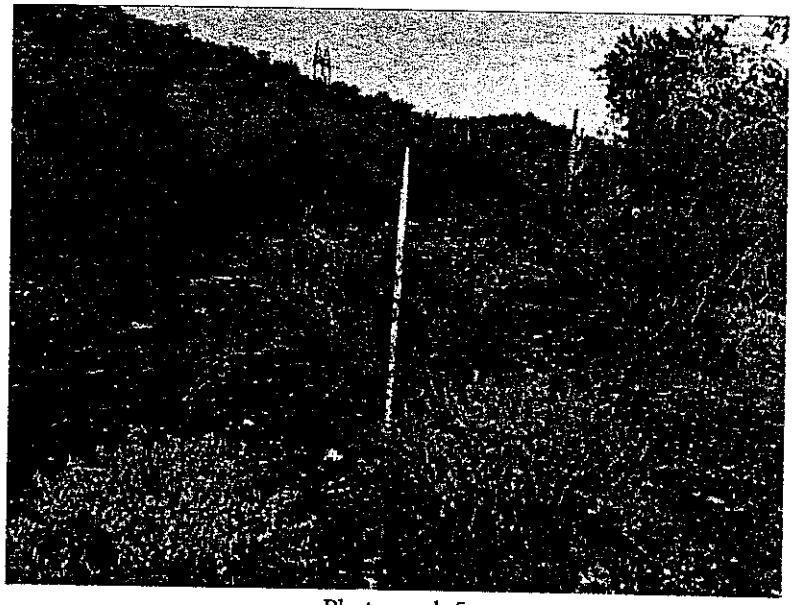
Photograph 3
Main Channel, Looking Downstream



Photograph 4
Left Over Bank, Bed Material

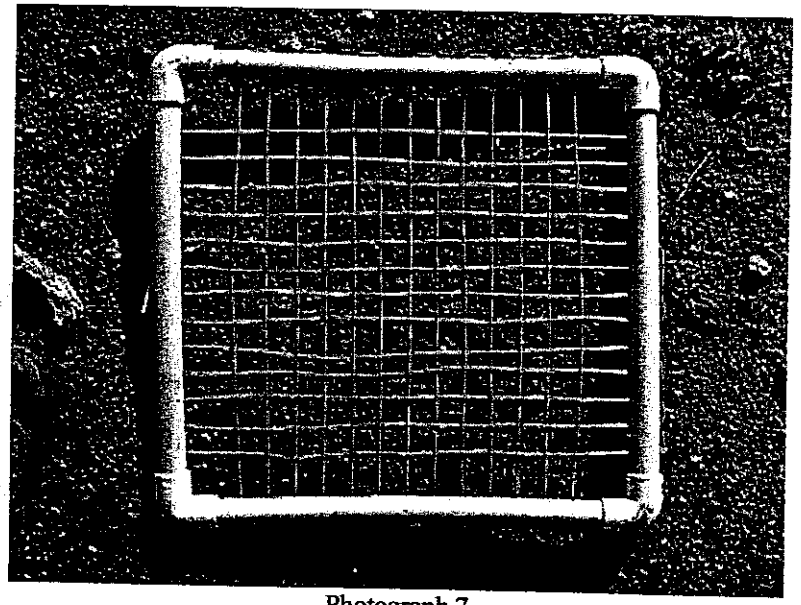
P:\82000146\Data Collection\Photos\Unnamed Wash 3\unphoto3.cdr

Unnamed Wash 3 Photographs

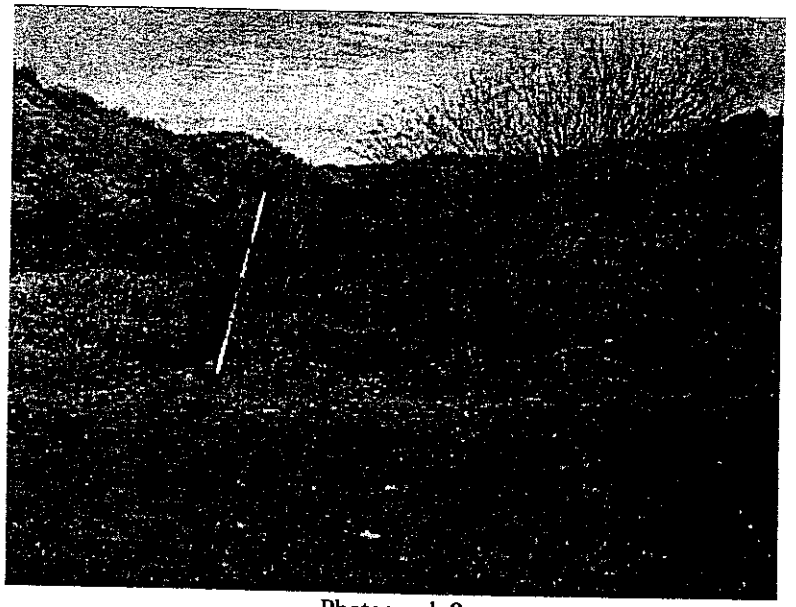


Photograph 5
Left Over Bank, Looking Upstream

Photograph 6
Left Over Bank, Looking Downstream



Photograph 7
Right Over Bank, Bed Material

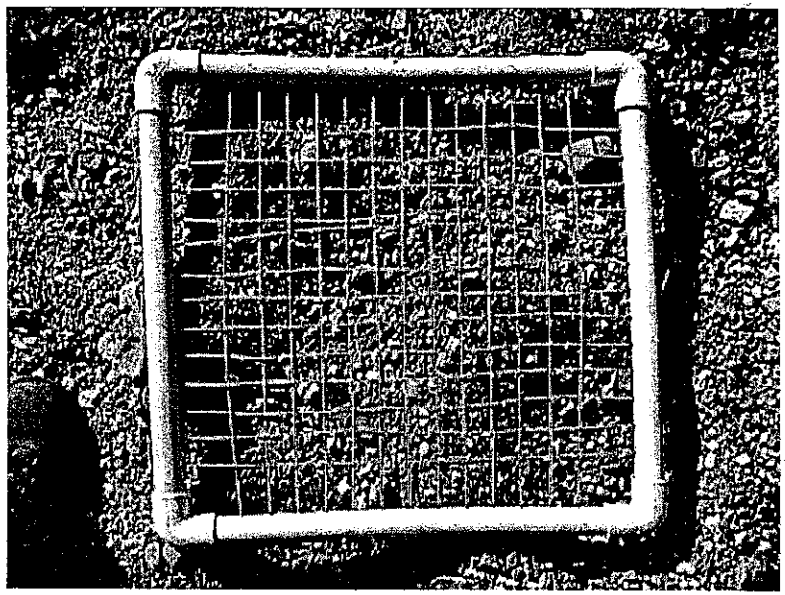


Photograph 8
Right Over Bank, Looking Upstream

P:\82000146\Data Collection\Photos\Unnamed Wash 3\unphoto3.cdr

Unnamed Wash 3 Photographs

Photograph 9
Right Over Bank, Looking Downstream

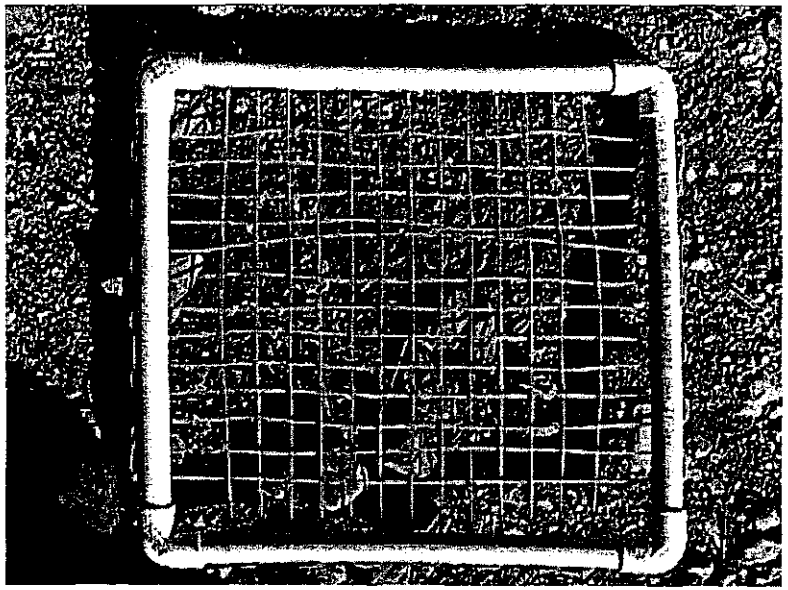


Photograph 11
Main Channel, Bed Material

Photograph 12
Main Channel, Looking Upstream

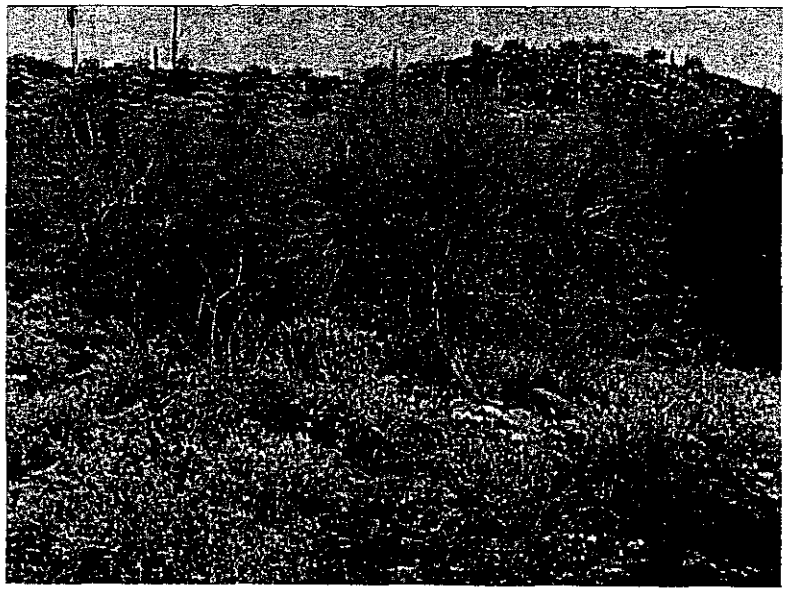
Photograph 13
Main Channel, Looking Downstream

Unnamed Wash 3 Photographs

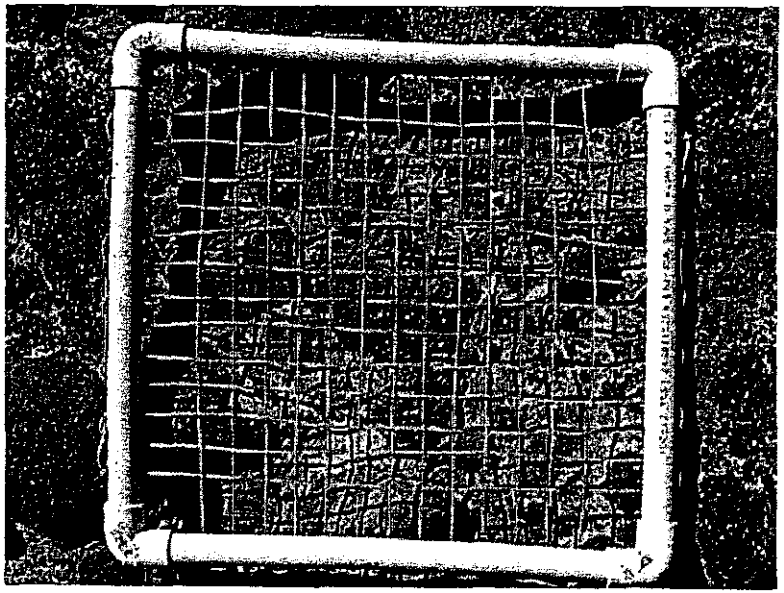


Photograph 14
Left Over Bank, Bed Material

Photograph 15
Left Over Bank, Looking Upstream



Photograph 16
Left Over Bank, Looking Downstream

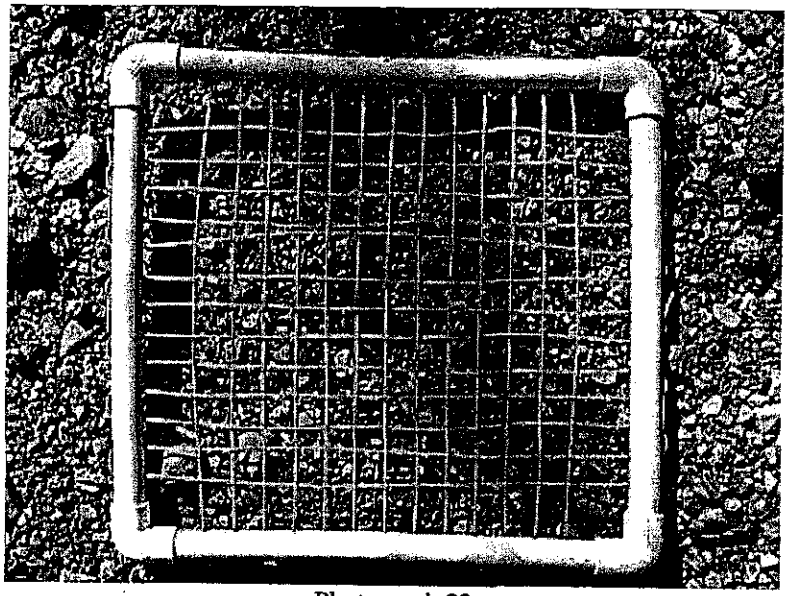


Photograph 19
Main Channel, Bed Material

Unnamed Wash 3 Photographs

Photograph 20
Main Channel, Looking Upstream

Photograph 21
Main Channel, Looking Downstream



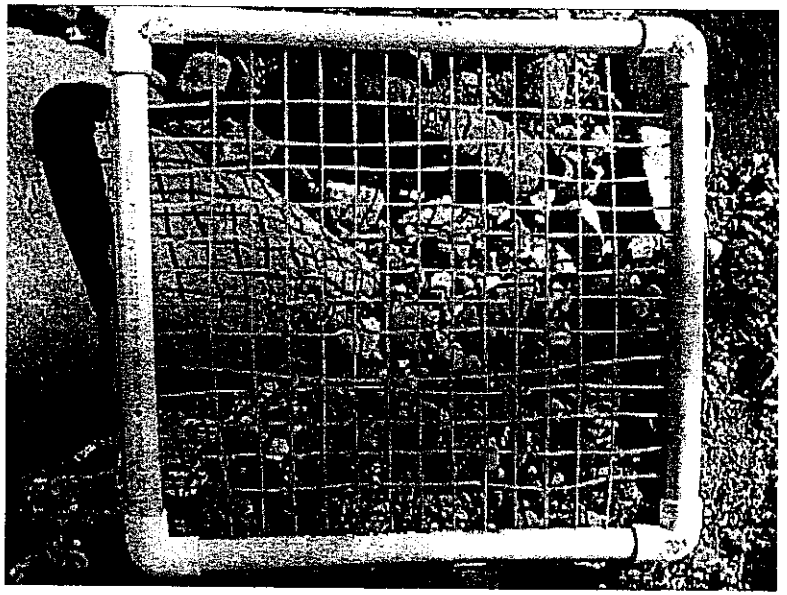
Photograph 22
Right Over Bank, Bed Material

Photograph 23
Right Over Bank, Looking Upstream

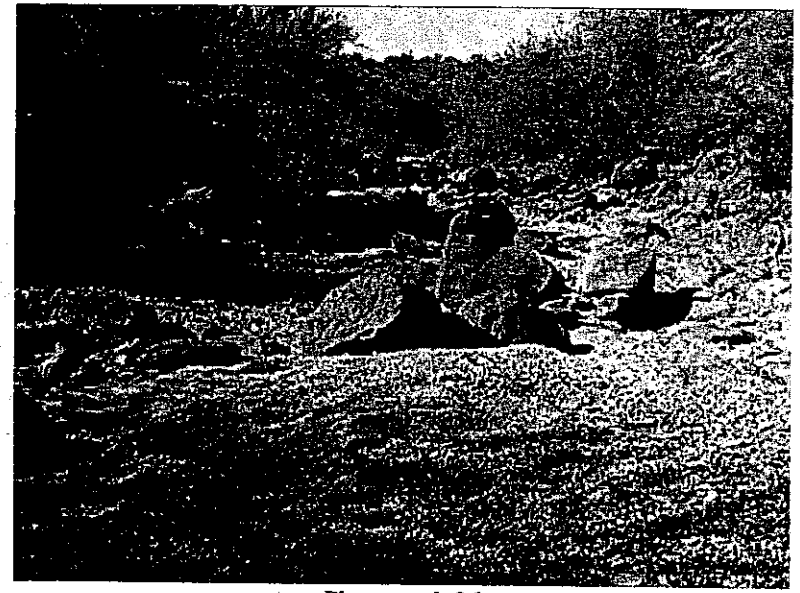
P:\82000146\Data Collection\Photos\Unnamed Wash 3\unphoto3.cdr

Unnamed Wash 3 Photographs

Photograph 24
Right Over Bank, Looking Downstream



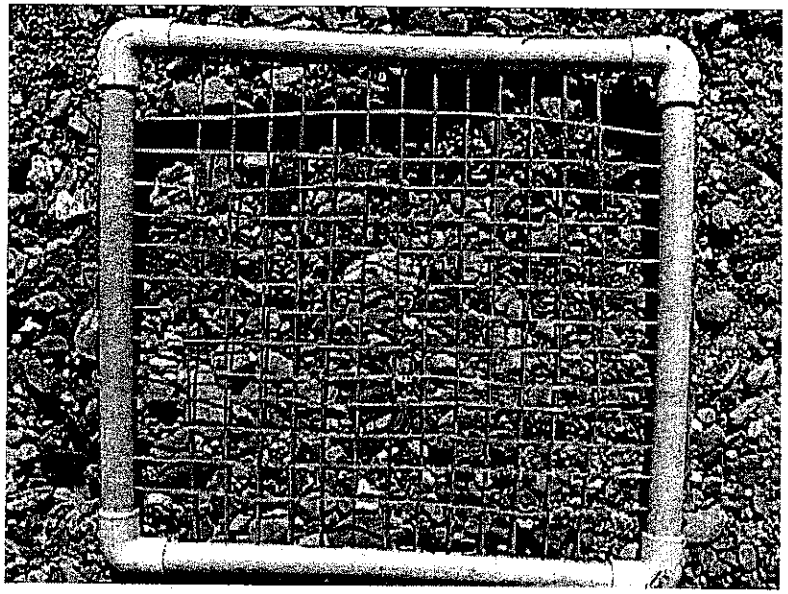
Photograph 25
Main Channel, Bed Material



Photograph 26
Main Channel, Looking Upstream

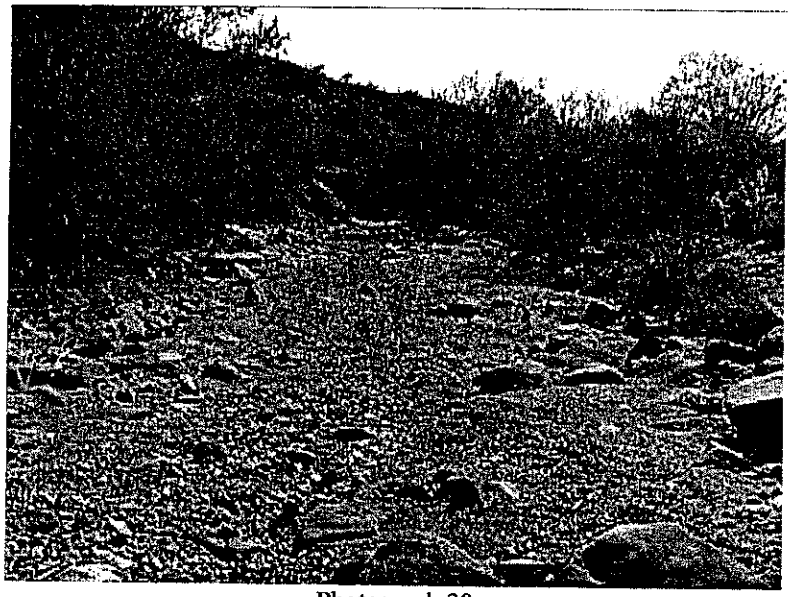
Photograph 27
Main Channel, Looking Downstream

Unnamed Wash 3 Photographs

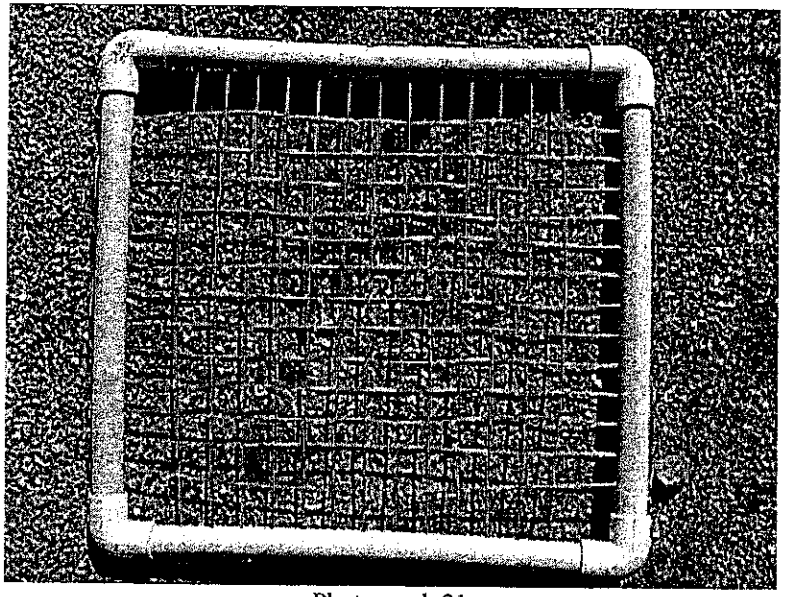


Photograph 28
Main Channel, Bed Material

Photograph 29
Main Channel, Looking Upstream

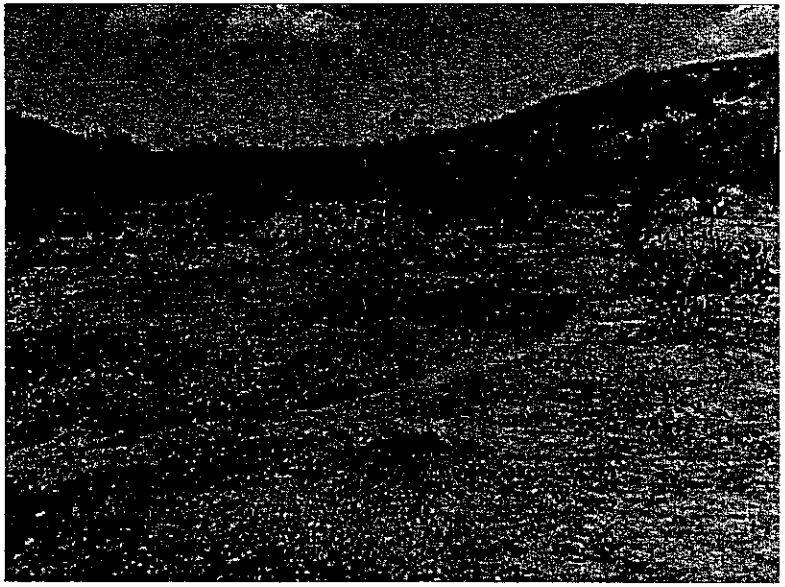


Photograph 30
Main Channel, Looking Downstream

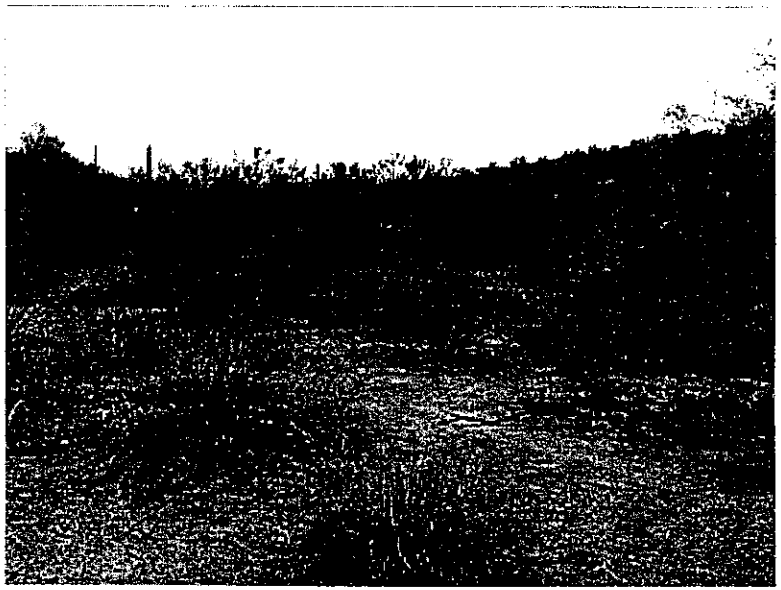


Photograph 31
Left Over Bank, Bed Material

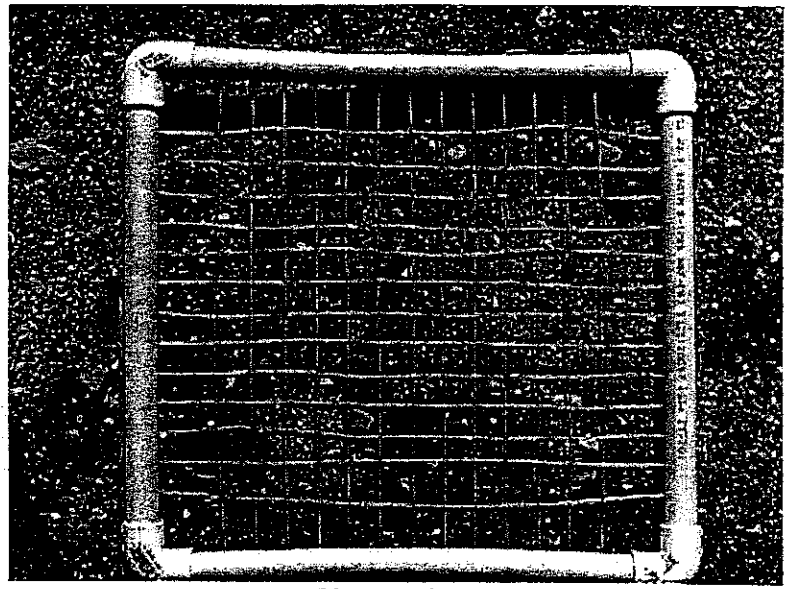
Unnamed Wash 3 Photographs



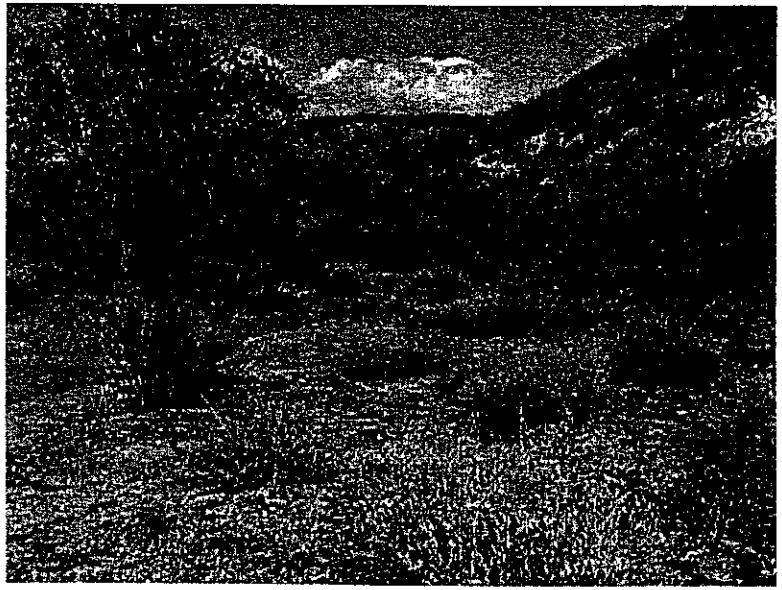
Photograph 32
Left Over Bank, Looking Upstream



Photograph 33
Left Over Bank, Looking Downstream



Photograph 34
Right Over Bank, Bed Material



Photograph 35
Right Over Bank, Looking Upstream

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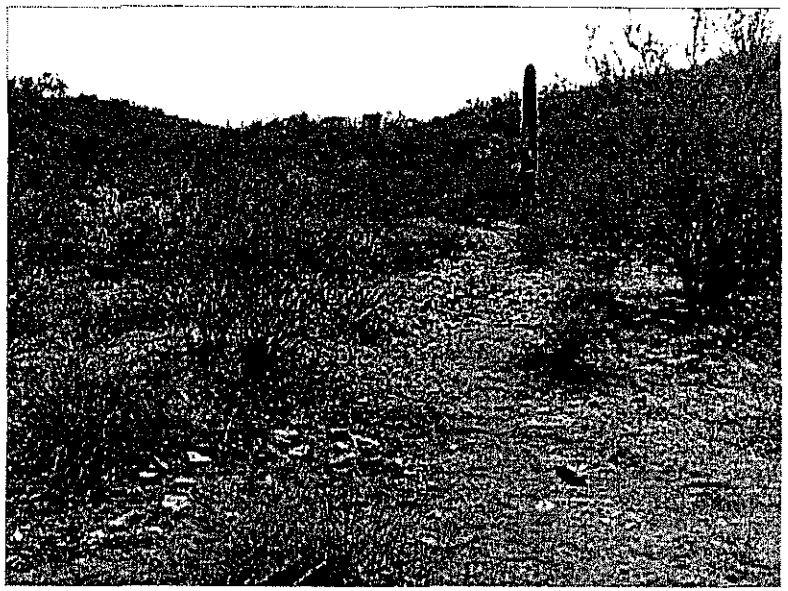
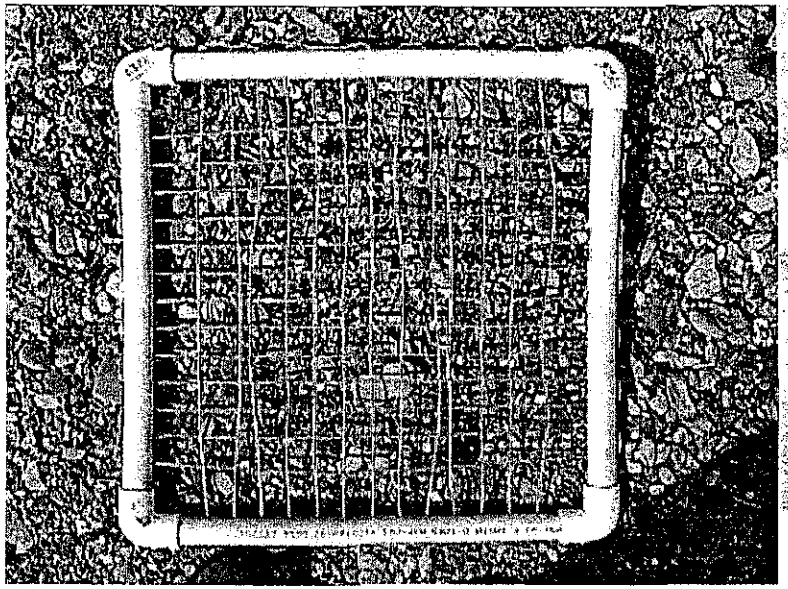
Unnamed Wash 3 Photographs



Photograph 36
Right Over Bank, Looking Downstream

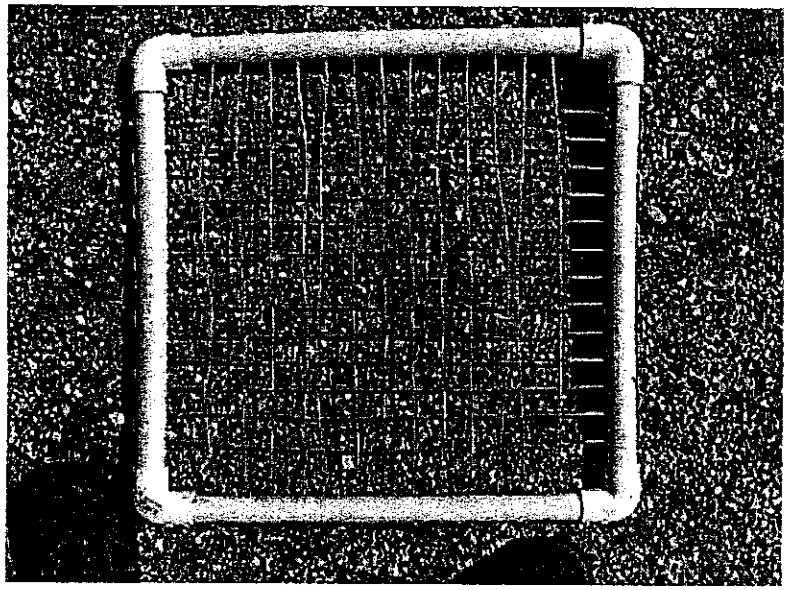


Photograph 37
Main Channel, Bed Material

Photograph 38
Main Channel, Looking Upstream

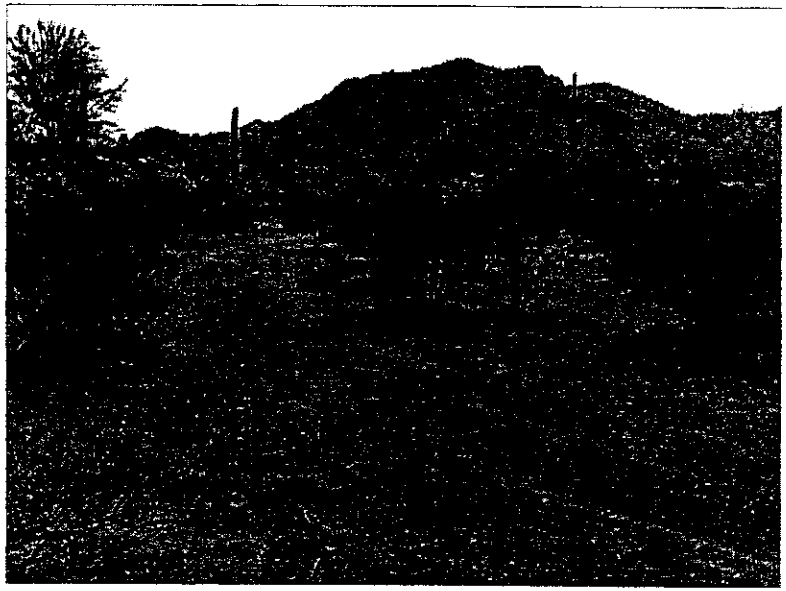
Photograph 39
Main Channel, Looking Downstream

Unnamed Wash 3 Photographs

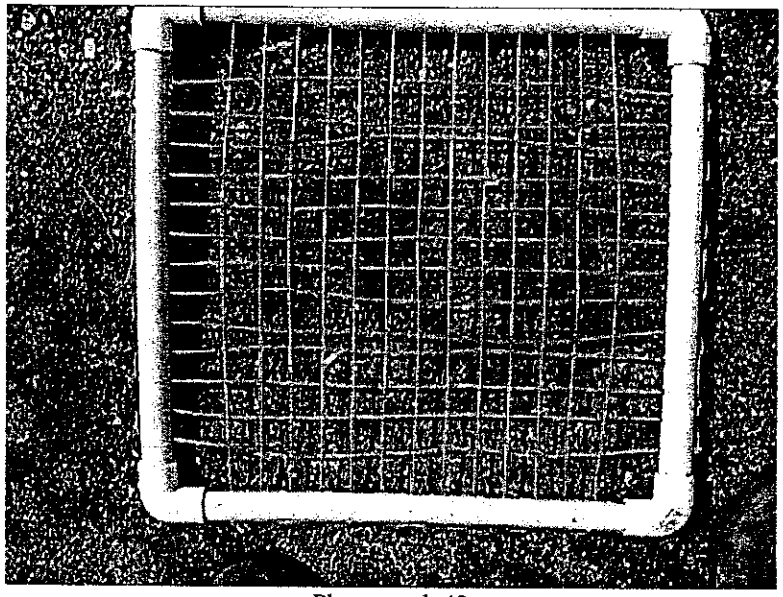


Photograph 40
Left Over Bank, Bed Material

Photograph 41
Left Over Bank, Looking Upstream

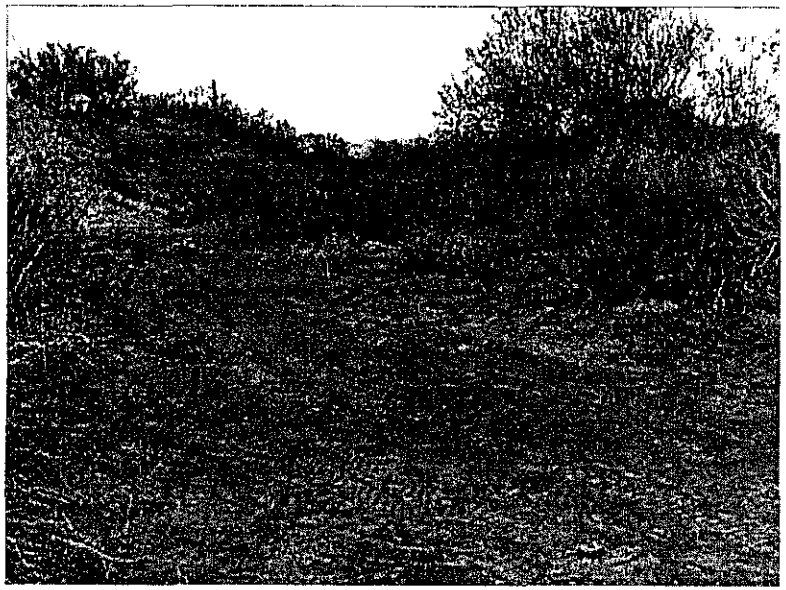


Photograph 42
Left Over Bank, Looking Downstream

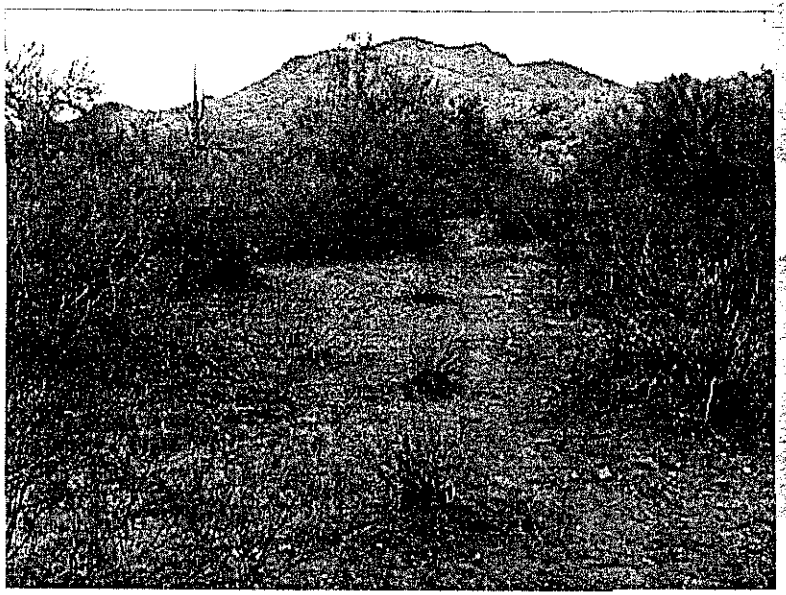


Photograph 43
Right Over Bank, Bed Material

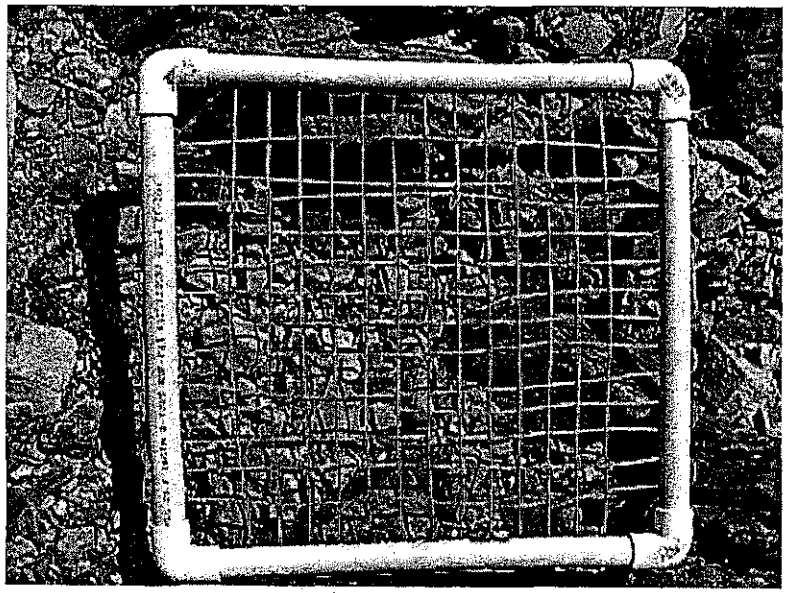
Unnamed Wash 3 Photographs



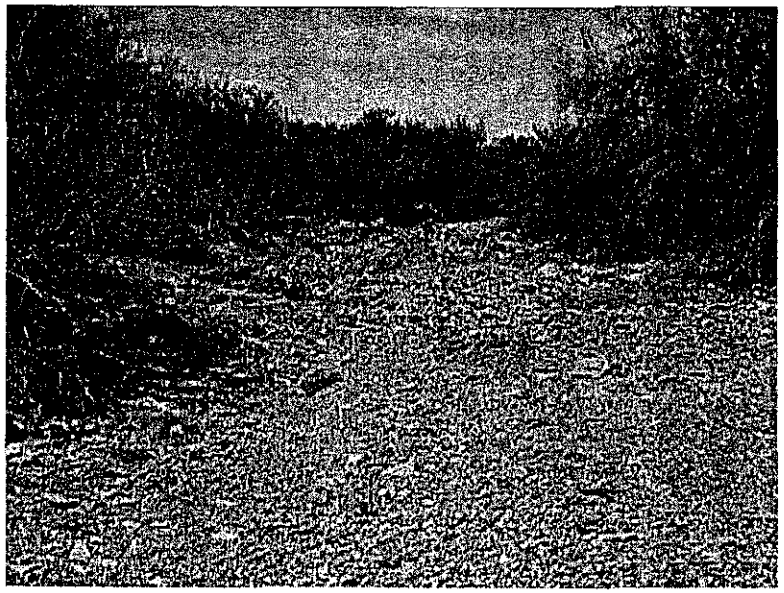
Photograph 44
Right Over Bank, Looking Upstream



Photograph 45
Right Over Bank, Looking Downstream



Photograph 46
Main Channel, Bed Material



Photograph 47
Main Channel, Looking Upstream

Unnamed Wash 3 Photographs

Photograph 48
Main Channel, Looking Downstream

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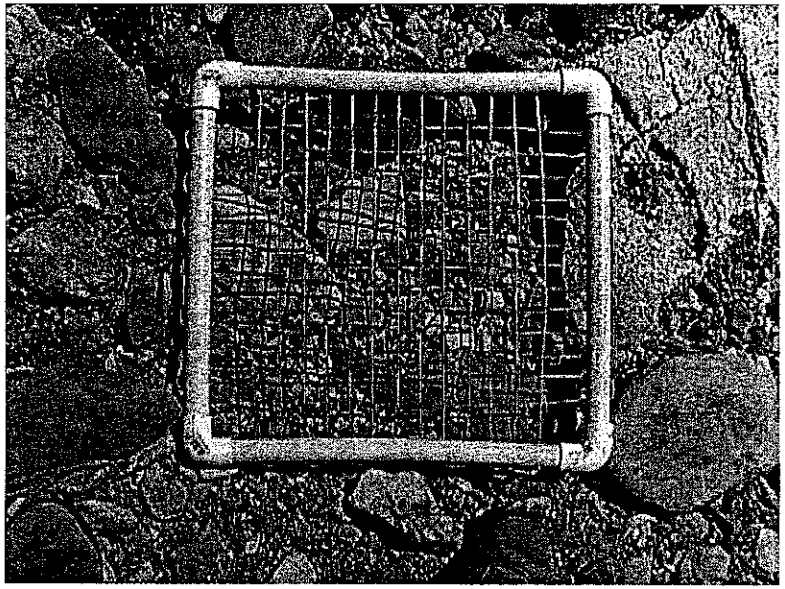
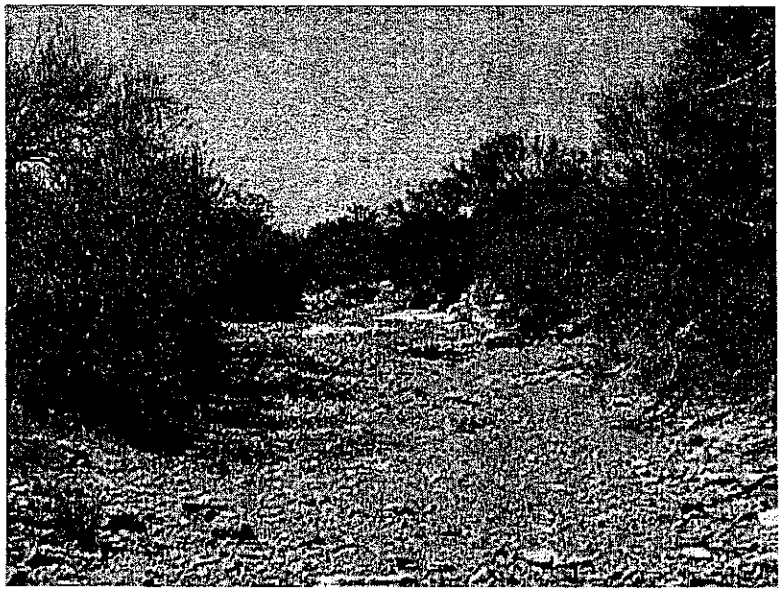
Selected Field Photographs-Various Approximate Method Reaches

Unnamed Wash 1 Photographs (Approximate Methods)



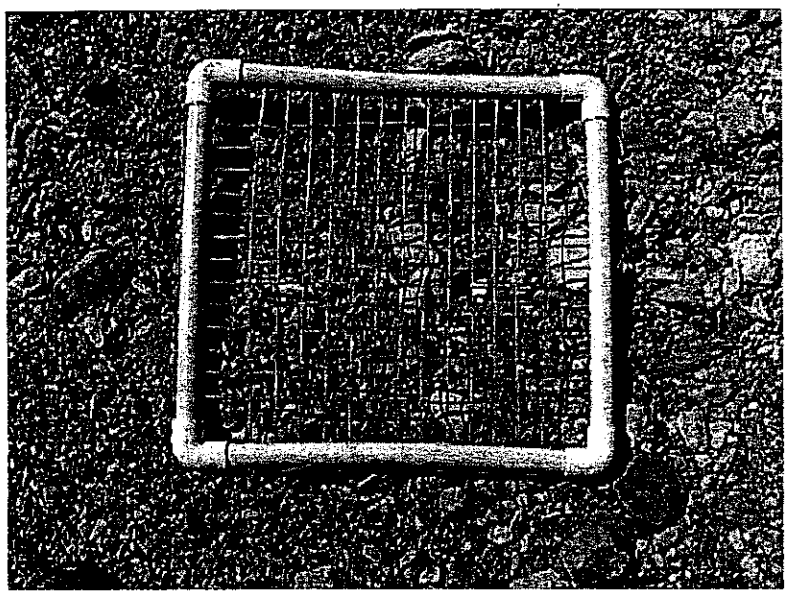
Photograph 46
Main Channel, Bed Material
Tributary 1 Reach



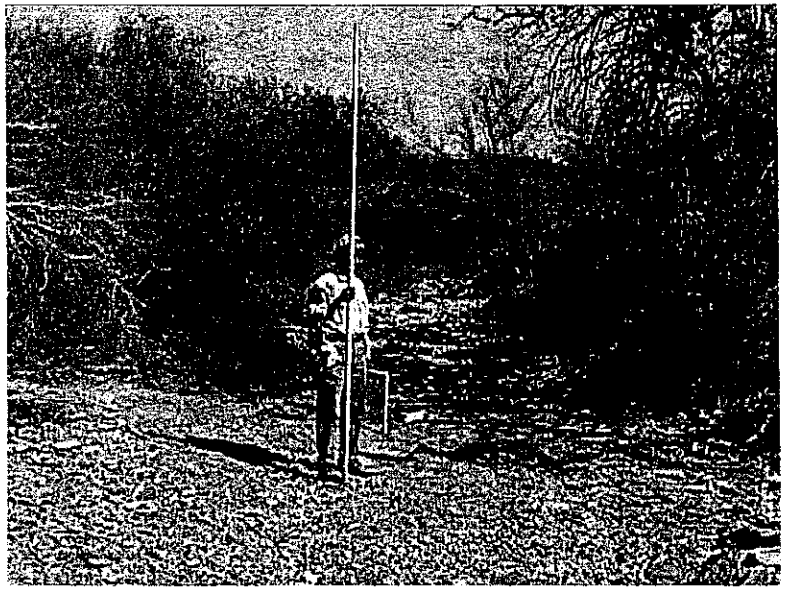
Photograph 47
Main Channel, Looking Upstream
Tributary 1 Reach

Photograph 48
Main Channel, Looking Downstream
Tributary 1 Reach

Unnamed Wash 2 Photographs (Approximate Methods)

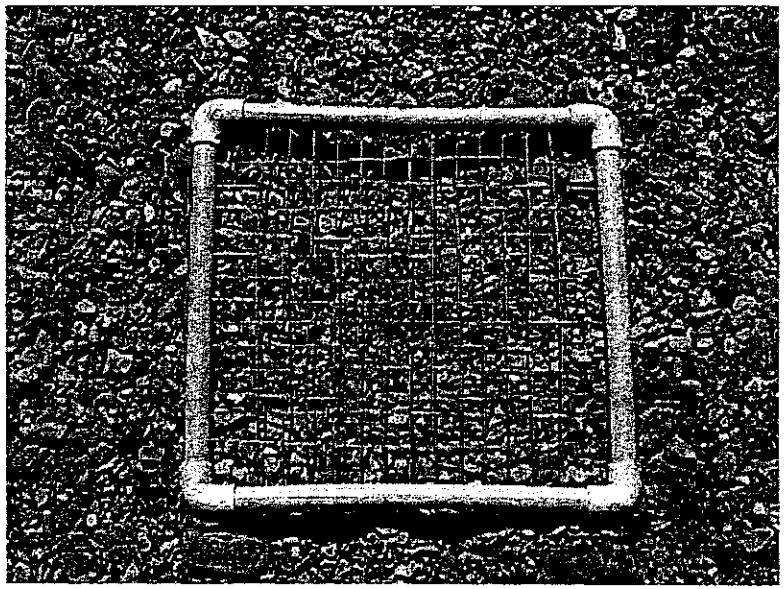


Photograph 42
Main Channel, Bed Material
Approximate Method Reach



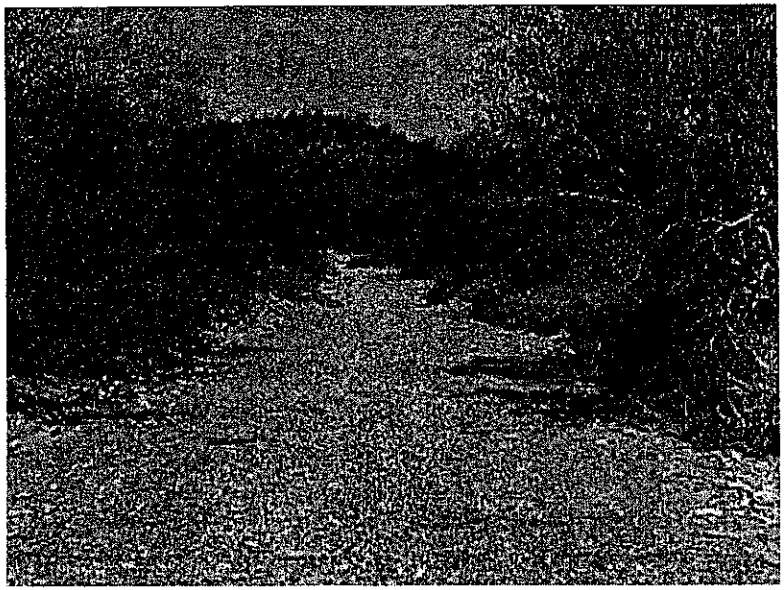
Photograph 43
Main Channel, Looking Upstream
Approximate Method Reach

Photograph 44
Main Channel, Looking Downstream
Approximate Method Reach



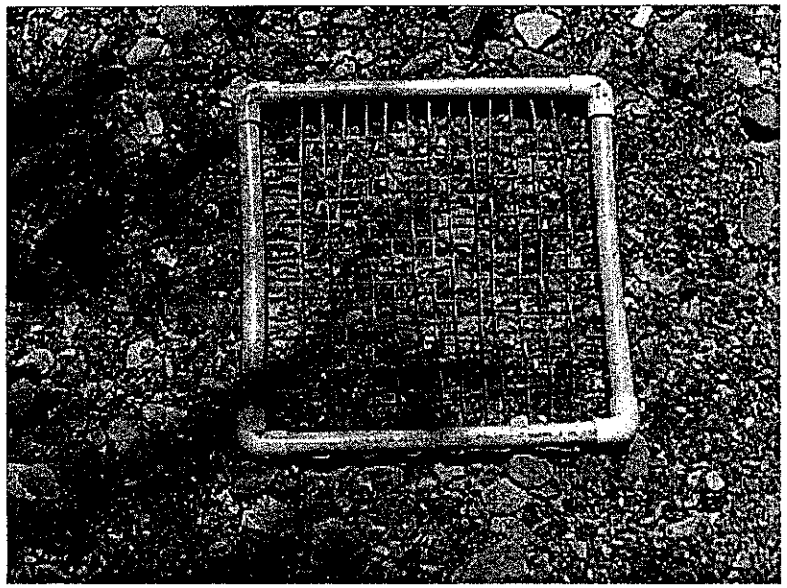
Photograph 45
Main Channel, Bed Material
Approximate Method Reach

Unnamed Wash 2 Photographs (Approximate Methods)



Photograph 46
Main Channel, Looking Upstream
Approximate Method Reach

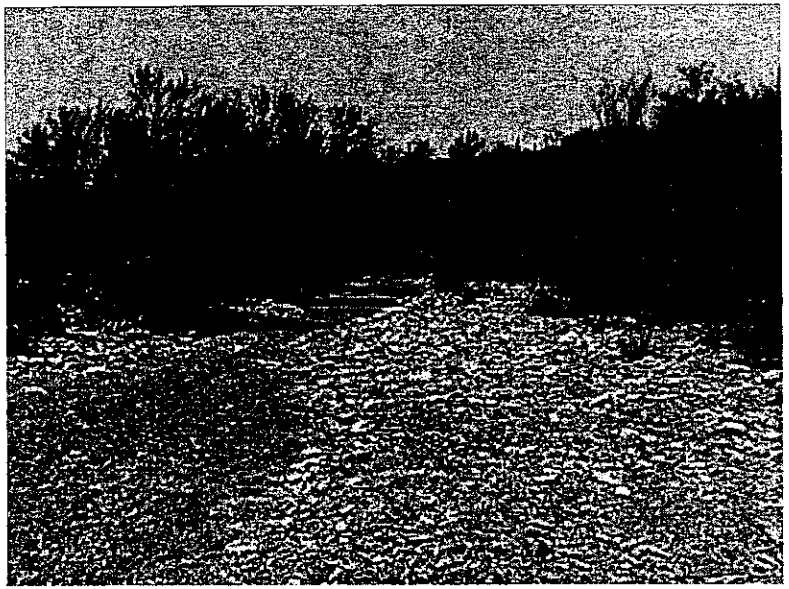
Photograph 47
Main Channel, Looking Downstream
Approximate Method Reach



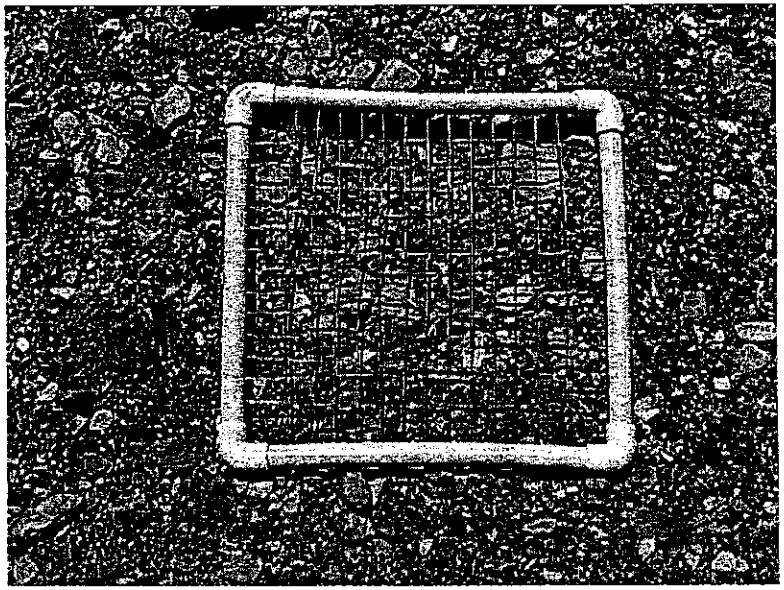
Photograph 48
Main Channel, Bed Material
Tributary 2 Reach

Photograph 49
Main Channel, Looking Upstream
Tributary 2 Reach

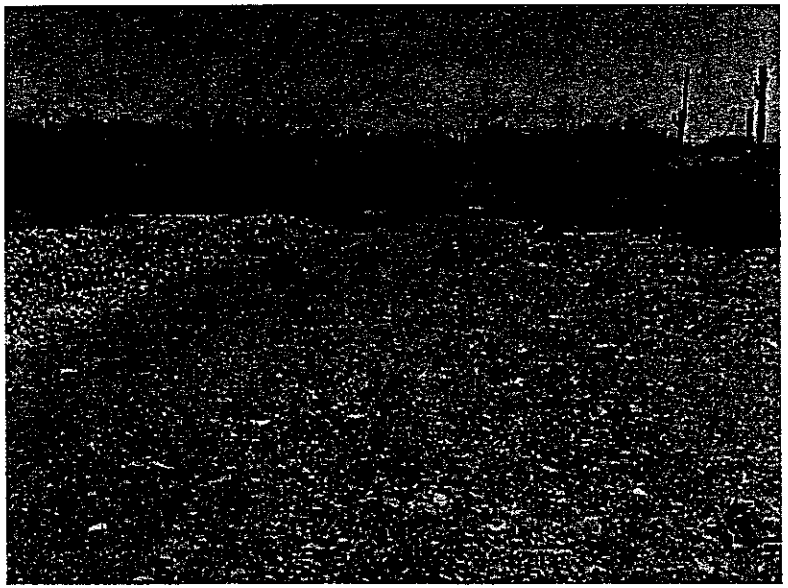
Unnamed Wash 2 Photographs (Approximate Methods)



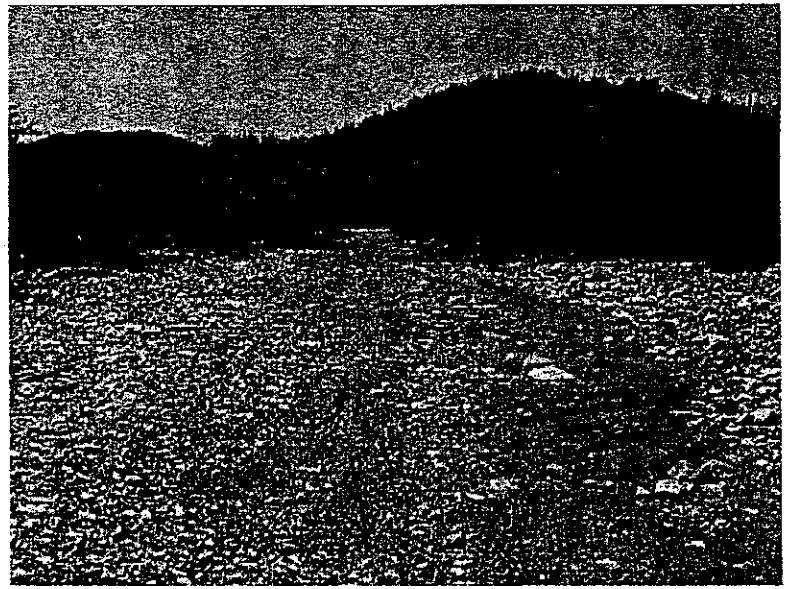
Photograph 50
Main Channel, Looking Downstream
Tributary 2 Reach



Photograph 51
Main Channel, Bed Material
Tributary 2 Reach

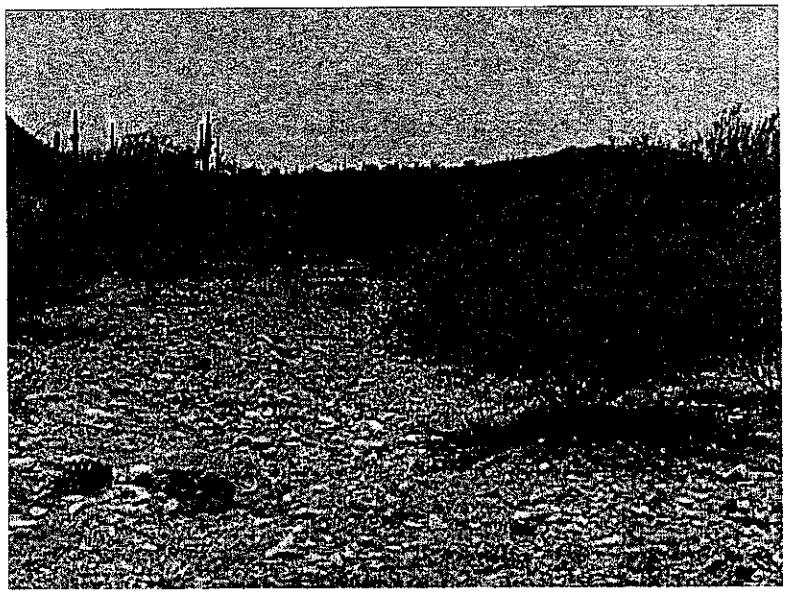


Photograph 52
Main Channel, Looking Upstream
Tributary 2 Reach

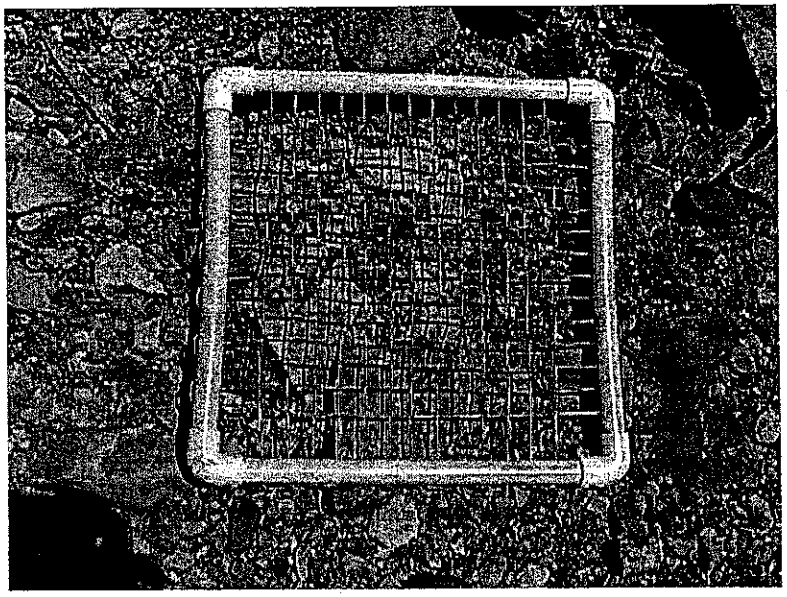


Photograph 53
Main Channel, Looking Downstream
Tributary 2 Reach

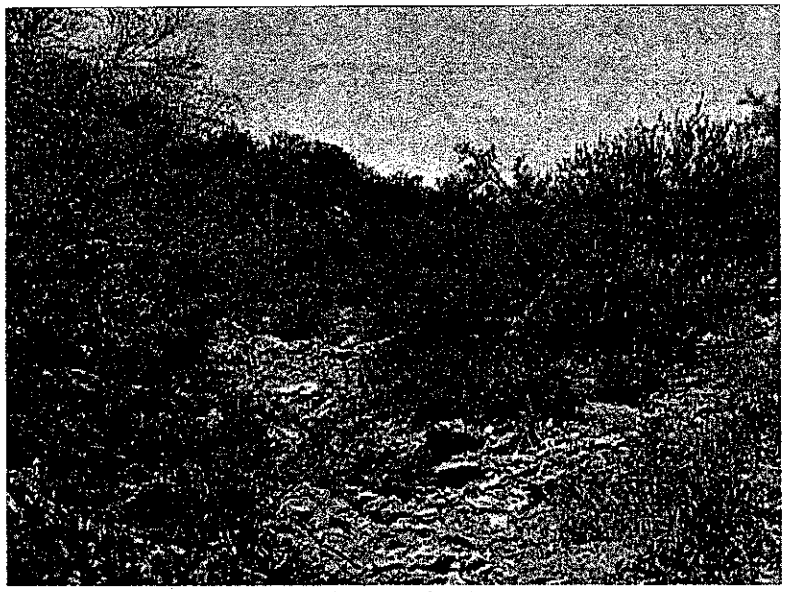
Unnamed Wash 2 Photographs (Approximate Methods)



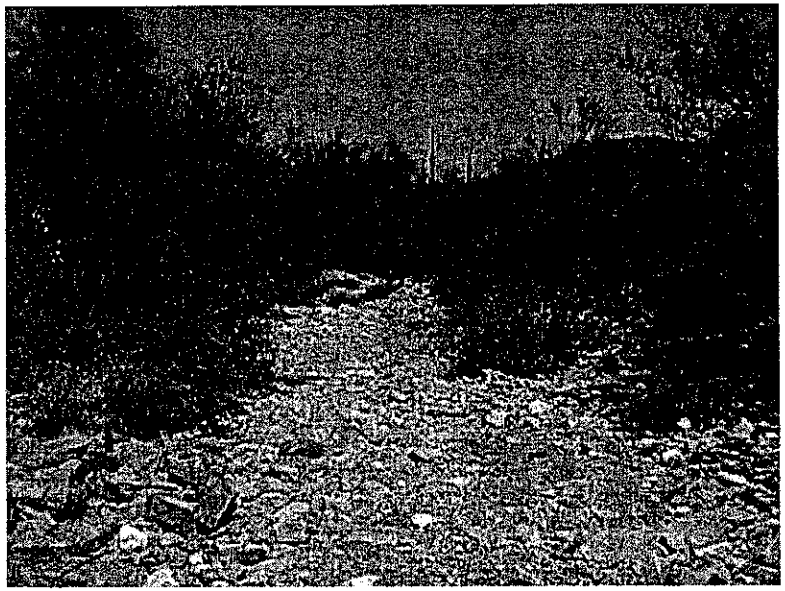
Photograph 54
Left Over Bank, Looking Downstream
Tributary 2 Reach



Photograph 55
Main Channel, Bed Material
Tributary 1 Reach



Photograph 56
Main Channel, Looking Upstream
Tributary 1 Reach



Photograph 57
Main Channel, Looking Downstream
Tributary 1 Reach

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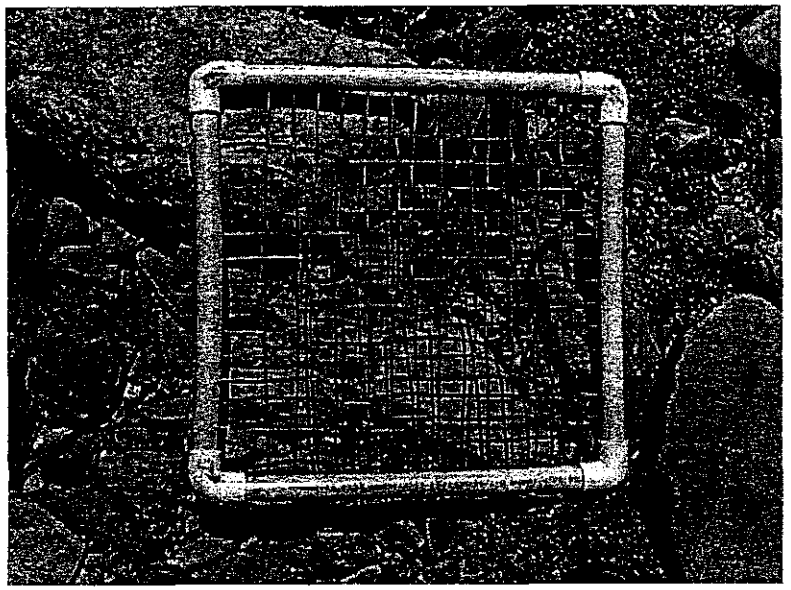
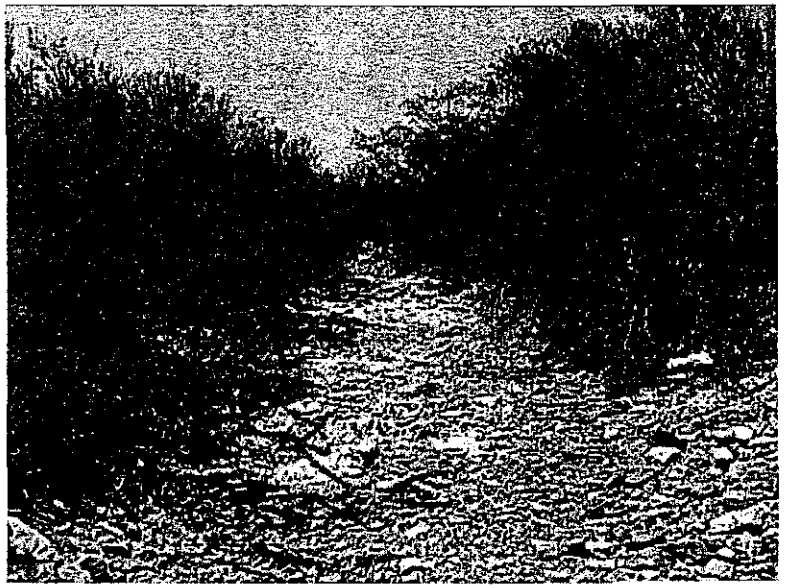
Unnamed Wash 2 Photographs (Approximate Methods)



Photograph 58
Main Channel, Bed Material
Tributary 1 Reach



Photograph 59
Main Channel, Looking Upstream
Tributary 1 Reach

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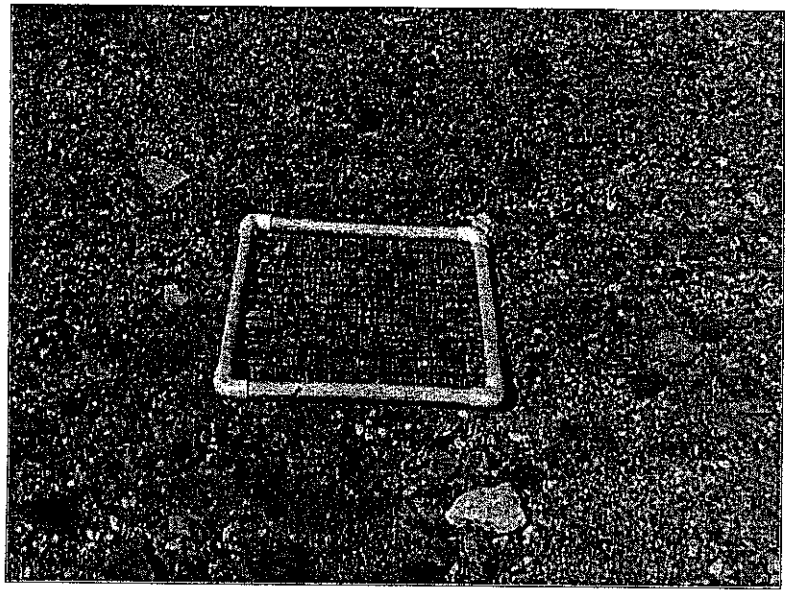
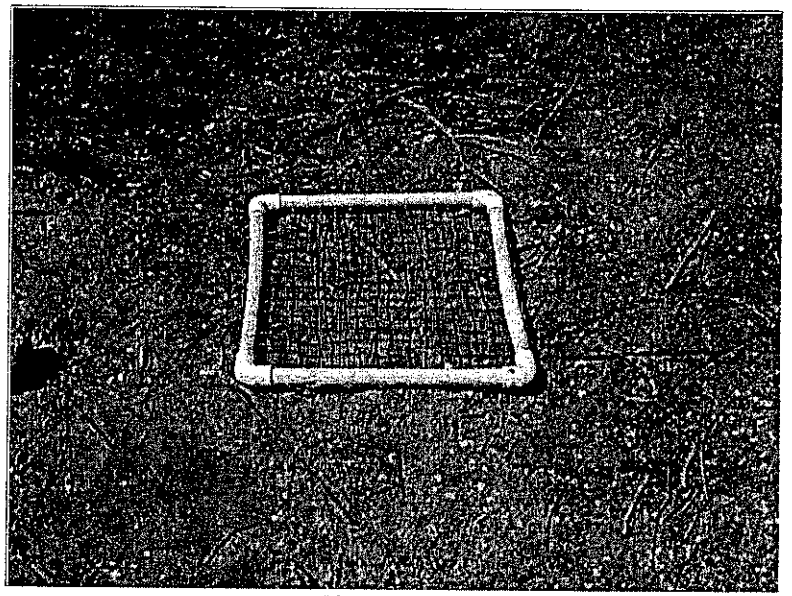
Twin Buttes Photographs (Approximate Methods)



Photograph 1
Main Channel, Bed Material

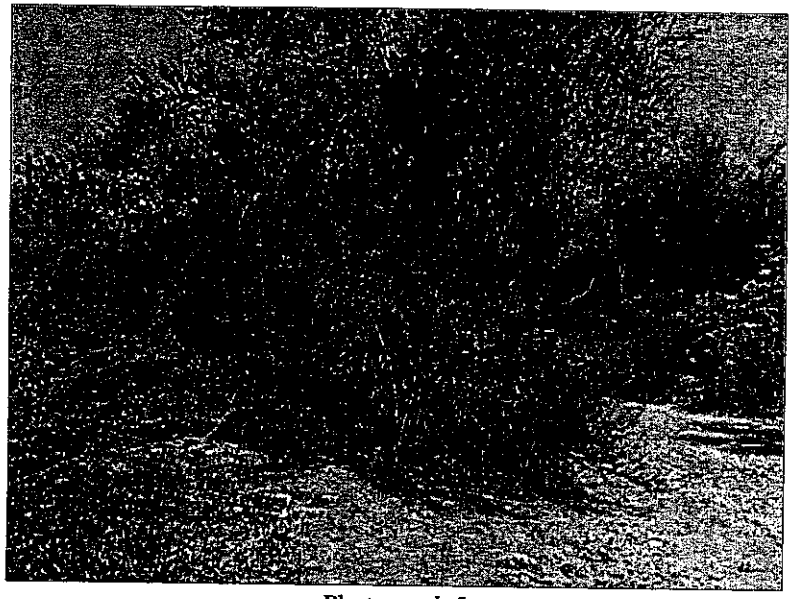
Photograph 2
Main Channel, Looking Upstream

Photograph 3
Main Channel, Looking Downstream



Photograph 4
Right Over Bank, Bed Material

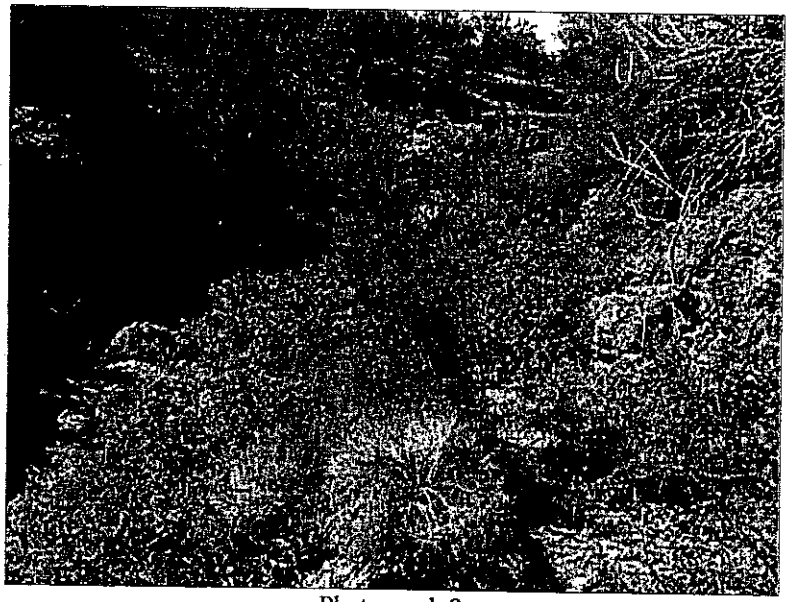
Twin Buttes Photographs (Approximate Methods)



Photograph 5
Right Over Bank, Looking Upstream

Photograph 6
Right Over Bank, Looking Downstream

Photograph 7
Main Channel, Looking Upstream



Photograph 8
Main Channel, Looking Downstream

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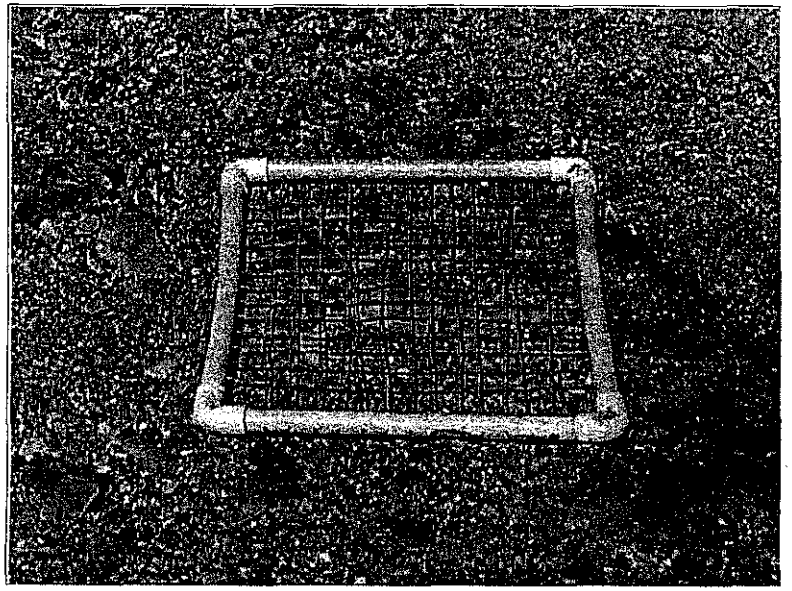
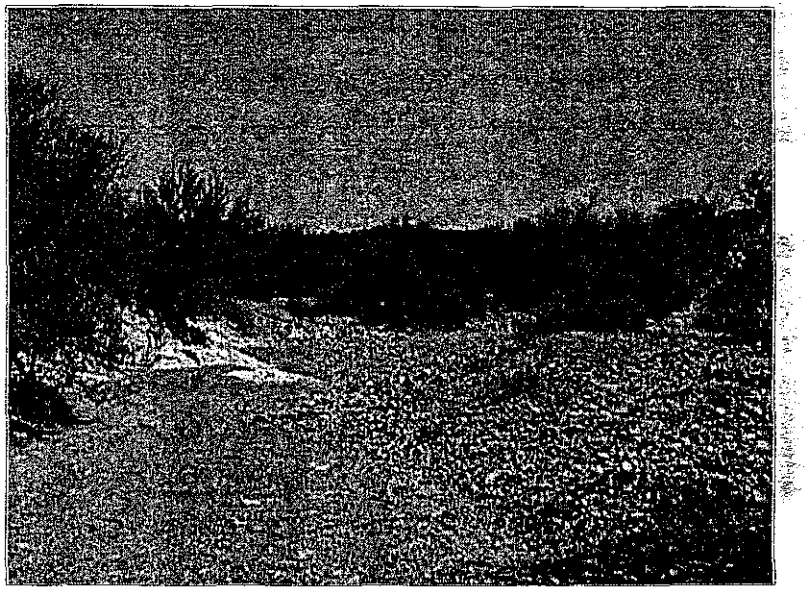
Twin Buttes Photographs (Approximate Methods)

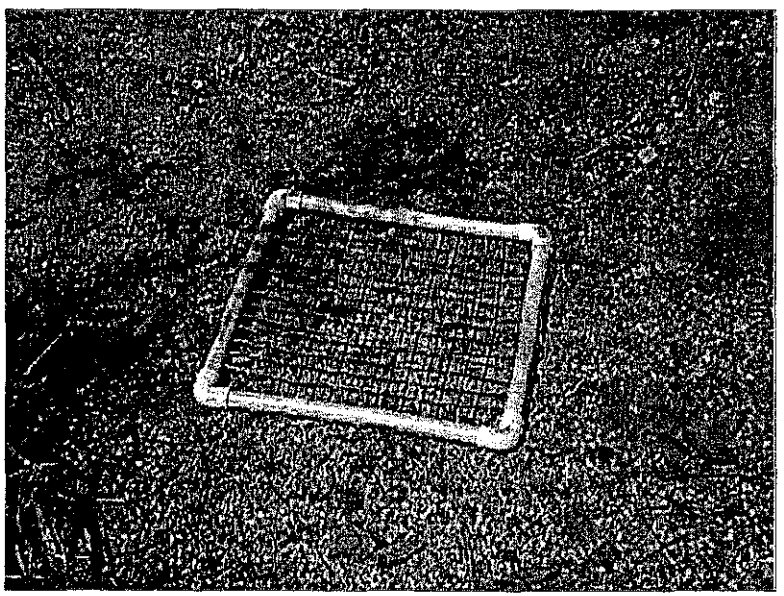


Photograph 9
Main Channel, Bed Material



Photograph 10
Main Channel, Looking Upstream

Photograph 11
Main Channel, Looking Downstream



Photograph 13
Left Over Bank, Bed Material

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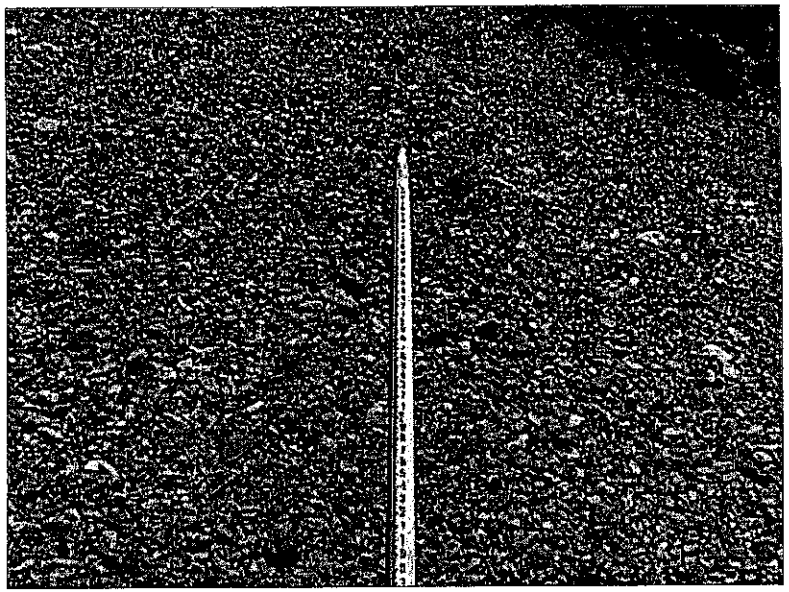
Twin Buttes Photographs (Approximate Methods)

Photograph 14
Left Over Bank, Looking Upstream

Photograph 15
Left Over Bank, Looking Downstream

Caterpillar Tanks Photographs (Approximate Methods)



Photograph 16
Main Channel, Bed Material

Photograph 17
Main Channel, Looking Upstream

Photograph 18
Main Channel, Looking Downstream

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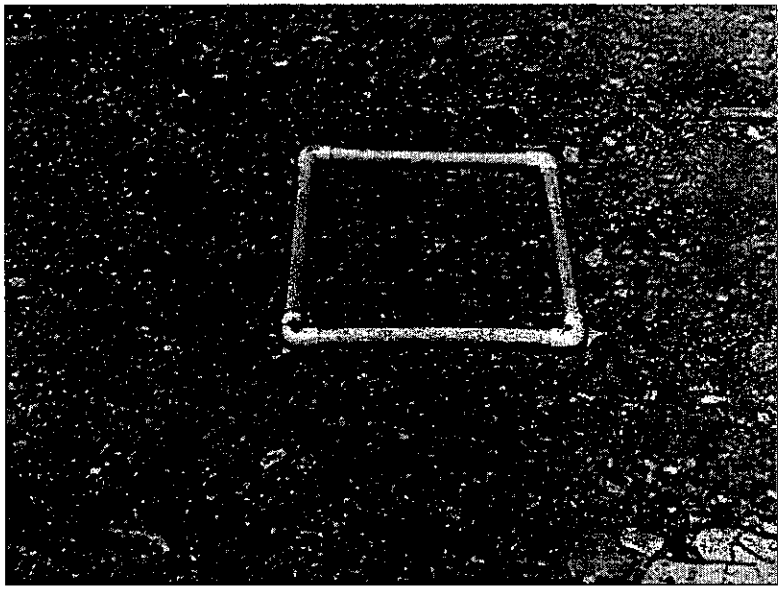
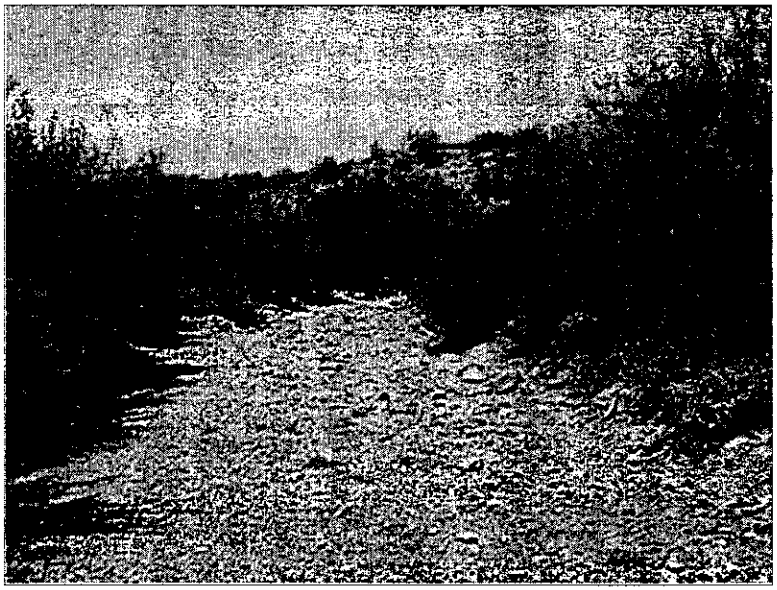
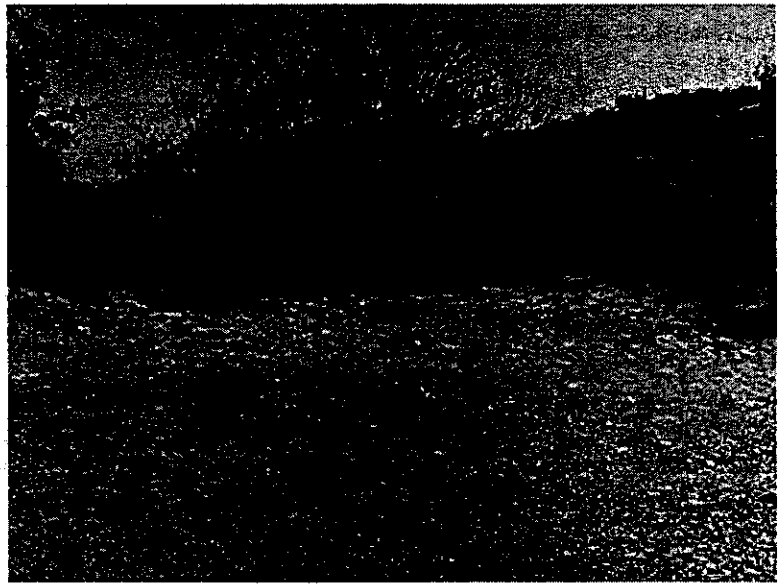
Unnamed Wash 4 Photographs (Approximate Methods)



Photograph 19
Main Channel, Bed Material



Photograph 20
Main Channel, Looking Upstream



Photograph 21
Main Channel, Looking Downstream

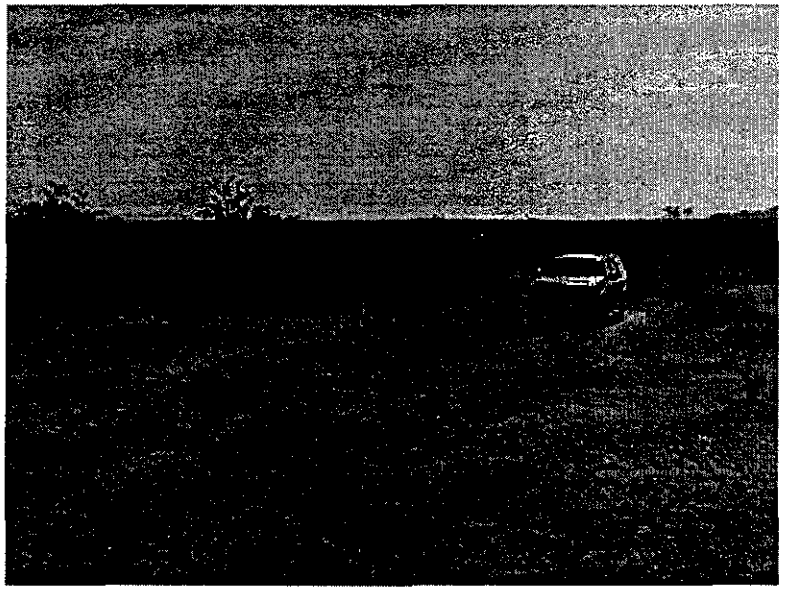
Photograph 32
Main Channel, Looking Upstream

P:\82000146\Data Collection\Photos\Approximate Methods\apmthd146.cdr

Unnamed Wash 4 Photographs (Approximate Methods)

Photograph 33
Main Channel, Looking Downstream

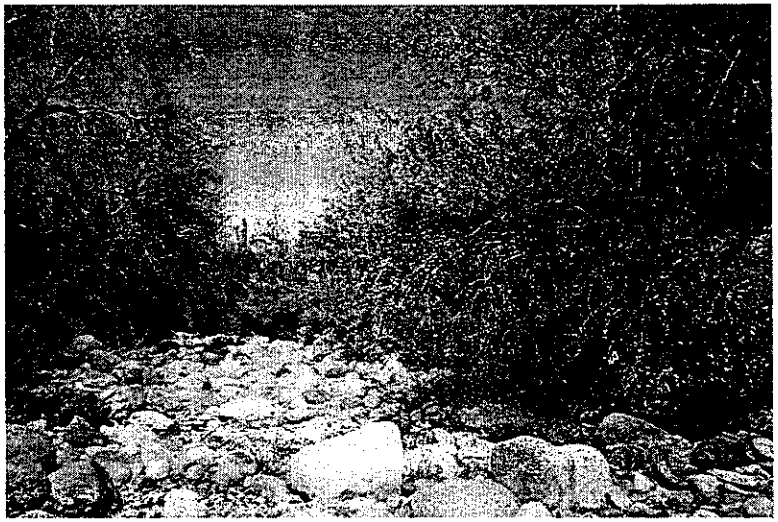
Photograph 34
Left Overbank, Looking Downstream



Photograph 35
Looking Downstream along Top of Berm

Unnamed Wash 5 (Approximate Methods)

Photograph 29
Main Channel, Looking Downstream



Photograph 28
Main Channel, Looking Upstream

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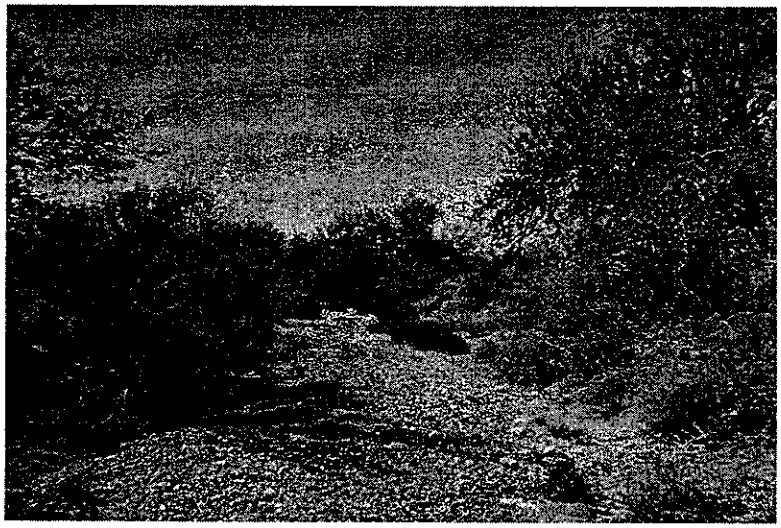
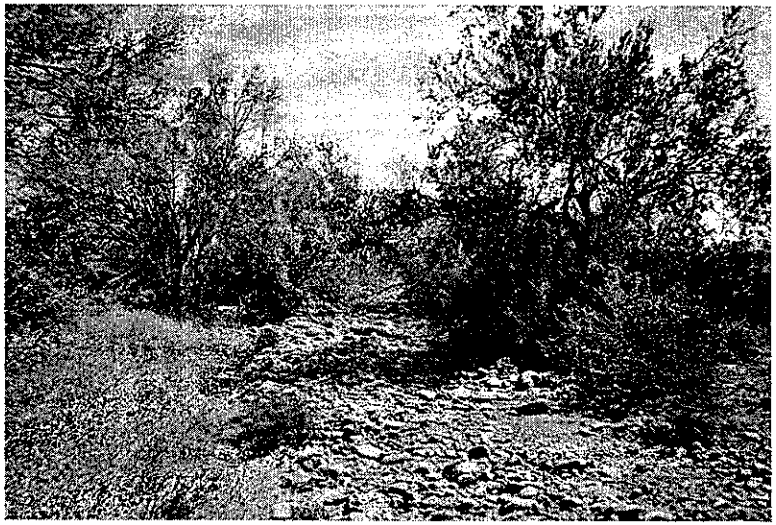
Unnamed Wash 6 (Approximate Methods)



Photograph 27
Main Channel, Looking Downstream



Photograph 26
Main Channel, Looking Upstream

P:\82000146\Data Collection\Photos\Appoximate Methods\apmthd146.cdr

APPENDIX K: CULVERT HYDRAULIC CALCULATIONS

CURRENT DATE: 09-20-2000 FILE DATE: 09-20-2000
CURRENT TIME: 11:43:48 FILE NAME: C7

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1845.42	1843.26	108.02	1 RCB	12.00	12.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****
SUMMARY OF CULVERT FLOWS (cfs) FILE: C7 DATE: 09-20-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1845.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1848.52	168.2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1850.31	336.4	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1851.81	504.6	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1853.14	672.8	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1854.36	841.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1855.51	1009.2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1856.62	1177.4	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1857.73	1345.6	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1858.13	1405.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1860.03	1682.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****
SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C7 DATE: 09-20-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1845.42	0.000	0.00	0.00	0.00
1848.52	0.000	168.20	0.00	0.00
1850.31	0.000	336.40	0.00	0.00
1851.81	0.000	504.60	0.00	0.00
1853.14	0.000	672.80	0.00	0.00
1854.36	0.000	841.00	0.00	0.00
1855.51	0.000	1009.20	0.00	0.00
1856.62	0.000	1177.40	0.00	0.00
1857.73	0.000	1345.60	0.00	0.00
1858.13	0.000	1405.00	0.00	0.00
1860.03	0.000	1682.00	0.00	0.00

****
<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000
****

CURRENT DATE: 09-20-2000 FILE DATE: 09-20-2000
CURRENT TIME: 11:43:48 FILE NAME: C7

PERFORMANCE CURVE FOR CULVERT 1 - 1(12.00 (ft) BY 12.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1845.42	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	13.47
168.20	1848.52	3.10	3.10	1-S2n	0.80	1.83	1.03	1.54	13.59	7.26
336.40	1850.31	4.89	4.89	1-S2n	1.41	2.91	1.77	2.27	15.87	8.98
504.60	1851.81	6.39	6.39	1-S2n	1.84	3.81	2.41	2.82	17.45	10.12
672.80	1853.14	7.72	7.72	1-S2n	2.27	4.61	3.01	3.29	18.60	10.99
841.00	1854.36	8.94	8.94	1-S2n	2.64	5.35	3.61	3.70	19.39	11.70
1009.20	1855.51	10.09	10.09	1-S2n	2.99	6.05	4.15	4.07	20.28	12.31
1177.40	1856.62	11.20	11.20	1-S2n	3.34	6.70	4.69	4.41	20.92	12.84
1345.60	1857.73	12.31	12.31	5-S2n	3.68	7.32	5.20	4.71	21.54	13.32
1405.00	1858.13	12.71	12.71	5-S2n	3.79	7.54	5.34	4.82	21.93	13.47
1682.00	1860.02	14.60	14.60	5-S2n	4.31	8.50	6.18	5.28	22.68	14.14

El. inlet face invert 1845.42 ft El. outlet invert 1843.26 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1845.42 ft
OUTLET STATION	108.00 ft
OUTLET ELEVATION	1843.26 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0200
CULVERT LENGTH ALONG SLOPE	108.02 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	12.00 ft
BARREL RISE	12.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (90-45 DEG.)
INLET DEPRESSION	NONE

CURRENT DATE: 09-20-2000 FILE DATE: 09-20-2000
CURRENT TIME: 11:43:48 FILE NAME: C7

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	12.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.022
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	1843.26 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1843.26 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1843.26	1.082	0.00	13.47	6.68
168.20	1844.80	1.031	1.54	7.26	2.13
336.40	1845.53	1.052	2.27	8.98	3.14
504.60	1846.08	1.062	2.82	10.12	3.91
672.80	1846.55	1.068	3.29	10.99	4.56
841.00	1846.96	1.072	3.70	11.70	5.13
1009.20	1847.33	1.075	4.07	12.31	5.64
1177.40	1847.67	1.078	4.41	12.84	6.10
1345.60	1847.97	1.081	4.71	13.32	6.53
1405.00	1848.08	1.082	4.82	13.47	6.68
1682.00	1848.54	1.085	5.28	14.14	7.31

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	40.00 ft
CREST LENGTH	1.00 ft
OVERTOPPING CREST ELEVATION	1867.23 ft

****

Structure # 13 at SR 74

CURRENT DATE: 09-18-2000
CURRENT TIME: 10:32:36

FILE DATE: 09-18-2000
FILE NAME: C13

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	SITE DATA: OUTLET ELEV. (ft)	SITE DATA: CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	100.00	98.64	91.01	1 RCB	10.00	10.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C13 DATE: 09-18-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
102.50	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
103.96	240.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
105.20	360.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
106.34	480.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
107.37	600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
108.35	720.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
108.59	751.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
110.25	960.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
111.25	1080.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
112.30	1200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C13 DATE: 09-18-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
100.00	0.000	0.00	0.00	0.00
102.50	0.000	120.00	0.00	0.00
103.96	0.000	240.00	0.00	0.00
105.20	0.000	360.00	0.00	0.00
106.34	0.000	480.00	0.00	0.00
107.37	0.000	600.00	0.00	0.00
108.35	0.000	720.00	0.00	0.00
108.59	0.000	751.00	0.00	0.00
110.25	0.000	960.00	0.00	0.00
111.25	0.000	1080.00	0.00	0.00
112.30	0.000	1200.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 09-18-2000 FILE DATE: 09-18-2000
CURRENT TIME: 10:32:36 FILE NAME: C13

PERFORMANCE CURVE FOR CULVERT 1 - 1(10.00 (ft) BY 10.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	100.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
120.00	102.50	2.50	2.50	1-S2n	0.89	1.65	1.03	1.56	11.64	5.88
240.00	103.96	3.96	3.96	1-S2n	1.42	2.62	1.75	2.28	13.71	7.24
360.00	105.20	5.20	5.20	1-S2n	1.90	3.43	2.38	2.83	15.10	8.13
480.00	106.34	6.34	6.34	1-S2n	2.31	4.16	2.96	3.29	16.21	8.81
600.00	107.37	7.37	7.37	1-S2n	2.70	4.83	3.52	3.69	17.06	9.37
720.00	108.35	8.35	8.35	1-S2n	3.09	5.45	4.04	4.04	17.81	9.84
751.00	108.59	8.59	8.59	1-S2n	3.18	5.61	4.18	4.13	17.98	9.95
960.00	110.25	10.25	10.25	5-S2n	3.79	6.60	5.00	4.67	19.18	10.63
1080.00	111.25	11.25	11.25	5-S2n	4.13	7.14	5.44	4.95	19.84	10.97
1200.00	112.30	12.30	12.30	5-S2n	4.46	7.66	5.95	5.21	20.16	11.28

El. inlet face invert 100.00 ft El. outlet invert 98.64 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	100.00 ft
OUTLET STATION	91.00 ft
OUTLET ELEVATION	98.64 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0149
CULVERT LENGTH ALONG SLOPE	91.01 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	10.00 ft
BARREL RISE	10.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 09-18-2000 FILE DATE: 09-18-2000
CURRENT TIME: 10:32:36 FILE NAME: C13

****
********** TAILWATER **********
****

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	10.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.015
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	98.64 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	98.64 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	98.64	0.000	0.00	0.00	0.00
120.00	100.20	0.831	1.56	5.88	1.46
240.00	100.92	0.845	2.28	7.24	2.13
360.00	101.47	0.852	2.83	8.13	2.65
480.00	101.93	0.857	3.29	8.81	3.08
600.00	102.33	0.860	3.69	9.37	3.45
720.00	102.68	0.863	4.04	9.84	3.79
751.00	102.77	0.863	4.13	9.95	3.87
960.00	103.31	0.867	4.67	10.63	4.37
1080.00	103.59	0.869	4.95	10.97	4.63
1200.00	103.85	0.871	5.21	11.28	4.88

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	40.00 ft
CREST LENGTH	1.00 ft
OVERTOPPING CREST ELEVATION	116.00 ft

****

Structure # 63 at Beardsley Canal

CURRENT DATE: 11-30-2000
CURRENT TIME: 12:53:29

FILE DATE: 11-30-2000
FILE NAME: C705-C

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1338.24	1338.00	120.00	2 RCB	5.00	5.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C705-C DATE: 11-30-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1338.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1342.26	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1344.68	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1347.93	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1352.52	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1359.03	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1367.08	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1376.59	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1377.62	1420.0	1420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1400.00	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1413.90	2000.0	2000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1420.00	2081.6	2081.6	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C705-C DATE: 11-30-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1338.24	0.000	0.00	0.00	0.00
1342.26	0.000	200.00	0.00	0.00
1344.68	0.000	400.00	0.00	0.00
1347.93	0.000	600.00	0.00	0.00
1352.52	0.000	800.00	0.00	0.00
1359.03	0.000	1000.00	0.00	0.00
1367.08	0.000	1200.00	0.00	0.00
1376.59	0.000	1400.00	0.00	0.00
1377.62	0.000	1420.00	0.00	0.00
1400.00	0.000	1800.00	0.00	0.00
1413.90	0.000	2000.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 12:53:29 FILE NAME: C705-C

PERFORMANCE CURVE FOR CULVERT 1 - 2(5.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1338.24	0.00	0.00	0-NF	0.00	0.00	0.00	-6.00	0.00	0.00
200.00	1342.26	3.92	4.02	2-M2c	3.50	2.32	2.32	-3.86	8.62	5.51
400.00	1344.68	6.44	6.36	2-M2c	5.00	3.68	3.68	-3.24	10.86	6.54
600.00	1347.93	9.69	9.41	2-M2c	5.00	4.83	4.83	-2.78	12.43	7.24
800.00	1352.52	14.28	13.03	6-S2n	5.00	5.00	4.90	-2.41	16.33	7.78
1000.00	1359.03	20.79	17.69	6-S2n	5.00	5.00	4.90	-2.10	20.41	8.23
1200.00	1367.08	28.84	23.38	6-S2n	5.00	5.00	4.90	-1.30	24.49	2.53
1400.00	1376.59	38.35	30.10	6-S2n	5.00	5.00	4.90	-1.03	28.57	3.15
1420.00	1377.62	39.38	30.83	6-S2n	5.00	5.00	4.90	-1.00	28.98	3.21
1800.00	1400.00	61.76	46.65	6-S2n	5.00	5.00	4.90	-0.54	36.73	4.13
2000.00	1413.90	75.66	56.47	6-S2n	5.00	5.00	4.90	-0.31	40.82	4.54

El. inlet face invert 1338.24 ft El. outlet invert 1338.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1338.24 ft
OUTLET STATION	220.00 ft
OUTLET ELEVATION	1338.00 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0020
CULVERT LENGTH ALONG SLOPE	120.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	5.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (90-45 DEG.)
INLET DEPRESSION	NONE

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 12:53:29 FILE NAME: C705-C

****
********** TAILWATER **********
****

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: C705-TW
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 11-29-00
LEFT CHANNEL BOUNDARY 2
RIGHT CHANNEL BOUNDARY 4
MANNING n LEFT OVER BANK 0.025
MANNING n MAIN CHANNEL 0.035
MANNING n RIGHT OVER BANK 0.050
SLOPE OF CHANNEL 0.0156 ft/ft

CROSS-SECTION COORD. NO.	X (ft)	Y (ft)
1	0.00	1340.00
2	11.15	1336.00
3	51.42	1332.00
4	75.27	1336.00
5	89.78	1338.00

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1332.00	0.000	-6.00	0.00	0.00
200.00	1334.14	0.940	-3.86	5.51	1.03
400.00	1334.76	0.981	-3.24	6.54	1.33
600.00	1335.22	1.006	-2.78	7.24	1.55
800.00	1335.59	1.024	-2.41	7.78	1.73
1000.00	1335.90	1.039	-2.10	8.23	1.88
1200.00	1336.70	0.754	-1.30	2.53	0.32
1400.00	1336.97	0.796	-1.03	3.15	0.45
1420.00	1337.00	0.800	-1.00	3.21	0.46
1800.00	1337.46	0.851	-0.54	4.13	0.67
2000.00	1337.69	0.872	-0.31	4.54	0.77

Note: Shear stress was calculated using R.

****
********** ROADWAY OVERTOPPING DATA **********
****

WEIR COEFFICIENT 2.70
EMBANKMENT TOP WIDTH 40.00 ft
CREST LENGTH 608.54 ft
OVERTOPPING CREST ELEVATION 1420.00 ft

****

Structure # 74 at Waddell Canal

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 13:57:41 FILE NAME: C716O

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1504.90	1496.00	252.16	2 RCP	4.50	4.50	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C716O DATE: 11-30-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1504.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1509.94	230.0	230.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1516.13	460.0	460.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1526.53	690.0	690.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1544.42	920.0	920.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1592.19	1150.0	1150.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1729.99	1380.0	1380.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2074.29	1610.0	1610.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2108.01	1625.0	1625.0	0.0	0.0	0.0	0.0	0.0	0.00	1
4241.67	2070.0	2070.0	0.0	0.0	0.0	0.0	0.0	0.00	1
6746.91	2300.0	2300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
6750.00	2300.2	2300.2	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C716O DATE: 11-30-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1504.90	0.000	0.00	0.00	0.00
1509.94	0.000	230.00	0.00	0.00
1516.13	0.000	460.00	0.00	0.00
1526.53	0.000	690.00	0.00	0.00
1544.42	0.000	920.00	0.00	0.00
1592.19	0.000	1150.00	0.00	0.00
1729.99	0.000	1380.00	0.00	0.00
2074.29	0.000	1610.00	0.00	0.00
2108.01	0.000	1625.00	0.00	0.00
4241.67	0.000	2070.00	0.00	0.00
6746.91	0.000	2300.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 13:57:41 FILE NAME: C716O

PERFORMANCE CURVE FOR CULVERT 1 - 2(4.50 (ft) BY 4.50 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1504.90	0.00	0.00	0-NF	0.00	0.00	0.00	-4.00	0.00	0.00
230.00	1509.94	5.04	5.04	5-S2n	1.86	3.16	1.90	-2.93	18.06	4.91
460.00	1516.13	11.23	11.23	5-S2n	2.82	4.29	2.92	-2.46	21.06	5.99
690.00	1526.53	21.63	16.83	6-S2n	4.50	4.50	4.40	-2.12	21.95	6.70
920.00	1544.42	39.52	33.35	6-S2n	4.50	4.50	4.40	-1.82	29.26	7.26
1150.00	1592.19	87.29	54.59	6-S2n	4.50	4.50	4.40	-1.58	36.58	7.70
1380.00	1729.99	225.09	80.54	6-S2n	4.50	4.50	4.40	-1.36	43.89	8.09
1610.00	2074.29	569.39	111.21	6-S2n	4.50	4.50	4.40	-1.16	51.21	8.42
1625.00	2108.01	603.11	113.38	6-S2n	4.50	4.50	4.40	-1.14	51.68	8.45
2070.00	4241.67	0.00	186.71	6-S2n	4.50	4.50	4.40	-0.80	65.84	9.00
2300.00	6746.91	0.00	231.54	6-S2n	4.50	4.50	4.40	-0.64	73.15	9.25

El. inlet face invert 1504.90 ft El. outlet invert 1496.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1504.90 ft
OUTLET STATION	352.00 ft
OUTLET ELEVATION	1496.00 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0353
CULVERT LENGTH ALONG SLOPE	252.16 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.50 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 11-30-2000 FILE DATE: 11-30-2000
CURRENT TIME: 13:57:41 FILE NAME: C716O

****
********** TAILWATER **********
****

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: C716OTW
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 11-30-00
LEFT CHANNEL BOUNDARY 3
RIGHT CHANNEL BOUNDARY 6
MANNING n LEFT OVER BANK 0.050
MANNING n MAIN CHANNEL 0.035
MANNING n RIGHT OVER BANK 0.050
SLOPE OF CHANNEL 0.0177 ft/ft

CROSS-SECTION COORD. NO.	X (ft)	Y (ft)
1	100.00	1504.00
2	115.00	1500.00
3	150.00	1496.00
4	165.00	1492.00
5	195.00	1492.00
6	285.00	1496.00
7	370.00	1500.00
8	425.00	1504.00

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1492.00	0.000	-4.00	0.00	0.00
230.00	1493.07	0.960	-2.93	4.91	0.89
460.00	1493.54	1.008	-2.46	5.99	1.21
690.00	1493.88	1.037	-2.12	6.70	1.43
920.00	1494.18	1.058	-1.82	7.26	1.61
1150.00	1494.42	1.073	-1.58	7.70	1.76
1380.00	1494.64	1.087	-1.36	8.09	1.89
1610.00	1494.84	1.098	-1.16	8.42	2.01
1625.00	1494.86	1.098	-1.14	8.45	2.02
2070.00	1495.20	1.116	-0.80	9.00	2.22
2300.00	1495.36	1.124	-0.64	9.25	2.32

Note: Shear stress was calculated using R.

****
********** ROADWAY OVERTOPPING DATA **********
****

WEIR COEFFICIENT 2.70
EMBANKMENT TOP WIDTH 170.00 ft
CREST LENGTH 1360.00 ft
OVERTOPPING CREST ELEVATION 6750.00 ft

****

CURRENT DATE: 12-11-2000 FILE DATE: 12-11-2000
CURRENT TIME: 10:09:25 FILE NAME: C86-WEIR

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.1 **********
****

CULV NO.	SITE DATA: INLET ELEV. (ft)	SITE DATA: OUTLET ELEV. (ft)	SITE DATA: CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1400.00	1399.90	50.00	2 CSP	4.50	4.50	.031	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: C86-WEIR DATE: 12-11-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1400.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1403.69	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1406.10	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1408.22	360.0	318.1	0.0	0.0	0.0	0.0	0.0	39.94	9
1408.38	480.0	324.0	0.0	0.0	0.0	0.0	0.0	153.13	5
1408.41	500.0	324.2	0.0	0.0	0.0	0.0	0.0	171.76	3
1408.62	720.0	330.2	0.0	0.0	0.0	0.0	0.0	385.89	4
1408.71	840.0	333.7	0.0	0.0	0.0	0.0	0.0	498.92	3
1408.81	960.0	337.0	0.0	0.0	0.0	0.0	0.0	615.95	3
1408.90	1080.0	340.0	0.0	0.0	0.0	0.0	0.0	733.86	3
1408.98	1200.0	342.9	0.0	0.0	0.0	0.0	0.0	851.88	3
1408.10	313.6	313.6	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C86-WEIR DATE: 12-11-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1400.00	0.000	0.00	0.00	0.00
1403.69	0.000	120.00	0.00	0.00
1406.10	0.000	240.00	0.00	0.00
1408.22	-0.003	360.00	1.92	0.53
1408.38	-0.006	480.00	2.89	0.60
1408.41	-0.008	500.00	4.03	0.81
1408.62	-0.003	720.00	3.88	0.54
1408.71	-0.005	840.00	7.41	0.88
1408.81	-0.004	960.00	7.09	0.74
1408.90	-0.003	1080.00	6.10	0.56
1408.98	-0.003	1200.00	5.18	0.43

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 12-11-2000 FILE DATE: 12-11-2000
CURRENT TIME: 10:09:25 FILE NAME: C86-WEIR

PERFORMANCE CURVE FOR CULVERT 1 - 2(4.50 (ft) BY 4.50 (ft)) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1400.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
120.00	1403.69	3.25	3.69	2-M2c	4.50	2.25	2.25	1.49	7.54	4.65
240.00	1406.10	5.26	6.10	2-M2c	4.50	3.22	3.22	1.98	9.87	5.72
318.15	1408.21	6.91	8.21	2-M2c	4.50	3.67	3.67	2.30	11.47	6.67
323.99	1408.37	7.05	8.37	2-M2c	4.50	3.70	3.70	2.55	11.61	7.36
324.21	1408.41	7.05	8.41	7-M2c	4.50	3.70	3.70	2.58	11.61	7.47
330.23	1408.61	7.20	8.61	2-M2c	4.50	3.73	3.73	2.95	11.76	8.45
333.68	1408.71	7.28	8.71	2-M2c	4.50	3.74	3.74	3.13	11.84	8.90
336.96	1408.80	7.37	8.80	2-M2c	4.50	3.76	3.76	3.29	11.92	9.32
340.04	1408.89	7.44	8.89	2-M2c	4.50	3.77	3.77	3.45	11.99	9.70
342.94	1408.97	7.52	8.97	2-M2c	4.50	3.78	3.78	3.60	12.06	10.06

El. inlet face invert 1400.00 ft El. outlet invert 1399.90 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1400.00 ft
OUTLET STATION	150.00 ft
OUTLET ELEVATION	1399.90 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0020
CULVERT LENGTH ALONG SLOPE	50.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.50 ft
BARREL MATERIAL	CORRUGATED ALUMINUM
BARREL MANNING'S n	0.031
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 12-11-2000 FILE DATE: 12-11-2000
CURRENT TIME: 10:09:25 FILE NAME: C86-WEIR

****
********** TAILWATER **********
****

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: 726727
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 12-8-00
LEFT CHANNEL BOUNDARY 2
RIGHT CHANNEL BOUNDARY 4
MANNING n LEFT OVER BANK 0.055
MANNING n MAIN CHANNEL 0.040
MANNING n RIGHT OVER BANK 0.045
SLOPE OF CHANNEL 0.0185 ft/ft

CROSS-SECTION COORD. NO.	X (ft)	Y (ft)
1	100.00	1406.70
2	113.60	1399.90
3	135.60	1400.80
4	146.60	1401.90
5	169.60	1402.10
6	174.00	1406.70

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1399.90	0.000	0.00	0.00	0.00
120.00	1401.39	0.871	1.49	4.65	1.02
240.00	1401.89	0.918	1.98	5.72	1.39
360.00	1402.20	0.953	2.30	6.67	1.75
480.00	1402.45	0.977	2.55	7.36	2.03
500.00	1402.48	0.981	2.58	7.47	2.08
720.00	1402.85	1.011	2.95	8.45	2.50
840.00	1403.03	1.025	3.13	8.90	2.70
960.00	1403.19	1.037	3.29	9.32	2.89
1080.00	1403.35	1.047	3.45	9.70	3.07
1200.00	1403.50	1.057	3.60	10.06	3.24

Note: Shear stress was calculated using R.

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE PAVED
EMBANKMENT TOP WIDTH 40.00 ft
CREST LENGTH 341.92 ft
OVERTOPPING CREST ELEVATION 1408.10 ft

****

APPENDIX L: HEC-RAS MODEL OUTPUT

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Unnamed Wash 1
Project File : Unl_FpFw.prj
Run Date and Time: 5/23/01 11:31:22 AM

Project in English units

Project Description:
North Peoria Area Drainage Master Plan, FCD 99-45
Unnamed Wash 1 Floodplain
Delineation Study
Study Contractors: Stantec Consulting, Inc.
P82000146

Geometry Based on Aerial photography, Flight Date 2-18-00
Flow by
Cooper Aerial

Peak discharges are from 100-year, 6-hour HEC-1 model
dated
???, prepared by Stantec

PLAN DATA

Plan Title: 100-yr Existing Conditions Fp/Fw
Plan File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash1\Unl_FpFw.p01

Geometry Title: Existing Conditions
Geometry File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash1\Unl_FpFw.g01

Flow Title : 100-yr Existing Conditions
Flow File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash1\Unl_FpFw.f01

Plan Summary Information:
Number of: Cross Sections = 96 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 1
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = Unnamed 1 Reach = Reach 1

RS	Profile	Method	Value1	Value2
6.311	Method 1	1	9986.4	510021.63
6.216	Method 1	1	9944.2	410042.03
6.100	Method 1	1	9979.1	610045.18
6.015	Method 1	1	9976.8	310018.83
5.969	Method 1	1	99	2210019.42
5.917	Method 1	1	9987.8	110028.23
5.862	Method 1	1	9974.7	910023.36
5.746	Method 1	1	99	40 10023.5
5.632	Method 1	1	9966.1	10015.5
5.505	Method 1	1	9979.9	610035.65
5.439	Method 1	1	9980.6	610157.67
5.380	Method 1	1	9987.7	310062.35
5.310	Method 1	1	9981.7	610022.31
5.227	Method 1	1	99	5510027.18

5.207	Method 1	1	9968.110051.83	
5.176	Method 1	1	9983.5510033.72	
5.096	Method 1	1	9980.2210028.66	
5.007	Method 1	1	9975.4110057.71	
4.920	Method 1	1	9980.3210018.31	
4.879	Method 1	1	9979.810075.03	
4.839	Method 1	1	9978.33	10070
4.725	Method 1	1	9966.77	10020
4.628	Method 1	1	9957.0910045.54	
4.613	Method 1	1	9952.2210067.07	
4.536	Method 1	1	9983.29	10027.1
4.436	Method 1	1	9905	10018.9
4.412	Method 1	1	9970.33	10029.3
4.361	Method 1	1	9964	10018.5
4.256	Method 1	1	9974.56	10084.5
4.170	Method 1	1	9983.5910083.85	
4.077	Method 1	1	9925	10021.4
3.987	Method 1	1	9977.4	10050
3.895	Method 1	1	9973.510062.23	
3.803	Method 1	1	9961.86	10053.6
3.706	Method 1	1	9770.7710040.64	
3.671	Method 1	1	9752.0710120.11	
3.643	Method 1	1	9749.8410157.33	
3.617	Method 1	1	9838.8110013.52	
3.577	Method 1	1	9921.01	10050.7
3.515	Method 1	1	9967.6	10016
3.453	Method 1	1	9973.4	10034.5
3.366	Method 1	1	9961.7	10028
3.274	Method 1	1	9973.7210028.26	
3.186	Method 1	1	9967.410048.31	
3.121	Method 1	1	9945	10024.9
3.073	Method 1	1	9969.51	10047.3
3.015	Method 1	1	9951.4710033.83	
2.923	Method 1	1	9969.0710035.27	
2.880	Method 1	1	9988.0410057.95	
2.848	Method 1	1	9974.0610082.83	
2.813	Method 1	1	9938.210009.38	
2.770	Method 1	1	9967.0210051.22	
2.674	Method 1	1	9953.210012.93	
2.611	Method 1	1	996510020.12	
2.557	Method 1	1	9977.1310031.47	
2.467	Method 1	1	9960.0710035.06	
2.390	Method 1	1	9927.8210043.92	
2.347	Method 1	1	9994.7410163.11	
2.312	Method 1	1	9911.5910035.19	
2.230	Method 1	1	9931.9310030.32	
2.134	Method 1	1	9945.6510012.64	
2.047	Method 1	1	9970.410040.39	
1.992	Method 1	1	9958.4110054.45	
1.928	Method 1	1	9981.5310034.07	
1.862	Method 1	1	9976.3710029.51	
1.768	Method 1	1	9963.9610022.66	
1.709	Method 1	1	9967.9810054.36	
1.675	Method 1	1	9979.74	10052.8
1.637	Method 1	1	9983.71	10017
1.621	Method 1	1	9967.7910025.43	
1.590	Method 1	1	9968.4610034.51	
1.479	Method 1	1	9983.3810040.84	
1.398	Method 1	1	9988.1910018.43	
1.374	Method 1	1	9990.8410030.59	
1.367	Method 1	1	9981.1310012.61	
1.286	Method 1	1	9976.4210018.44	
1.208	Method 1	1	9970.5510021.38	
1.116	Method 1	1	9981.9910029.11	
1.010	Method 1	1	9986.7710013.13	
0.914	Method 1	1	9976.1410021.39	
0.850	Method 1	1	9978.0710032.34	
0.819	Method 1	1	9966.2310036.73	
0.724	Method 1	1	9954.5510034.85	
0.644	Method 1	1	9976.1510064.89	
0.575	Method 1	1	9978.28	10075.9
0.547	Method 1	1	9974.210037.44	
0.523	Method 1	1	9976.5910069.25	
0.484	Method 1	1	9959.0810017.67	
0.453	Method 1	1	9961.2110019.61	
0.414	Method 1	1	9952.8410023.59	
0.356	Method 1	1	9969.9610107.72	
0.323	Method 1	1	9980.4510037.86	
0.238	Method 1	1	9985.3210140.19	
0.190	Method 1	1	9966.4310090.41	
0.141	Method 1	1	9930.0310011.69	
0.046	Method 1	1	993210044.84	

River = Unnamed 1 Reach = Reach 1

RS	Profile	Method	Value1	Value2
6.311	PF 3	1	9986.4510021.63	
6.216	PF 3	1	9944.2410042.03	
6.100	PF 3	1	9979.1610045.18	
6.015	PF 3	1	9976.8310018.83	
5.969	PF 3	1	992210019.42	
5.917	PF 3	1	9987.8110028.23	
5.862	PF 3	1	9974.7910023.36	
5.746	PF 3	1	9940	10023.5
5.632	PF 3	1	9966.1	10015.5
5.505	PF 3	1	9979.9610035.65	

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5.439   PF 3                  1 9980.6610157.67
5.380   PF 3                  1 9987.7310062.35
5.310   PF 3                  1 9981.7610022.31
5.227   PF 3                  1    995510027.18
5.207   PF 3                  1  9968.110051.83
5.176   PF 3                  1 9983.5510033.72
5.096   PF 3                  1 9980.2210028.66
5.007   PF 3                  1 9975.4110057.71
4.920   PF 3                  1 9980.3210018.31
4.879   PF 3                  1  9979.810075.03
4.839   PF 3                  1 9978.33   10070
4.725   PF 3                  1 9966.77   10020
4.628   PF 3                  1 9957.0910045.54
4.613   PF 3                  1 9952.2210067.07
4.536   PF 3                  1 9983.29 10027.1
4.436   PF 3                  1    9905 10018.9
4.412   PF 3                  1 9970.33 10029.3
4.361   PF 3                  1    9964 10018.5
4.256   PF 3                  1 9974.56 10084.5
4.170   PF 3                  1 9983.5910083.85
4.077   PF 3                  1    9925 10021.4
3.987   PF 3                  1  9977.4   10050
3.895   PF 3                  1  9973.510062.23
3.803   PF 3                  1 9961.86 10053.6
3.706   PF 3                  1 9770.7710040.64
3.671   PF 3                  1 9752.0710120.11
3.643   PF 3                  1 9749.8410157.33
3.617   PF 3                  1 9838.8110013.52
3.577   PF 3                  1 9921.01 10050.7
3.515   PF 3                  1  9967.6   10016
3.453   PF 3                  1  9973.4 10034.5
3.366   PF 3                  1  9961.7   10028
3.274   PF 3                  1 9973.7210028.26
3.186   PF 3                  1  9967.410048.31
3.121   PF 3                  1    9945 10024.9
3.073   PF 3                  1 9969.51 10047.3
3.015   PF 3                  1 9951.4710033.83
2.923   PF 3                  1 9969.0710035.27
2.880   PF 3                  1 9988.0410057.95
2.848   PF 3                  1 9974.0610082.83
2.813   PF 3                  1  9938.210009.38
2.770   PF 3                  1 9967.0210051.22
2.674   PF 3                  1  9953.210012.93
2.611   PF 3                  1    996510020.12
2.557   PF 3                  1 9977.1310031.47
2.467   PF 3                  1 9960.0710035.06
2.390   PF 3                  1 9927.8210043.92
2.347   PF 3                  1 9994.7410163.11
2.312   PF 3                  1 9911.5910035.19
2.230   PF 3                  1 9931.9310030.32
2.134   PF 3                  1 9945.6510012.64
2.047   PF 3                  1  9970.410040.39
1.992   PF 3                  1 9958.4110054.45
1.928   PF 3                  1 9981.5310034.07
1.862   PF 3                  1 9976.3710029.51
1.768   PF 3                  1 9963.9610022.66
1.709   PF 3                  1 9967.9810054.36
1.675   PF 3                  1 9979.74 10052.8
1.637   PF 3                  1 9983.71   10017
1.621   PF 3                  1 9967.7910025.43
1.590   PF 3                  1 9968.4610034.51
1.479   PF 3                  1 9983.3810040.84
1.398   PF 3                  1 9988.1910018.43
1.374   PF 3                  1 9990.8410030.59
1.367   PF 3                  1 9981.1310012.61
1.286   PF 3                  1 9976.4210018.44
1.208   PF 3                  1 9970.5510021.38
1.116   PF 3                  1 9981.9910029.11
1.010   PF 3                  1 9986.7710013.13
0.914   PF 3                  1 9976.1410021.39
0.850   PF 3                  1 9978.0710032.34
0.819   PF 3                  1 9966.2310036.73
0.724   PF 3                  1 9954.5510034.85
0.644   PF 3                  1 9976.1510064.89
0.575   PF 3                  1 9978.28 10075.9
0.547   PF 3                  1  9974.210037.44
0.523   PF 3                  1 9976.5910069.25
0.484   PF 3                  1 9959.0810017.67
0.453   PF 3                  1 9961.2110019.61
0.414   PF 3                  1 9952.8410023.59
0.356   PF 3                  1 9969.9610107.72
0.323   PF 3                  1 9980.4510037.86
0.238   PF 3                  1 9985.3210140.19
0.190   PF 3                  1 9966.4310090.41
0.141   PF 3                  1 9930.0310011.69
0.046   PF 3                  1    993210044.84
```

FLOW DATA

Flow Title: 100-yr Existing Conditions
Flow File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash1\Un1_FpFw.f01

Flow Data (cfs)

River	Reach	RS	Floodplain	Method 1
Unnamed 1	Reach 1	6.311	750	750
Unnamed 1	Reach 1	5.862	1190	1190
Unnamed 1	Reach 1	4.613	2330	2330
Unnamed 1	Reach 1	3.015	2890	2890
Unnamed 1	Reach 1	1.286	3190	3190

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Unnamed 1	Reach 1	Floodplain		Known WS = 1367.6
Unnamed 1	Reach 1	Method 1		Known WS = 1368.5

GEOMETRY DATA

Geometry Title: Existing Conditions
Geometry File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash1\Un1_FpFw.g01

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 6.311

INPUT
Description: Upstream study limits at State Route 74.
100-year, 6-hour Peak
Discharge of 750 cfs from HEC-1 model at station S100.
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9957.1	1804.5	9960.6	1804.3	9988.1	1797	9994.6	1794	10006.9	1793.8
10007.9	1793.8	10009	1794	10019.3	1796.8	10027.7	1799.1	10040.6	1802.7
10043.5	1803.2	10049.5	1803.3	10050.4	1803.5	10057.7	1804	10059	1804

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9957.1	.05	9988.1	.04	10019.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.1	10019.3	500.34	502.22	485.2	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9972.60	9988.10	0.28	0.23	1.36	0.04	0.17	1.20
LB 9988.10	9994.34	70.81	11.16	6.87	9.44	1.79	6.34
9994.34	10000.58	218.82	21.17	6.27	29.18	3.39	10.33
10000.58	10006.82	230.71	21.82	6.24	30.76	3.50	10.57
10006.82	10013.06	179.80	18.98	6.41	23.97	3.04	9.47
10013.06	RB 10019.30	48.84	8.72	6.47	6.51	1.40	5.60
10019.30	10039.15	0.74	0.55	2.08	0.10	0.27	1.35

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9972.60	9988.10	0.29	0.24	1.38	0.04	0.18	1.21
LB 9988.10	9994.34	70.96	11.20	6.87	9.46	1.80	6.33
9994.34	10000.58	218.69	21.21	6.27	29.16	3.40	10.31
10000.58	10006.82	230.54	21.86	6.24	30.74	3.50	10.55
10006.82	10013.06	179.75	19.02	6.41	23.97	3.05	9.45
10013.06	RB 10019.30	49.02	8.76	6.47	6.54	1.40	5.60
10019.30	10039.15	0.76	0.56	2.10	0.10	0.28	1.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 6.216

INPUT

Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9877.5	1796	9905.1	1795.8	9914	1794.3	9921.9	1793.3	9941.3	1790.2
9945.8	1789.4	9946.5	1789.5	9954.5	1790	9960.1	1789.6	9960.2	1789.6
9977.3	1788.3	9979.7	1788.2	9983.9	1787.8	9995	1786.8	9999.9	1786.6
10001.3	1786.5	10005.2	1786.4	10014.5	1788.6	10016.3	1788.9	10016.4	1788.9
10037.9	1789.5	10040	1789.6	10041.3	1789.6	10041.7	1789.6	10052.5	1792.1
10071.9	1796.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9877.5	.05	9960.1	.04	10016.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.1	10016.3	586.24	612.12	616.6	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9918.80	9960.10	3.16	2.88	14.07	0.42	0.21	1.10
LB 9960.10	9971.34	22.62	8.05	11.27	3.02	0.72	2.81
9971.34	9982.58	81.71	17.40	11.27	10.89	1.55	4.70
9982.58	9993.82	179.51	27.91	11.29	23.94	2.48	6.43
9993.82	10005.06	286.29	36.89	11.25	38.17	3.28	7.76
10005.06	RB 10016.30	145.80	24.84	11.52	19.44	2.21	5.87
10016.30	10027.42	20.29	9.39	11.12	2.71	0.84	2.16
10027.42	10038.54	9.44	5.93	11.12	1.26	0.53	1.59
10038.54	10049.66	1.17	1.18	4.48	0.16	0.27	0.99

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9918.80	9960.10	2.87	2.58	12.61	0.38	0.21	1.12
LB 9960.10	9971.34	22.15	7.90	11.27	2.95	0.70	2.80
9971.34	9982.58	81.40	17.25	11.27	10.85	1.53	4.72
9982.58	9993.82	179.82	27.76	11.29	23.98	2.47	6.48
9993.82	10005.06	287.42	36.74	11.25	38.32	3.27	7.82
10005.06	RB 10016.30	145.89	24.69	11.52	19.45	2.20	5.91
10016.30	10027.42	20.15	9.24	11.12	2.69	0.83	2.18
10027.42	10038.54	9.23	5.78	11.12	1.23	0.52	1.60
10038.54	10049.66	1.08	1.03	3.71	0.14	0.29	1.05

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 6.100

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9939.7	1788.3	9941	1788.3	9942	1788.3	9970.6	1782.2	9974.5	1781.3
9981.02	1779.91	9987.1	1778.6	9990.4	1778.5	9998.7	1777.5	10000.2	1777.3
10001.3	1777.6	10011.4	1779.7	10011.4	1779.8	10019.2	1779.3	10024.1	1779
10029.2	1776.3	10029.6	1776.1	10030.2	1775.9	10031.7	1775.9	10034.1	1775.9
10034.5	1775.9	10035.1	1776.6	10037.2	1778.8	10039.4	1778.8	10040.1	1778.8
10043.4	1779.8	10043.5	1779.8	10082.5	1792				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9939.7	.05	9981.02	.04	10011.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.02	10011.4	451.51	450.15	445.11	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10011.4	10082.5	1778

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.36	9981.02	1.04	0.60	2.43	0.14	0.25	1.73
LB 9981.02	9987.10	39.91	7.06	6.22	5.32	1.16	5.65
9987.10	9993.17	97.16	11.94	6.10	12.95	1.97	8.13
9993.17	9999.25	156.14	15.90	6.12	20.82	2.62	9.82
9999.25	10005.32	153.34	15.82	6.21	20.45	2.60	9.69
10005.32	RB 10011.40	50.70	8.19	6.31	6.76	1.35	6.19
10011.40	10025.62	56.25	15.73	14.44	7.50	1.11	3.57
10025.62	10039.84	181.42	31.91	14.61	24.19	2.24	5.68
10039.84	10054.06	14.05	4.78	5.87	1.87	0.85	2.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.36	9981.02	1.16	0.60	2.03	0.16	0.32	1.93
LB 9981.02	9987.10	40.21	7.15	6.22	5.36	1.18	5.62
9987.10	9993.17	96.99	12.04	6.10	12.93	1.98	8.05
9993.17	9999.25	155.35	16.00	6.12	20.71	2.63	9.71
9999.25	10005.32	152.57	15.92	6.21	20.34	2.62	9.58
10005.32	RB 10011.40	50.92	8.29	6.31	6.79	1.36	6.14
10011.40	10025.62	56.91	15.96	14.44	7.59	1.12	3.57
10025.62	10039.84	181.34	32.14	14.61	24.18	2.26	5.64
10039.84	10054.06	14.56	4.85	5.68	1.94	0.91	3.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 6.015

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9883.2	1779.9	9896.2	1778.9	9923.5	1775.5	9945.3	1774.7	9960	1774.2
9961.1	1774.2	9963.2	1773.6	9978.8	1770.6	9980.6	1770.2	9981.6	1770.2
9984.6	1769.7	9998.1	1767.6	10005.1	1767.9	10012	1768.2	10017.9	1770.6
10020.1	1771.5	10040.4	1779.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9883.2	.05	9978.8	.04	10017.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.8	10017.9	211.42	243.72	251.7	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9931.00	9978.80	0.49	0.37	2.01	0.06	0.19	1.30
LB 9978.80	9986.62	35.79	7.82	7.93	4.77	1.00	4.58
9986.62	9994.44	133.74	17.22	7.91	17.83	2.20	7.77
9994.44	10002.26	250.13	25.01	7.87	33.35	3.20	10.00
10002.26	10010.08	229.66	23.72	7.83	30.62	3.03	9.68
10010.08	RB 10017.90	100.00	14.74	8.29	13.33	1.88	6.79
10017.90	10029.15	0.18	0.18	1.00	0.02	0.19	1.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9931.00	9978.80	0.52	0.39	2.02	0.07	0.20	1.33
LB 9978.80	9986.62	36.12	7.89	7.93	4.82	1.01	4.58
9986.62	9994.44	133.83	17.30	7.91	17.84	2.21	7.74
9994.44	10002.26	249.75	25.09	7.87	33.30	3.21	9.96
10002.26	10010.08	229.38	23.79	7.83	30.58	3.04	9.64
10010.08	RB 10017.90	100.19	14.81	8.29	13.36	1.89	6.76
10017.90	10029.15	0.20	0.18	1.01	0.03	0.20	1.06

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.969

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9768	1779.8	9768.1	1779.8	9797.6	1770.7	9805.8	1768	9811.8	1767.3
9823.4	1767.6	9825	1767.7	9827.5	1767.7	9850.4	1767.5	9863.4	1767.4
9883.5	1767.4	9899.1	1767.4	9926.7	1767.4	9940	1766.2	9942.1	1766
9943.6	1765.9	9954.6	1767.3	9957.7	1767.7	9959.7	1767.7	9982.1	1767.6
9982.2	1767.6	9986.6	1766.9	9996.8	1765.2	10000.4	1764.7	10004.3	1764.6
10005.9	1764.4	10011.9	1766.5	10018.1	1768.1	10041.9	1774		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9768	.06	9982.2	.045	10018.1	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.2	10018.1	230	275.47	239.47	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9789.42	9810.84	5.01	3.91	6.44	0.67	0.62	1.28
9810.84	9832.26	31.28	18.99	21.43	4.17	0.89	1.65
9832.26	9853.68	29.88	18.47	21.42	3.98	0.86	1.62
9853.68	9875.10	38.92	21.64	21.42	5.19	1.01	1.80
9875.10	9896.52	40.01	22.01	21.42	5.34	1.03	1.82
9896.52	9917.94	40.01	22.01	21.42	5.33	1.03	1.82
9917.94	9939.36	64.14	29.24	21.47	8.55	1.36	2.19
9939.36	9960.78	87.30	35.23	21.55	11.64	1.64	2.48
9960.78	9982.20	25.28	16.71	21.42	3.37	0.78	1.51
LB 9982.20	9989.38	28.36	10.07	7.27	3.78	1.40	2.82
9989.38	9996.56	78.73	18.59	7.28	10.50	2.59	4.24
9996.56	10003.74	137.45	25.88	7.22	18.33	3.60	5.31
10003.74	10010.92	120.14	24.23	7.49	16.02	3.37	4.96
10010.92	RB 10018.10	23.36	9.05	7.44	3.12	1.26	2.58
10018.10	10030.00	0.10	0.22	1.36	0.01	0.16	0.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9917.94	9939.36	78.50	29.15	18.67	10.47	1.68	2.69
9939.36	9960.78	122.25	40.26	21.55	16.30	1.88	3.04
9960.78	9982.20	43.95	21.74	21.42	5.86	1.01	2.02
LB 9982.20	9989.38	41.57	11.76	7.27	5.54	1.64	3.54
9989.38	9996.56	103.03	20.28	7.28	13.74	2.82	5.08
9996.56	10003.74	172.90	27.57	7.22	23.05	3.84	6.27
10003.74	10010.92	152.17	25.92	7.49	20.29	3.61	5.87
10010.92	RB 10018.10	35.17	10.73	7.44	4.69	1.50	3.28
10018.10	10030.00	0.45	0.53	1.60	0.06	0.40	0.85

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.917

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9944.8	1774.1	9944.9	1774.1	9986.5	1765.5	9987.6	1765.3	9987.7	1765.2
9988.6	1764.8	9998.1	1760.8	10003.8	1761	10008.8	1761.3	10012.9	1762.6
10017	1764	10019.4	1764.2	10025.6	1764.6	10034.2	1766.4	10041	1767.8
10045	1768.6	10055.2	1770.3	10055.3	1770.3	10055.5	1770.3	10057.6	1770.8

10059.8 1770.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9944.8	.06	9988.6	.045	10017	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.6	10017	324.93	289.48	252.02	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.70	9988.60	0.12	0.14	0.86	0.02	0.17	0.90
LB 9988.60	9994.28	42.37	8.78	6.16	5.65	1.55	4.83
9994.28	9999.96	192.93	21.58	6.01	25.72	3.80	8.94
9999.96	10005.64	234.46	23.73	5.69	31.26	4.18	9.88
10005.64	10011.32	190.98	21.16	5.81	25.46	3.73	9.02
10011.32	RB 10017.00	72.79	12.01	5.99	9.71	2.11	6.06
10017.00	10025.56	15.57	7.15	8.58	2.08	0.83	2.18
10025.56	10034.12	0.77	0.74	2.72	0.10	0.28	1.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.70	9988.60	0.11	0.13	0.83	0.02	0.17	0.89
LB 9988.60	9994.28	42.10	8.71	6.16	5.61	1.53	4.83
9994.28	9999.96	193.14	21.51	6.01	25.75	3.79	8.98
9999.96	10005.64	234.83	23.66	5.69	31.31	4.17	9.92
10005.64	10011.32	191.17	21.10	5.81	25.49	3.71	9.06
10011.32	RB 10017.00	72.58	11.94	5.99	9.68	2.10	6.08
10017.00	10025.56	15.33	7.05	8.58	2.04	0.82	2.17
10025.56	10034.12	0.74	0.71	2.67	0.10	0.27	1.03

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.862

INPUT
Description: 100-year, 6-hour Peak Discharge of 1190 cfs from HEC-1 model at station C102R.
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9943.8	1769.9	9946.7	1769.2	9955.6	1767.2	9958.3	1766.7	9964.4	1764
9971.9	1760.9	9975.5	1759.9	9977.7	1759.3	9988.5	1756.3	9992.1	1756.4
10002.8	1756.1	10008.9	1757.2	10018.5	1758.4	10022.8	1759.9	10033.5	1763.7
10041	1765.8	10045.2	1766						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9943.8	.05	9975.5	.04	10022.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.5	10022.8	589.89	611.99	649.58	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.65	9975.50	0.06	0.07	0.74	0.00	0.10	0.81
LB 9975.50	9984.96	81.64	14.20	9.82	6.86	1.50	5.75
9984.96	9994.42	352.32	33.85	9.60	29.61	3.58	10.41
9994.42	10003.88	406.96	36.73	9.48	34.20	3.88	11.08
10003.88	10013.34	264.17	28.45	9.58	22.20	3.01	9.28
10013.34	RB 10022.80	84.82	14.50	9.75	7.13	1.53	5.85
10022.80	10034.00	0.04	0.05	0.59	0.00	0.10	0.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.65	9975.50	0.06	0.08	0.74	0.01	0.11	0.84

LB 9975.50	9984.96	81.96	14.27	9.82	6.89	1.51	5.74
9984.96	9994.42	352.07	33.92	9.60	29.59	3.59	10.38
9994.42	10003.88	406.57	36.80	9.48	34.17	3.89	11.05
10003.88	10013.34	264.15	28.52	9.58	22.20	3.01	9.26
10013.34	RB 10022.80	85.14	14.57	9.75	7.16	1.54	5.85
10022.80	10034.00	0.04	0.06	0.60	0.00	0.11	0.69

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.746

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9841.7	1766.4	9846.3	1766.6	9869.1	1755.3	9872.8	1753.5	9882.5	1753.1
9884.2	1752.9	9888.3	1752.1	9890	1751.8	9891.4	1751.8	9891.9	1751.7
9892.5	1751.7	9893.7	1751.7	9922.6	1750.9	9945.2	1750.5	9964.8	1750
9964.9	1750	9968.3	1749.6	9971.9	1749.2	9976.4	1749.2	9981.2	1749
9985.1	1749.1	9986.6	1749	9991.4	1748.6	9992.3	1748.5	9992.7	1748.5
10001.1	1748.5	10004.9	1748.4	10013.9	1750.3	10023.5	1751.5	10024.5	1751.6
10027.7	1751.7	10037.8	1752.3	10054.4	1758.6	10081.8	1768.1	10083.3	1768.3
10084.2	1768.5	10091.3	1769.4	10094.3	1769.7	10095.7	1769.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9841.7	.05	9964.9	.04	10023.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964.9	10023.5	616.79	600.4	486.61	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9866.34	9890.98	0.07	0.14	1.61	0.01	0.09	0.48
9890.98	9915.62	17.50	11.74	24.66	1.47	0.48	1.49
9915.62	9940.26	69.96	26.96	24.65	5.88	1.09	2.60
9940.26	9964.90	132.03	39.46	24.65	11.10	1.60	3.35
LB 9964.90	9976.62	172.19	28.99	11.77	14.47	2.47	5.94
9976.62	9988.34	219.62	33.52	11.73	18.46	2.86	6.55
9988.34	10000.06	285.33	39.22	11.74	23.98	3.35	7.28
10000.06	10011.78	243.66	35.84	11.87	20.48	3.06	6.80
10011.78	RB 10023.50	48.40	13.57	11.84	4.07	1.16	3.57
10023.50	10059.60	1.22	1.56	7.74	0.10	0.20	0.78

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9915.62	9940.26	0.36	0.36	1.64	0.03	1.38	1.00
9940.26	9964.90	157.17	40.94	24.65	13.21	1.66	3.84
LB 9964.90	9976.62	184.39	29.70	11.77	15.49	2.53	6.21
9976.62	9988.34	233.93	34.22	11.73	19.66	2.92	6.84
9988.34	10000.06	302.41	39.92	11.74	25.41	3.41	7.58
10000.06	10011.78	258.95	36.54	11.87	21.76	3.12	7.09
10011.78	RB 10023.50	52.79	14.28	12.31	4.44	1.22	3.70

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.632

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9938.2	1752.3	9938.5	1752.3	9948.5	1749.9	9955	1748.3	9956.5	1747.9
9958.4	1747.4	9960	1746.9	9970.4	1745.2	9979.9	1743.3	9989.2	1742.2
9997.2	1741.6	10006.2	1741	10011.5	1743.1	10015.5	1744.7	10037.8	1747.6
10043.6	1748.4	10045	1748.7	10055.8	1751.3	10071.8	1757.2	10072	1757.3
10072.4	1757.4	10080.5	1759.8	10080.8	1759.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9938.2	.05	9970.4	.04	10015.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.4	10015.5	631.09	672.93	668.96	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.30	9970.40	2.21	1.51	4.36	0.19	0.35	1.46
LB 9970.40	9979.42	68.45	14.47	9.20	5.75	1.60	4.73
9979.42	9988.44	204.40	27.77	9.09	17.18	3.08	7.36
9988.44	9997.46	314.89	35.92	9.05	26.46	3.98	8.77
9997.46	10006.48	402.79	41.66	9.06	33.85	4.62	9.67
10006.48	RB 10015.50	187.52	27.07	9.71	15.76	3.00	6.93
10015.50	10048.15	9.73	5.56	9.33	0.82	0.60	1.75

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.30	9970.40	2.98	1.84	4.43	0.25	0.43	1.63
LB 9970.40	9979.42	72.78	15.15	9.20	6.12	1.68	4.80
9979.42	9988.44	209.58	28.45	9.09	17.61	3.15	7.37
9988.44	9997.46	319.94	36.60	9.05	26.89	4.06	8.74
9997.46	10006.48	407.49	42.34	9.06	34.24	4.69	9.62
10006.48	RB 10015.50	177.23	27.75	10.99	14.89	3.08	6.39

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.505

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9896	1749.7	9897.8	1749.6	9899	1749.5	9919.2	1747.7	9919.4	1747.7
9935.6	1745.3	9936.9	1745.1	9947.6	1743.4	9948.1	1743.3	9953.4	1742.7
9955.2	1742.5	9955.5	1742.4	9962.4	1741.2	9970.7	1739.8	9973.7	1739.2
9975.4	1739	9979	1737.9	9980.8	1737.3	9989.8	1734.4	9996.5	1734
9998.1	1734	10018	1734.9	10029.2	1735.5	10030.2	1735.8	10034.8	1737.3
10059.7	1745.5	10071.8	1750.3	10086.1	1752.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9896	.05	9980.8	.04	10034.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.8	10034.8	358.44	349.58	297.83	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.40	9980.80	0.11	0.12	0.88	0.01	0.14	0.95
LB 9980.80	9991.60	143.87	21.38	11.26	12.09	1.98	6.73
9991.60	10002.40	377.35	37.52	10.81	31.71	3.47	10.06
10002.40	10013.20	318.97	33.92	10.81	26.80	3.14	9.40
10013.20	10024.00	238.49	28.49	10.81	20.04	2.64	8.37
10024.00	RB 10034.80	111.10	18.20	11.09	9.34	1.69	6.11
10034.80	10060.45	0.09	0.12	0.89	0.01	0.14	0.79

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.40	9980.80	0.08	0.09	0.77	0.01	0.12	0.89
LB 9980.80	9991.60	142.74	21.01	11.26	11.99	1.95	6.79
9991.60	10002.40	379.15	37.15	10.81	31.86	3.44	10.21
10002.40	10013.20	319.93	33.55	10.81	26.89	3.11	9.54
10013.20	10024.00	238.37	28.12	10.81	20.03	2.60	8.48
10024.00	RB 10034.80	109.66	17.83	11.09	9.22	1.65	6.15
10034.80	10060.45	0.07	0.09	0.78	0.01	0.12	0.74

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.439

INPUT
Description:

Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9917.7	1738.2	9920.4	1738.1	9941.4	1737	9943.5	1736.8	9945.1	1736.7
9947.4	1736.4	9953.6	1735.4	9957.1	1735	9966.4	1733.5	9968.4	1733.2
9981.4	1731.3	9981.6	1731.2	9985.9	1729.3	9993.1	1726.8	10001.5	1726.6
10003.1	1726.5	10012.9	1729.3	10021	1731.9	10021.2	1731.9	10031.4	1731.7
10031.5	1731.7	10043.7	1731.9	10048.6	1732.2	10090.8	1732.6	10094.3	1732.6
10094.5	1732.6	10095	1732.6	10107.8	1732.3	10117.4	1732.1	10133.8	1731.9
10144.1	1730	10148.4	1729.2	10163.1	1732.7	10165	1733.1	10165.5	1733
10166.3	1733	10167.9	1733	10179.3	1732.1	10192.2	1733	10196.8	1733.7
10200.6	1734	10207.1	1734.7	10211.7	1735	10215.3	1735.4	10217	1735.6
10223.2	1735.8	10226.6	1735.9	10238.6	1736.2	10249.7	1736.8	10254.9	1736.8
10262.7	1737.2	10269.4	1737.7	10274.6	1738.1	10276.8	1738.3	10280.8	1738.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9917.7	.06	9981.6	.045	10021.2	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.6	10021.2	304.7	308.38	186.86	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9949.65	9981.60	0.04	0.07	0.97	0.00	0.08	0.60
LB 9981.60	9989.52	87.87	14.88	8.53	7.38	1.88	5.90
9989.52	9997.44	368.35	34.49	8.13	30.95	4.36	10.68
9997.44	10005.36	426.75	37.46	8.02	35.86	4.73	11.39
10005.36	10013.28	210.54	24.79	8.24	17.69	3.13	8.49
10013.28	RB 10021.20	24.11	6.14	6.50	2.03	0.99	3.93
10021.20	10125.04						
10125.04	10151.00	59.49	18.08	14.81	5.00	1.24	3.29
10151.00	10176.96	12.85	5.30	6.86	1.08	0.79	2.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9949.65	9981.60	0.08	0.11	1.01	0.01	0.12	0.76
LB 9981.60	9989.52	89.16	15.19	8.53	7.49	1.92	5.87
9989.52	9997.44	366.49	34.80	8.13	30.80	4.39	10.53
9997.44	10005.36	424.10	37.77	8.02	35.64	4.77	11.23
10005.36	10013.28	210.71	25.10	8.24	17.71	3.17	8.39
10013.28	RB 10021.20	24.90	6.39	6.63	2.09	1.01	3.90
10021.20	10125.04						
10125.04	10151.00	60.93	18.66	15.02	5.12	1.27	3.27
10151.00	10176.96	13.63	5.56	6.90	1.15	0.83	2.45

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.380

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9950.7	1733.7	9956.2	1733.4	9956.3	1733.3	9956.4	1733.3	9982.2	1727.3
9987	1726.1	9987.6	1725.8	9988.4	1725.4	9993.7	1722.8	9999.2	1722.3
10004.5	1721.9	10008.1	1723.2	10010.4	1723.5	10010.7	1723.4	10012	1723.1
10016.3	1723.2	10026.1	1723	10029.9	1722.9	10038.7	1722.9	10039.4	1722.9
10050.2	1722.7	10055.8	1722.4	10057.1	1722.3	10059.7	1722.2	10067	1722
10074.2	1723.1	10079.9	1723.8	10093.3	1724.6	10106.4	1725.2	10108.3	1725.7
10117.8	1728.1	10120.1	1728.7	10122.1	1729.4	10129.3	1732.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9950.7	.05	9988.4	.04	10010.4	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

9988.4 10010.4 320.42 372.83 351.4 .3 .5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.55	9988.40	0.08	0.11	0.75	0.01	0.17	0.67
LB 9988.40	9992.80	20.40	6.23	4.90	1.71	1.41	3.28
9992.80	9997.20	76.07	13.27	4.52	6.39	3.02	5.73
9997.20	10001.60	96.30	15.15	4.42	8.09	3.44	6.36
10001.60	10006.00	105.71	16.15	4.50	8.88	3.67	6.55
10006.00	RB 10010.40	60.52	11.61	4.55	5.09	2.64	5.21
10010.40	10027.39	153.29	44.40	17.04	12.88	2.61	3.45
10027.39	10044.37	176.79	48.31	16.99	14.86	2.84	3.66
10044.37	10061.36	216.53	54.58	17.00	18.20	3.21	3.97
10061.36	10078.34	208.26	53.44	17.10	17.50	3.15	3.90
10078.34	10095.33	62.66	25.95	17.02	5.27	1.53	2.41
10095.33	10112.31	13.39	9.28	13.19	1.13	0.71	1.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.55	9988.40	0.14	0.15	0.80	0.01	0.22	0.94
LB 9988.40	9992.80	26.75	6.44	4.90	2.25	1.46	4.15
9992.80	9997.20	96.83	13.49	4.52	8.14	3.07	7.18
9997.20	10001.60	122.18	15.37	4.42	10.27	3.49	7.95
10001.60	10006.00	133.92	16.37	4.50	11.25	3.72	8.18
10006.00	RB 10010.40	77.33	11.82	4.55	6.50	2.69	6.54
10010.40	10027.39	204.12	45.24	17.04	17.15	2.66	4.51
10027.39	10044.37	234.84	49.15	16.99	19.73	2.89	4.78
10044.37	10061.36	286.69	55.41	17.00	24.09	3.26	5.17
10061.36	10078.34	7.19	3.62	4.65	0.60	3.64	1.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.310

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9948.8	1728.8	9952.1	1728.5	9956.8	1728.1	9961.7	1727.5	9965.5	1726.1
9967.3	1725.7	9976.9	1722.5	9982.4	1720.5	9992.6	1716.7	9994.4	1716.1
9997.4	1716.3	10009.8	1716.6	10010.1	1716.7	10021.6	1720.5	10042.4	1727.3
10045.5	1728.4	10046	1728.4	10054.9	1730.2	10071.7	1733.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9948.8	.05	9982.4	.04	10021.6	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9982.4 10021.6 421.6 435.07 440 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9965.60	9982.40	0.06	0.08	0.68	0.01	0.12	0.86
LB 9982.40	9990.24	77.06	13.28	8.37	6.48	1.69	5.80
9990.24	9998.08	356.82	32.89	8.10	29.98	4.20	10.85
9998.08	10005.92	383.22	33.89	7.84	32.20	4.32	11.31
10005.92	10013.76	307.27	30.00	8.05	25.82	3.83	10.24
10013.76	RB 10021.60	65.52	11.99	8.26	5.51	1.53	5.47
10021.60	10046.65	0.06	0.08	0.75	0.01	0.12	0.72

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9965.60	9982.40	0.38	0.28	1.00	0.03	0.44	1.36
LB 9982.40	9990.24	88.62	15.78	8.37	7.45	2.01	5.62
9990.24	9998.08	347.86	35.39	8.10	29.23	4.51	9.83
9998.08	10005.92	372.31	36.39	7.84	31.29	4.64	10.23
10005.92	10013.76	302.96	32.49	8.05	25.46	4.14	9.32
10013.76	RB 10021.60	77.51	14.49	8.26	6.51	1.85	5.35

10021.60	10046.65	0.36	0.31	1.07	0.03	0.44	1.16

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.227

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9881.7	1720.8	9888.3	1720.8	9898.4	1718.6	9913.9	1715	9932.6	1714.7
9935.2	1714.7	9948.4	1714.6	9963.6	1714.5	9968.2	1714.5	9980.8	1714.3
9989.2	1712.1	9990.8	1711.7	9994.2	1711.6	9999	1711.5	10004.2	1711.4
10007.4	1712.1	10010.2	1712.7	10015.2	1713.4	10021.9	1714.6	10023.7	1715.1
10026	1715.6	10028	1716	10038.9	1718.1	10046.3	1719.5	10064.1	1720.5
10088.1	1721.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9881.7	.06	9980.8	.045	10026	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.8	10026	133.79	104.47	92.26	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9901.52	9921.34	16.34	8.16	11.13	1.37	0.74	2.00
9921.34	9941.16	56.43	21.62	19.82	4.74	1.09	2.61
9941.16	9960.98	70.97	24.80	19.82	5.96	1.25	2.86
9960.98	9980.80	85.31	27.70	19.82	7.17	1.40	3.08
LB 9980.80	9989.84	145.44	24.58	9.34	12.22	2.72	5.92
9989.84	9998.88	308.44	38.13	9.07	25.92	4.22	8.09
9998.88	10007.92	309.54	38.31	9.13	26.01	4.24	8.08
10007.92	10016.96	158.05	25.64	9.17	13.28	2.84	6.16
10016.96	RB 10026.00	39.40	11.18	9.24	3.31	1.24	3.53
10026.00	10057.05	0.07	0.14	1.20	0.01	0.12	0.51

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.16	9960.98	21.59	7.31	7.18	1.81	1.22	2.95
9960.98	9980.80	92.08	26.21	19.82	7.74	1.32	3.51
LB 9980.80	9989.84	161.47	23.90	9.34	13.57	2.64	6.76
9989.84	9998.88	348.22	37.45	9.07	29.26	4.14	9.30
9998.88	10007.92	349.51	37.63	9.13	29.37	4.16	9.29
10007.92	10016.96	175.82	24.96	9.17	14.77	2.76	7.04
10016.96	RB 10026.00	41.29	10.50	9.24	3.47	1.16	3.93
10026.00	10057.05	0.03	0.06	0.82	0.00	0.08	0.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.207

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9918.9	1719.4	9928.1	1719.5	9930.6	1719.5	9932.7	1719.6	9945.4	1716.8
9955.9	1714.6	9963.2	1714	9968.1	1713.7	9968.1	1713.6	9978.5	1711.9
9979.4	1711.8	9985.1	1711.3	9987.5	1711.3	9988.6	1711.1	9994.1	1710.5
9996.2	1710.4	10006.6	1710.6	10009.2	1710.6	10013.2	1711.4	10020.6	1712.7
10028.3	1713.3	10039.3	1714.1	10046.7	1714.8	10057.4	1715.8	10069.2	1716.7
10074.8	1717.1	10089.6	1718.3	10091.6	1718.4	10094.5	1718.7	10097.8	1718.9
10108.7	1719.7	10117.5	1720.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9918.9	.06	9968.1	.045	10020.6	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.1	10020.6	178.73	164.6	122.28	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.70	9968.10	24.96	15.26	15.55	2.10	0.99	1.64
LB 9968.10	9978.60	105.07	26.65	10.74	8.83	2.54	3.94
9978.60	9989.10	210.57	40.15	10.55	17.69	3.82	5.24
9989.10	9999.60	295.35	49.16	10.53	24.82	4.68	6.01
9999.60	10010.10	299.32	49.53	10.52	25.15	4.72	6.04
10010.10	RB 10020.60	181.39	36.89	10.67	15.24	3.51	4.92

10020.60	10052.90	73.35	42.30	31.34	6.16	1.35	1.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9968.10	9978.60	98.66	26.66	12.32	8.29	2.54	3.70
9978.60	9989.10	216.63	40.16	10.55	18.20	3.82	5.39
9989.10	9999.60	303.82	49.17	10.53	25.53	4.68	6.18
9999.60	10010.10	307.91	49.54	10.52	25.87	4.72	6.22
10010.10	RB 10020.60	186.62	36.90	10.67	15.68	3.51	5.06
10020.60	10052.90	76.36	42.33	31.34	6.42	1.36	1.80

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.176

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9928.1	1723.1	9932.1	1723	9938.3	1722.8	9940.6	1722.6	9949.1	1722
9964.3	1721.4	9966.2	1721.2	9966.7	1721.2	9971.3	1719	9983.8	1712.8
9992	1708.8	10004.5	1708.5	10007.7	1708.4	10010	1709.1	10016	1710.7
10016.1	1710.7	10045.4	1714.4	10060.8	1716.3	10067.8	1717.1	10073	1717.7
10080.2	1718.2	10082.6	1718.3	10087.1	1718.7	10094.1	1719.4	10095.2	1719.6
10104.7	1720.7	10107.1	1721	10115.9	1722	10119.7	1722.5	10125.7	1723.3
10131	1723.8	10137.2	1724.5	10142	1725	10150.2	1726.8	10151.8	1727.1
10162.2	1728.9	10168.4	1729.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9928.1	.05	9983.8	.04	10016	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.8	10016	370.18	425.37	451.12	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.95	9983.80	0.01	0.02	0.28	0.00	0.06	0.52
LB 9983.80	9990.24	60.52	10.92	7.17	5.09	1.70	5.54
9990.24	9996.68	271.58	26.07	6.64	22.82	4.05	10.42
9996.68	10003.12	308.17	27.78	6.44	25.90	4.31	11.09
10003.12	10009.56	314.83	28.29	6.53	26.46	4.39	11.13
10009.56	RB 10016.00	172.08	19.86	6.67	14.46	3.08	8.66
10016.00	10066.80	62.81	19.82	17.86	5.28	1.12	3.17

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.95	9983.80	0.02	0.03	0.33	0.00	0.11	0.67
LB 9983.80	9990.24	62.03	11.25	7.17	5.21	1.75	5.51
9990.24	9996.68	270.37	26.40	6.64	22.72	4.10	10.24
9996.68	10003.12	306.41	28.12	6.44	25.75	4.37	10.90
10003.12	10009.56	312.92	28.62	6.53	26.30	4.45	10.93
10009.56	RB 10016.00	172.46	20.20	6.67	14.49	3.14	8.54
10016.00	10066.80	65.79	20.74	17.91	5.53	1.17	3.17

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the

cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.096

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9902.5	1714	9913.9	1713.3	9917.1	1713.1	9938.7	1711.9	9942.3	1711.7
9943.1	1711.6	9951.1	1711.3	9960.8	1710.9	9965.1	1710.1	9981.8	1706.8
9988.6	1704.1	9992.8	1702.4	9998.7	1702.5	10003.8	1702.6	10006	1703
10009	1703.7	10018.9	1704.7	10022.4	1705.1	10028	1706.9	10035.4	1709.3
10049.6	1714.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9902.5	.05	9981.8	.04	10028	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.8	10028	471.85	467.51	464.25	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.15	9981.80	0.23	0.25	1.61	0.02	0.16	0.93
LB 9981.80	9991.04	117.29	19.86	9.95	9.86	2.15	5.90
9991.04	10000.28	432.37	42.44	9.38	36.33	4.59	10.19
10000.28	10009.52	368.72	38.54	9.36	30.99	4.17	9.57
10009.52	10018.76	201.50	26.74	9.29	16.93	2.89	7.54
10018.76	RB 10028.00	69.85	14.32	9.55	5.87	1.55	4.88
10028.00	10038.80	0.04	0.07	0.69	0.00	0.11	0.59

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.15	9981.80	0.27	0.28	1.63	0.02	0.18	0.98
LB 9981.80	9991.04	117.89	20.03	9.95	9.91	2.17	5.88
9991.04	10000.28	431.32	42.61	9.38	36.25	4.61	10.12
10000.28	10009.52	368.07	38.71	9.36	30.93	4.19	9.51
10009.52	10018.76	201.80	26.91	9.29	16.96	2.91	7.50
10018.76	RB 10028.00	70.59	14.49	9.55	5.93	1.57	4.87
10028.00	10038.80	0.05	0.08	0.71	0.00	0.12	0.63

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 5.007

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9918.5	1720	9919	1719.9	9923.6	1719.1	9927.6	1717.2	9930	1716.3
9933.2	1715.4	9935.4	1714.6	9941.2	1713.9	9946.4	1713.2	9957.2	1709.1
9966.1	1706	9982.4	1700.4	9984.7	1700.1	9988.5	1699.7	9994	1698
9995.1	1697.6	10005.3	1697.4	10006.3	1697.4	10009.2	1698.6	10017.8	1701.8
10017.9	1701.8	10027.2	1701.5	10033.7	1701.5	10040.1	1701.8	10057.7	1702.8
10060.5	1703.2	10072.1	1704.7	10098.9	1708.4	10119.8	1708.8	10140.8	1709.1
10152.6	1709.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9918.5	.05	9988.5	.04	10017.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.5	10017.8	443.93	461.58	472.84	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.50	9988.50	100.19	25.29	13.53	8.42	1.93	3.96
LB 9988.50	9994.36	178.22	23.49	6.14	14.98	4.01	7.59
9994.36	10000.22	284.72	30.64	5.91	23.93	5.23	9.29
10000.22	10006.08	298.26	31.40	5.86	25.06	5.36	9.50
10006.08	10011.94	197.73	25.23	6.28	16.62	4.31	7.84
10011.94	RB 10017.80	59.58	12.26	6.25	5.01	2.09	4.86
10017.80	10044.76	66.43	30.70	26.98	5.58	1.14	2.16
10044.76	10071.72	4.88	4.78	12.97	0.41	0.37	1.02

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.50	9988.50	99.64	24.96	13.45	8.37	1.92	3.99
LB 9988.50	9994.36	178.47	23.34	6.14	15.00	3.98	7.65
9994.36	10000.22	285.83	30.49	5.91	24.02	5.20	9.37
10000.22	10006.08	299.48	31.26	5.86	25.17	5.33	9.58
10006.08	10011.94	198.15	25.08	6.28	16.65	4.28	7.90
10011.94	RB 10017.80	59.09	12.11	6.25	4.97	2.07	4.88
10017.80	10044.76	64.83	30.02	26.98	5.45	1.11	2.16
10044.76	10071.72	4.50	4.46	12.55	0.38	0.36	1.01

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.920

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9911.6	1704.1	9923.7	1704.3	9928.1	1704.6	9935.7	1702.1	9949.3	1697.5
9952.2	1697.2	9973	1696.9	9982.8	1697	9989.7	1695.2	9995.8	1693.6
10007.6	1693.7	10008.3	1693.7	10008.8	1693.9	10016	1697.1	10017.4	1697.8
10020.8	1699.3	10030.2	1703.3	10035.7	1704.2	10039.7	1704.8	10042.7	1705
10057.5	1705.1	10058	1705.1	10092.8	1704.6	10096.9	1704.5	10098.2	1704.5
10103.9	1704.3	10108.2	1704.2	10112.3	1704.2	10117.4	1704		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9911.6	.05	9982.8	.04	10017.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.8	10017.4	217.01	217.23	200.01	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9940.08	9954.32	14.07	5.35	7.23	1.18	0.75	2.63
9954.32	9968.56	56.42	16.16	14.24	4.74	1.14	3.49
9968.56	9982.80	66.92	17.91	14.24	5.62	1.26	3.74
LB 9982.80	9989.72	89.24	14.56	7.15	7.50	2.10	6.13
9989.72	9996.64	250.20	26.99	7.13	21.02	3.90	9.27
9996.64	10003.56	331.66	31.60	6.92	27.87	4.57	10.50
10003.56	10010.48	302.04	30.21	7.12	25.38	4.37	10.00
10010.48	RB 10017.40	79.29	13.90	7.61	6.66	2.01	5.70
10017.40	10037.40	0.16	0.18	1.00	0.01	0.20	0.88

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.56	9982.80	13.00	4.57	4.34	1.09	1.84	2.84
LB 9982.80	9989.72	118.21	18.92	7.15	9.93	2.73	6.25
9989.72	9996.64	274.90	31.36	7.13	23.10	4.53	8.77
9996.64	10003.56	352.19	35.96	6.92	29.60	5.20	9.79
10003.56	10010.48	323.71	34.57	7.12	27.20	5.00	9.36
10010.48	RB 10017.40	106.96	18.27	7.61	8.99	2.64	5.86
10017.40	10037.40	1.04	0.76	1.62	0.09	0.83	1.37

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.879

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9916.4	1703.8	9919.5	1703.7	9930	1703	9950	1695.3	9953.5	1693.8
9954.4	1694.1	9955.7	1694.5	9958.7	1695.5	9975	1695.3	9979.7	1695.2
9979.8	1695.2	9990.4	1692.3	9990.6	1692.3	9991.1	1692.3	10005	1692.3
10012.5	1695.2	10013.9	1695.8	10014	1695.8	10014.8	1695.8	10024.7	1695.6
10028.8	1695.8	10036.3	1696	10039.6	1696	10048.9	1696.2	10058.4	1696
10061.4	1696	10066.8	1695.6	10074.4	1694.7	10077.8	1694.8	10083.4	1695.3
10091.8	1693.1	10092.8	1692.9	10096.3	1693.5	10103.8	1694.8	10106.6	1695.5
10115.2	1697.5	10120.5	1698.4	10125.4	1699.3	10128.6	1700	10135.9	1701.3
10138.1	1701.8	10146.1	1703.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9916.4	.06	9979.8	.045	10014	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.8	10014	233.03	210.17	100.03	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.76	9954.44	35.12	13.71	9.05	2.95	1.63	2.56
9954.44	9967.12	53.27	20.28	12.90	4.48	1.60	2.63
9967.12	9979.80	49.36	19.24	12.68	4.15	1.52	2.57
LB 9979.80	9986.64	79.52	17.54	7.09	6.68	2.56	4.53
9986.64	9993.48	186.29	29.04	6.98	15.65	4.25	6.42
9993.48	10000.32	210.25	30.98	6.84	17.67	4.53	6.79
10000.32	10007.16	197.13	30.07	7.00	16.57	4.40	6.56
10007.16	RB 10014.00	67.83	16.17	7.35	5.70	2.36	4.20
10014.00	10027.21	23.60	14.92	13.21	1.98	1.13	1.58
10027.21	10040.42	16.56	12.06	13.21	1.39	0.91	1.37
10040.42	10053.63	10.75	9.31	13.21	0.90	0.70	1.15
10053.63	10066.84	15.95	11.80	13.23	1.34	0.89	1.35
10066.84	10080.05	52.36	24.11	13.27	4.40	1.82	2.17
10080.05	10093.26	88.61	33.31	13.53	7.45	2.52	2.66
10093.26	10106.47	99.02	35.52	13.45	8.32	2.69	2.79
10106.47	10119.68	4.39	3.97	6.00	0.37	0.68	1.11

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9979.80	9986.64	98.53	19.00	8.93	8.28	2.78	5.19
9986.64	9993.48	255.70	30.50	6.98	21.49	4.46	8.38
9993.48	10000.32	287.14	32.44	6.84	24.13	4.74	8.85
10000.32	10007.16	269.83	31.53	7.00	22.68	4.61	8.56
10007.16	RB 10014.00	99.10	17.63	7.35	8.33	2.58	5.62
10014.00	10027.21	45.42	17.74	13.21	3.82	1.34	2.56
10027.21	10040.42	33.89	14.88	13.21	2.85	1.13	2.28
10040.42	10053.63	24.10	12.13	13.21	2.02	0.92	1.99
10053.63	10066.84	32.87	14.62	13.23	2.76	1.11	2.25
10066.84	10080.05	43.42	15.79	10.57	3.65	1.93	2.75

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.839

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9941.6	1720.8	9942.4	1721	9946.2	1719.2	9951.2	1718.1	9955.6	1716.7
9955.7	1716.7	9958.5	1712.6	9975.4	1697.1	9978.6	1694.6	9982.3	1691.7
9990.7	1691.7	9995.1	1691.6	9998.4	1691	9999	1690.9	9999.8	1690.8
10004.9	1690.2	10014.1	1692.3	10015.3	1692.6	10015.4	1692.6	10017.7	1692.8
10027.5	1693.8	10033	1693.9	10046.8	1694.2	10048.6	1694.4	10049.7	1694.5
10056.7	1695	10065.2	1694.9	10074	1694.8	10081.9	1692.7	10084.9	1691.9
10087.9	1692.5	10097.3	1694.5	10103.2	1695.6	10104.9	1696	10124.3	1696.1
10125	1696.1	10125.1	1696.1	10125.2	1696.1	10146.2	1700.4	10155.5	1702
10158.1	1702.5	10164.2	1703.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9941.6	.05	9978.6	.04	10015.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.6	10015.3	556.24	603.05	622.93	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.10	9978.60	0.02	0.03	0.35	0.00	0.11	0.58
LB 9978.60	9985.94	104.99	17.49	8.34	8.82	2.38	6.00
9985.94	9993.28	179.55	22.93	7.34	15.09	3.12	7.83
9993.28	10000.62	223.12	26.23	7.42	18.75	3.57	8.51
10000.62	10007.96	305.34	31.72	7.45	25.66	4.32	9.63
10007.96	RB 10015.30	171.89	22.58	7.53	14.44	3.08	7.61
10015.30	10033.91	76.66	26.05	18.67	6.44	1.40	2.94
10033.91	10052.53	20.07	11.65	18.64	1.69	0.63	1.72
10052.53	10071.14	0.03	0.09	1.58	0.00	0.06	0.35
10071.14	10089.75	88.89	27.72	17.47	7.47	1.63	3.21
10089.75	10108.36	19.43	8.70	9.43	1.63	0.94	2.23

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.10	9978.60	0.12	0.13	0.74	0.01	0.50	0.87
LB 9978.60	9985.94	121.05	20.37	8.34	10.17	2.77	5.94
9985.94	9993.28	195.59	25.81	7.34	16.44	3.52	7.58
9993.28	10000.62	237.40	29.11	7.42	19.95	3.97	8.16
10000.62	10007.96	315.69	34.60	7.45	26.53	4.71	9.13
10007.96	RB 10015.30	187.80	25.45	7.53	15.78	3.47	7.38
10015.30	10033.91	92.08	33.34	18.67	7.74	1.79	2.76
10033.91	10052.53	35.92	18.94	18.64	3.02	1.02	1.90
10052.53	10071.14	4.36	5.25	17.85	0.37	0.30	0.83

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.725

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9902.5	1698.7	9904	1697.5	9915	1694.4	9922.7	1692.2	9928	1689.1
9930.4	1687.5	9938.6	1686.1	9939.1	1686	9939.5	1686	9951.6	1686.1
9953.4	1686.4	9970.2	1686.3	9978	1685.2	9978.8	1685.1	9983.7	1684.8
9994.2	1684.1	9997.4	1684.5	10002	1685	10006.4	1685.4	10008	1685.7
10008	1685.8	10023.3	1686.3	10028.2	1686.7	10034.9	1688.6	10044.3	1690.3
10044.6	1690.3	10044.7	1690.4	10045.4	1690.5	10050.2	1690.9	10053.4	1691.9
10066.3	1695	10078	1697.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9902.5	.05	9970.2	.04	10008	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.2	10008	468.06	507.76	505.61	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9929.58	9943.12	53.04	14.34	13.12	4.46	1.11	3.70
9943.12	9956.66	90.60	20.05	13.57	7.61	1.48	4.52
9956.66	9970.20	73.79	17.71	13.54	6.20	1.31	4.17
LB 9970.20	9977.76	92.63	14.22	7.63	7.78	1.88	6.51
9977.76	9985.32	171.25	20.51	7.58	14.39	2.71	8.35
9985.32	9992.88	226.61	24.25	7.58	19.04	3.21	9.34
9992.88	10000.44	228.47	24.41	7.61	19.20	3.23	9.36
10000.44	RB 10008.00	141.19	18.39	7.71	11.86	2.43	7.68
10008.00	10031.33	112.42	31.66	23.48	9.45	1.36	3.55
10031.33	10054.67	0.00	0.01	0.22	0.00	0.03	0.27

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.66	9970.20	21.51	5.37	4.99	1.81	1.56	4.01
LB 9970.20	9977.76	121.93	15.94	7.63	10.25	2.11	7.65
9977.76	9985.32	213.18	22.22	7.58	17.91	2.94	9.59
9985.32	9992.88	276.52	25.97	7.58	23.24	3.43	10.65
9992.88	10000.44	278.59	26.12	7.61	23.41	3.46	10.66
10000.44	RB 10008.00	178.37	20.11	7.71	14.99	2.66	8.87
10008.00	10031.33	99.92	22.55	13.69	8.40	1.88	4.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.628

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9895.3	1684.7	9896.1	1684.7	9902.9	1684	9909.3	1683.7	9914.5	1683.5
9916.9	1683.4	9918.9	1683.4	9924	1683.1	9927.4	1683	9933.9	1682.7
9936.9	1682.6	9939.9	1682.6	9948.3	1682.7	9948.9	1682.7	9955	1682.2
9956.8	1681.9	9965.3	1680.4	9974.8	1678.7	9976.3	1678.6	9983.2	1677.9
9986.1	1677.3	9993.1	1676.2	10000.2	1676.6	10000.6	1676.6	10001	1676.6
10001.5	1676.7	10008	1677.1	10016.1	1676.9	10023	1676.7	10030	1678
10039.6	1680.3	10039.7	1680.4	10041.9	1681	10045.3	1681.8	10053.8	1683.5
10058.2	1684.4	10064	1685.2	10069.6	1685.7	10075.1	1686.5	10081.7	1686.8
10084	1687								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9895.3	.05	9965.3	.04	10039.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9965.3	10039.7	98.84	82.09	73.9	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9930.30	9965.30	5.66	5.94	8.33	0.48	0.72	0.95
LB 9965.30	9980.18	110.79	40.00	15.05	9.31	2.69	2.77
9980.18	9995.06	284.57	70.43	15.05	23.91	4.73	4.04
9995.06	10009.94	324.59	75.95	14.91	27.28	5.10	4.27
10009.94	10024.82	310.16	73.91	14.92	26.06	4.97	4.20
10024.82	RB 10039.70	151.12	48.48	15.28	12.70	3.26	3.12
10039.70	10061.85	3.10	4.06	6.02	0.26	0.69	0.76

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9930.30	9965.30	5.97	6.19	8.37	0.50	0.75	0.96
LB 9965.30	9980.18	111.53	40.45	15.05	9.37	2.72	2.76
9980.18	9995.06	284.16	70.88	15.05	23.88	4.76	4.01
9995.06	10009.94	323.87	76.40	14.91	27.22	5.13	4.24
10009.94	10024.82	309.56	74.36	14.92	26.01	5.00	4.16
10024.82	RB 10039.70	151.63	48.93	15.28	12.74	3.29	3.10
10039.70	10061.85	3.28	4.23	6.05	0.28	0.73	0.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.613

INPUT
Description: 100-year, 6-hour Peak Discharge of 2330 cfs from HEC-1 model at station C103R.
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9900	1682.9	9904.4	1682.7	9909.3	1682.5	9915.1	1682.4	9921.5	1682.1
9935.8	1681.5	9940.9	1681.4	9944.5	1681.2	9950.6	1681	9952.4	1680.8
9959	1680.6	9959.7	1680.6	9960.8	1680.5	9966.8	1679.5	9984.4	1676.4
9987.8	1675.8	9988.1	1675.8	9988.3	1675.8	9988.7	1675.7	9995.4	1675.7
9997.5	1675.3	10001.6	1675	10005.7	1675	10015.3	1675	10019.2	1675.7
10031.7	1677.8	10039.2	1678.4	10062.5	1680.4	10070.1	1681.1	10082.3	1681.6
10094.8	1682.1	10098	1682.3	10099.1	1682.3	10100.3	1682.3	10112.6	1682.7
10115.1	1682.8	10124	1683.3	10124.2	1683.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9900	.05	9988.3	.04	10039.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.3	10039.2	430.45	408.6	345.74	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9944.15	9988.30	280.51	75.25	36.50	12.04	2.09	3.73
LB 9988.30	9998.48	442.33	52.95	10.23	18.98	5.20	8.35
9998.48	10008.66	529.70	58.90	10.19	22.73	5.79	8.99
10008.66	10018.84	516.56	58.13	10.24	22.17	5.71	8.89
10018.84	10029.02	323.43	44.04	10.32	13.88	4.33	7.34
10029.02	RB 10039.20	163.00	29.10	10.24	7.00	2.86	5.60
10039.20	10081.70	74.47	34.06	27.97	3.20	1.22	2.19

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9944.15	9988.30	290.83	79.16	36.60	12.48	2.19	3.67
LB 9988.30	9998.48	437.65	54.05	10.23	18.78	5.31	8.10
9998.48	10008.66	522.30	60.00	10.19	22.42	5.89	8.70
10008.66	10018.84	509.55	59.23	10.24	21.87	5.82	8.60
10018.84	10029.02	322.21	45.14	10.32	13.83	4.43	7.14
10029.02	RB 10039.20	165.79	30.20	10.24	7.12	2.97	5.49
10039.20	10081.70	81.68	37.07	28.08	3.51	1.33	2.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.536

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934.5	1693.5	9939.4	1693.3	9941.6	1693.2	9942	1693.2	9942.5	1693
9979.4	1678.3	9984.4	1675.6	9989.5	1672.9	9994	1671.6	9996.3	1670.5
10007.3	1670.4	10015.5	1670.3	10020.6	1672	10027.1	1674.2	10036.7	1674.7
10041	1675	10048	1676.7	10057.9	1678.9	10075.7	1680.3	10105.6	1682.7
10116.6	1684.4	10134.3	1687.1	10137.5	1687.4	10143.5	1688	10144.9	1688.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934.5	.06	9984.4	.04	10027.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.4	10027.1	488.47	524.83	547.46	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.45	9984.40	0.38	0.33	1.26	0.02	0.30	1.16
LB 9984.40	9992.94	168.29	22.99	9.35	7.22	2.69	7.32
9992.94	10001.48	559.14	46.19	8.83	24.00	5.41	12.10
10001.48	10010.02	639.64	49.40	8.54	27.45	5.79	12.95
10010.02	10018.56	615.03	48.63	8.71	26.40	5.69	12.65
10018.56	RB 10027.10	259.77	29.40	9.01	11.15	3.44	8.84
10027.10	10056.55	87.75	25.54	19.00	3.77	1.36	3.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.45	9984.40	0.93	0.61	1.51	0.04	0.55	1.51
LB 9984.40	9992.94	189.70	25.14	9.35	8.14	2.94	7.54
9992.94	10001.48	585.83	48.34	8.83	25.14	5.66	12.12
10001.48	10010.02	666.94	51.55	8.54	28.62	6.04	12.94
10010.02	10018.56	642.00	50.78	8.71	27.55	5.95	12.64
10018.56	RB 10027.10	244.61	31.55	11.26	10.50	3.69	7.75

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.436

INPUT
Description:

Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9838.4	1676.2	9839.9	1676	9842.1	1675.8	9846.9	1675.1	9852.8	1674.4
9855.2	1674.1	9858.9	1673.7	9861.2	1673.5	9863.5	1673.2	9871.3	1672
9873.5	1671.5	9881.1	1669.5	9882.1	1669.2	9889	1667.9	9892.7	1667.1
9894.4	1667	9908.6	1667.7	9909.9	1667.8	9913.2	1668.2	9922.2	1669
9928.1	1668.4	9930.2	1668.5	9951.1	1667.6	9957.5	1667.2	9958.3	1667.2
9966.8	1667.5	9969.4	1667.5	9969.5	1667.5	9974.5	1667	9977.6	1666.6
9978.9	1666.5	9984.2	1666.2	9988.6	1666.4	9991.6	1666.6	9997.2	1665.7
9997.3	1665.7	9997.4	1665.7	10000.7	1666	10000.9	1666	10010.1	1666.8
10014.2	1667.2	10018.9	1668.1	10030.4	1669.8	10030.9	1669.9	10031.2	1669.9
10031.4	1669.9	10050.1	1671.9	10051.2	1672.1	10055.7	1672.5	10061.2	1673.1
10066.3	1673.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9838.4	.05	9969.4	.04	10018.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.4	10018.9	113.89	127.12	100.61	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.412

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9935.8	1675.7	9949.3	1672.3	9960.9	1669.3	9964.7	1668.2	9967.5	1667.5
9971.7	1666.3	9975.2	1665.3	9986.1	1661.8	9987.9	1661.4	9989.3	1661
9990.6	1660.7	9993.5	1660.8	9996.8	1660.6	9999.8	1661.1	10007.1	1662.2
10007.3	1662.2	10014.5	1662.1	10016.4	1661.9	10018.7	1662	10023.5	1663.1
10026.4	1663.8	10029.3	1664.3	10029.4	1664.3	10032.6	1664.3	10038.4	1663.8
10041.4	1664.4	10042.6	1664.7	10047.5	1664.7	10053.5	1663.8	10059.2	1663.9
10064.8	1664	10072.1	1663.9	10073.3	1663.7	10074.6	1663.6	10079.1	1663.8
10079.6	1664	10081.4	1664.8	10085.7	1665.9	10087.2	1666.1	10094.7	1667.9
10101	1668.4	10109.1	1669	10117	1671.1	10121.2	1672.4	10124.9	1673.3
10128.8	1673.8	10136.4	1675.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9935.8	.05	9971.7	.04	10029.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.7	10029.3	270.09	270.35	257.05	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.75	9971.70	0.21	0.27	1.43	0.01	0.20	0.77
LB 9971.70	9983.22	109.94	24.62	12.06	4.72	2.14	4.47
9983.22	9994.74	517.19	61.80	11.80	22.20	5.36	8.37
9994.74	10006.26	538.12	62.93	11.64	23.10	5.46	8.55
10006.26	10017.78	405.40	52.93	11.54	17.40	4.59	7.66
10017.78	RB 10029.30	264.53	41.29	11.77	11.35	3.58	6.41
10029.30	10050.72	171.49	50.53	21.57	7.36	2.36	3.39
10050.72	10072.14	223.83	59.16	21.45	9.61	2.76	3.78
10072.14	10093.56	99.29	33.85	17.99	4.26	1.93	2.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.75	9971.70	1.08	0.72	1.76	0.05	0.53	1.49
LB 9971.70	9983.22	160.52	28.42	12.06	6.89	2.47	5.65
9983.22	9994.74	656.69	65.60	11.80	28.18	5.69	10.01
9994.74	10006.26	682.07	66.73	11.64	29.27	5.79	10.22
10006.26	10017.78	523.11	56.72	11.54	22.45	4.92	9.22
10017.78	RB 10029.30	306.53	45.09	14.49	13.16	3.91	6.80

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.361

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9892.7	1674.3	9895.3	1674.2	9897.8	1673.9	9904.6	1672.9	9906.2	1672.8
9912.4	1671.7	9913.2	1671.4	9913.5	1671.3	9920.8	1668.5	9935.2	1662.6
9937.6	1662.4	9950.7	1661.9	9958.4	1661.8	9964	1661.8	9964.1	1661.8
9966.5	1661.6	9977.7	1660.1	9978	1660	10002.9	1658.1	10003.7	1658.2
10018.4	1662	10018.5	1662	10029.4	1662.9	10030	1662.9	10030.5	1663
10031.1	1663.2	10037.6	1665.1	10051.2	1669	10053.7	1669.6	10055.3	1669.7
10069.9	1670.6	10078.9	1670.9	10089.2	1670.9	10089.8	1671		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9892.7	.05	9964	.04	10018.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964	10018.5	556.72	552.25	500.69	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9928.35	9946.17	57.40	15.95	13.70	2.46	1.18	3.60
9946.17	9964.00	148.81	31.38	17.83	6.39	1.76	4.74
LB 9964.00	9974.90	191.49	26.59	10.98	8.22	2.44	7.20
9974.90	9985.80	395.62	41.06	10.96	16.98	3.77	9.64
9985.80	9996.70	561.16	50.58	10.93	24.08	4.64	11.09
9996.70	10007.60	668.03	56.40	11.05	28.67	5.17	11.84
10007.60	RB 10018.50	267.88	32.84	11.26	11.50	3.01	8.16
10018.50	10042.27	39.61	14.26	14.21	1.70	1.01	2.78

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9964.00	9974.90	220.10	33.09	13.41	9.45	3.04	6.65
9974.90	9985.80	460.85	47.56	10.96	19.78	4.36	9.69
9985.80	9996.70	625.88	57.09	10.93	26.86	5.24	10.96
9996.70	10007.60	730.52	62.91	11.05	31.35	5.77	11.61
10007.60	RB 10018.50	292.65	39.34	13.48	12.56	3.61	7.44

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.256

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9942.9	1668.6	9949.8	1667	9950.7	1666.7	9953	1666.3	9962	1663.5

9965.8	1661.9	9974.6	1659	9981.3	1657.6	9983.7	1657.1	9988.1	1655.6
9998.4	1654.1	9998.5	1654.1	9998.6	1654	9998.8	1654	10014.8	1653.7
10022.3	1655	10034.9	1657	10035	1657	10050	1657.2	10056.7	1657.3
10062.5	1657.1	10082.4	1655.7	10082.9	1655.6	10083.8	1655.7	10093.5	1656.7
10113.6	1657.5	10119.2	1657.7	10139.9	1661.3	10149.6	1663.1	10155.2	1663.4
10171.2	1664.6	10173.5	1664.8	10179.5	1665.2	10182.8	1665.3	10184.4	1665.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9942.9	.05	9981.3	.04	10034.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.3	10034.9	394.19	454.34	451.53	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.50	9981.30	9.40	4.79	6.89	0.40	0.71	1.96
LB 9981.30	9992.02	178.21	30.22	11.06	7.65	2.82	5.90
9992.02	10002.74	422.26	50.29	10.83	18.12	4.69	8.40
10002.74	10013.46	502.92	55.63	10.72	21.58	5.19	9.04
10013.46	10024.18	408.68	49.36	10.86	17.54	4.60	8.28
10024.18	RB 10034.90	185.40	30.72	10.85	7.96	2.87	6.04
10034.90	10053.59	107.61	35.34	18.69	4.62	1.89	3.05
10053.59	10072.28	121.42	38.01	18.72	5.21	2.03	3.19
10072.28	10090.96	229.56	55.77	18.77	9.85	2.98	4.12
10090.96	10109.65	123.49	38.40	18.71	5.30	2.05	3.22
10109.65	10128.34	41.05	19.19	17.23	1.76	1.12	2.14

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.50	9981.30	9.23	4.21	6.49	0.40	0.66	2.19
LB 9981.30	9992.02	197.10	29.28	11.06	8.46	2.73	6.73
9992.02	10002.74	477.04	49.35	10.83	20.47	4.60	9.67
10002.74	10013.46	569.89	54.69	10.72	24.46	5.10	10.42
10013.46	10024.18	461.42	48.42	10.86	19.80	4.52	9.53
10024.18	RB 10034.90	205.24	29.78	10.85	8.81	2.78	6.89
10034.90	10053.59	120.72	33.70	18.69	5.18	1.80	3.58
10053.59	10072.28	136.98	36.38	18.72	5.88	1.95	3.77
10072.28	10090.96	152.38	35.89	15.42	6.54	2.94	4.25

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.170

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9959.1	1664.3	9965	1663.7	9968.2	1663.3	9976.7	1658.1	9985.8	1652.7
9992.7	1648.6	9998.8	1648.8	10009.6	1649	10012.7	1649.6	10019.6	1651
10021.1	1651.2	10054.3	1651.7	10058.6	1651.8	10059	1651.8	10075.6	1652.4
10094	1656	10099.3	1657.1	10110.4	1657.5	10120.7	1657.9	10137.6	1658.6
10146.6	1658.9	10149.8	1659.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9959.1	.05	9985.8	.04	10021.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.8	10021.1	452.9	494.4	500.88	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.90	9985.80	3.33	1.45	2.57	0.14	0.66	2.29
LB 9985.80	9992.86	201.11	24.07	8.19	8.63	3.41	8.35
9992.86	9999.92	461.96	37.38	7.06	19.83	5.29	12.36
9999.92	10006.98	438.04	36.20	7.06	18.80	5.13	12.10
10006.98	10014.04	382.82	33.55	7.15	16.43	4.75	11.41
10014.04	RB 10021.10	222.23	24.26	7.19	9.54	3.44	9.16
10021.10	10037.19	225.19	43.32	16.09	9.66	2.69	5.20
10037.19	10053.27	192.43	39.42	16.09	8.26	2.45	4.88
10053.27	10069.36	150.34	34.00	16.10	6.45	2.11	4.42
10069.36	10085.45	52.55	17.42	14.65	2.26	1.20	3.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.90	9985.80	4.66	1.96	2.80	0.20	0.89	2.37
LB 9985.80	9992.86	201.67	25.70	8.19	8.66	3.64	7.85
9992.86	9999.92	445.98	39.01	7.06	19.14	5.52	11.43
9999.92	10006.98	423.84	37.82	7.06	18.19	5.36	11.21
10006.98	10014.04	372.51	35.17	7.15	15.99	4.98	10.59
10014.04	RB 10021.10	222.66	25.89	7.19	9.56	3.67	8.60
10021.10	10037.19	232.98	47.03	16.09	10.00	2.92	4.95
10037.19	10053.27	201.68	43.13	16.09	8.66	2.68	4.68
10053.27	10069.36	161.18	37.71	16.10	6.92	2.34	4.27
10069.36	10085.45	62.83	20.76	14.88	2.70	1.43	3.03

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 4.077

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9847.3	1656.6	9848.2	1656.3	9857	1653.4	9870.8	1650.9	9873.6	1650.5
9876.2	1649.9	9886.1	1648.1	9890.7	1647	9899.8	1647.2	9907.7	1647.3
9912.4	1647.7	9931.5	1648.4	9936.6	1648.5	9951.4	1647.8	9974.2	1646.8
9979.9	1646.6	9982.8	1646.6	9982.9	1646.6	9985.8	1646	9994.5	1644.5
9994.7	1644.5	10008.7	1644.2	10013.5	1645.5	10021.4	1647.5	10027.1	1649
10029.8	1649.7	10032.1	1650.3	10033	1650.4	10054	1651.7	10061.2	1652
10064.4	1652.1	10070.9	1652.4	10077.8	1652.5	10087.6	1652.8	10094.6	1652.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9847.3	.05	9982.8	.04	10021.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.8	10021.4	464.33	473.79	447.83	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9874.40	9887.95	25.13	10.91	11.11	1.08	1.00	2.30
9887.95	9901.50	153.23	35.05	13.63	6.58	2.59	4.37
9901.50	9915.05	127.08	31.27	13.57	5.45	2.31	4.06
9915.05	9928.60	76.50	23.05	13.56	3.28	1.70	3.32
9928.60	9942.15	52.16	18.32	13.56	2.24	1.35	2.85
9942.15	9955.70	86.15	24.76	13.57	3.70	1.83	3.48
9955.70	9969.25	138.78	32.96	13.56	5.96	2.43	4.21
9969.25	9982.80	196.01	40.54	13.56	8.41	2.99	4.84
LB 9982.80	9990.52	218.73	29.91	7.85	9.39	3.87	7.31
9990.52	9998.24	346.44	39.28	7.78	14.87	5.09	8.82
9998.24	10005.96	385.16	41.73	7.72	16.53	5.41	9.23
10005.96	10013.68	344.52	39.39	7.90	14.79	5.10	8.75
10013.68	RB 10021.40	159.45	24.89	7.96	6.84	3.22	6.41
10021.40	10045.80	20.67	9.61	8.87	0.89	1.12	2.15

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9915.05	9928.60	18.80	6.64	5.51	0.81	1.85	2.83
9928.60	9942.15	80.26	22.74	13.56	3.44	1.68	3.53
9942.15	9955.70	121.59	29.18	13.57	5.22	2.15	4.17
9955.70	9969.25	183.71	37.38	13.56	7.88	2.76	4.92
9969.25	9982.80	249.98	44.96	13.56	10.73	3.32	5.56
LB 9982.80	9990.52	262.67	32.43	7.85	11.27	4.20	8.10
9990.52	9998.24	403.29	41.80	7.78	17.31	5.41	9.65
9998.24	10005.96	445.71	44.25	7.72	19.13	5.73	10.07
10005.96	10013.68	400.93	41.90	7.90	17.21	5.43	9.57
10013.68	RB 10021.40	163.05	27.40	10.54	7.00	3.55	5.95

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1

REACH: Reach 1 RS: 3.987

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9874.9	1656.6	9879.5	1655.9	9891.8	1653.9	9892.9	1653.9	9895.6	1653.7
9902.4	1652.8	9909.3	1651.8	9911	1651.7	9913.6	1651.5	9920.3	1651.1
9922.7	1650.7	9930	1650	9932.6	1649.8	9933.2	1649.7	9933.7	1649.7
9935.4	1649.1	9938.3	1648.5	9952.6	1645	9956.8	1644.5	9963.4	1643.5
9969.1	1643	9977.3	1642.6	9977.4	1642.6	9979.8	1642.2	9983.5	1641.8
9987.5	1641.4	10005.6	1640.4	10011.8	1640.1	10013.9	1640.7	10021.6	1642.7
10021.7	1642.7	10027.4	1642.8	10028	1642.8	10029.4	1643	10037.6	1644
10041.4	1643.9	10049.5	1643.6	10057.8	1642.4	10059.4	1642.2	10061.3	1642.3
10062.3	1642.6	10062.9	1642.3	10067.9	1643	10089.4	1645.9	10094.2	1646.6
10094.7	1646.7	10095.4	1646.7	10095.9	1646.8	10103.4	1647	10118.2	1646.9
10131.2	1647.2	10152	1646.7	10157.2	1647	10168.6	1647	10180.6	1647.3
10181.6	1647.3	10182.2	1647.3	10183.6	1647.3	10185.2	1647.3	10213.2	1647.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9874.9	.05	9977.4	.04	10021.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.4	10021.7	482.25	485.32	487.05	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9926.15	9977.40	165.93	38.87	25.44	7.12	1.54	4.27
LB 9977.40	9986.26	232.35	27.60	8.93	9.97	3.12	8.42
9986.26	9995.12	337.76	34.47	8.88	14.50	3.89	9.80
9995.12	10003.98	412.30	38.85	8.87	17.70	4.38	10.61
10003.98	10012.84	483.60	42.82	8.91	20.76	4.83	11.29
10012.84	RB 10021.70	283.32	31.41	9.16	12.16	3.54	9.02
10021.70	10069.58	381.79	94.30	48.24	16.39	1.97	4.05
10069.58	10117.45	32.93	13.28	14.16	1.41	0.95	2.48

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9977.40	9986.26	243.14	36.57	12.46	10.44	4.13	6.65
9986.26	9995.12	406.01	43.43	8.88	17.43	4.90	9.35
9995.12	10003.98	476.58	47.81	8.87	20.45	5.40	9.97
10003.98	10012.84	542.87	51.78	8.91	23.30	5.84	10.48
10012.84	RB 10021.70	352.08	40.37	9.16	15.11	4.56	8.72
10021.70	10069.58	309.32	76.19	30.99	13.28	2.69	4.06

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.895

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9866.5	1656.7	9874.3	1655.1	9881.7	1654	9890.7	1652.7	9891.7	1652.5
9898	1651.3	9898.2	1651.3	9925.1	1645.6	9926.3	1645.3	9926.7	1645.2
9929.3	1644.5	9943.9	1640.8	9952.3	1639.1	9955.3	1639	9969.2	1639.3
9972.6	1639.3	9972.8	1639.3	9973.3	1639.3	9973.5	1639.3	9974.6	1639.2
9987.5	1637.3	9996.6	1637.3	10003.6	1637.4	10010.7	1638.3	10022.5	1639.8
10022.7	1639.8	10061.8	1640	10065	1640.1	10069.4	1640	10071.2	1639.9
10084	1639.5	10091.5	1640.5	10091.7	1640.5	10091.9	1640.5	10092.5	1640.5
10094.5	1640.5	10101.6	1640.4	10110	1641.5	10115.8	1642	10120.9	1642.6
10135.5	1645.5	10146.1	1647.3	10148.1	1648.1	10153.6	1649.3	10160.5	1651
10164.5	1651.9	10169	1652.3	10171.9	1652.8	10175.8	1653.7	10180	1654.4
10187.7	1657.6	10188	1657.7	10189	1658.1	10194.6	1659.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9866.5	.05	9973.5	.04	10022.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.5	10022.7	486.27	485.61	441.58	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9902.17	9937.83	0.34	0.54	2.13	0.01	0.26	0.63
9937.83	9973.50	365.42	110.62	36.03	15.68	3.10	3.30
LB 9973.50	9983.34	215.02	41.59	9.94	9.23	4.23	5.17
9983.34	9993.18	327.72	53.44	9.88	14.07	5.43	6.13
9993.18	10003.02	338.84	54.43	9.84	14.54	5.53	6.23
10003.02	10012.86	276.31	48.30	9.91	11.86	4.91	5.72
10012.86	RB 10022.70	169.45	36.02	9.92	7.27	3.66	4.70
10022.70	10065.67	335.10	126.64	42.98	14.38	2.95	2.65
10065.67	10108.65	288.72	115.95	43.11	12.39	2.70	2.49
10108.65	10151.63	13.07	11.43	13.66	0.56	0.84	1.14

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9973.50	9983.34	254.94	41.61	13.50	10.94	4.23	6.13
9983.34	9993.18	476.55	53.46	9.88	20.45	5.43	8.91
9993.18	10003.02	492.72	54.44	9.84	21.15	5.53	9.05
10003.02	10012.86	401.81	48.31	9.91	17.25	4.91	8.32
10012.86	RB 10022.70	246.45	36.04	9.92	10.58	3.66	6.84
10022.70	10065.67	457.54	117.05	42.38	19.64	2.96	3.91

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.803

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9933.2	1659.1	9949.3	1649.5	9959.3	1643.4	9968.9	1638.4	9969.9	1638
9973.8	1636.3	9978.9	1634.2	9991.2	1634.6	10003.9	1634.8	10007.4	1634.7
10020.9	1635.6	10024.5	1635.8	10044.9	1637.8	10053.6	1638.8	10053.7	1638.8
10060.4	1639.5	10066.9	1639.8	10072.9	1640.6	10091.3	1643	10092.3	1643.2
10092.5	1643.2	10100.5	1644.2	10105.2	1645.3	10116.7	1648.1	10124.6	1650.2
10133	1652.1	10140.4	1654.4	10157	1658.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9933.2	.05	9969.9	.04	10053.6	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.9	10053.6	464.92	512	525.26	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.67	9969.90	25.71	16.78	9.02	1.10	2.09	1.53
LB 9969.90	9986.64	492.75	113.87	17.51	21.15	6.80	4.33
9986.64	10003.38	586.60	124.17	16.74	25.18	7.42	4.72
10003.38	10020.12	536.09	117.71	16.77	23.01	7.03	4.55
10020.12	10036.86	394.14	97.96	16.81	16.92	5.85	4.02
10036.86	RB 10053.60	226.21	70.25	16.84	9.71	4.20	3.22
10053.60	10088.07	68.50	55.04	30.74	2.94	1.80	1.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.67	9969.90	27.00	16.65	8.98	1.16	2.08	1.62
LB 9969.90	9986.64	513.44	113.60	17.51	22.04	6.79	4.52
9986.64	10003.38	611.42	123.90	16.74	26.24	7.40	4.93
10003.38	10020.12	558.67	117.45	16.77	23.98	7.02	4.76
10020.12	10036.86	410.43	97.69	16.81	17.61	5.84	4.20
10036.86	RB 10053.60	209.03	69.99	20.09	8.97	4.18	2.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1

REACH: Reach 1 RS: 3.706

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9609.8	1650.3	9612.5	1650.2	9616.8	1649.7	9624.7	1649.2	9632.1	1648.7
9646.6	1648.2	9647.5	1648.1	9648	1648.1	9649.8	1647.9	9654.9	1647.7
9664	1646.6	9672.1	1646	9679.9	1645.5	9681.9	1645.4	9684.4	1645.3
9686	1645.2	9697.7	1644.5	9711.8	1643.6	9715.2	1643.6	9720.3	1643.5
9728.6	1643.2	9737.1	1643	9747.5	1642.7	9749.7	1642.7	9760.3	1642.5
9761.5	1642.4	9761.9	1642.4	9782.2	1641.8	9784.7	1641.4	9791.6	1640.9
9795	1640.7	9800	1639.9	9803.7	1639.5	9807	1639.4	9824.9	1637.7
9830.8	1637.2	9853.9	1635.8	9858	1635.7	9859.5	1635.6	9866	1635.1
9867.9	1634.9	9878.3	1634.2	9884.5	1633.7	9892	1633.5	9895.2	1633.5
9901.1	1633.2	9904.5	1633.2	9910.6	1632.9	9932.7	1632.1	9944.4	1632
9959.4	1631.8	9961.2	1631.8	9978.2	1631.9	9984.5	1631.9	9986.1	1631.8
10012.6	1630.6	10017.3	1632.8	10020.3	1634	10044.8	1643.8	10049.4	1645
10058	1647.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9609.8	.05	9910.6	.04	10020.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9910.6	10020.3	228.4	183.34	184.01	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9760.20	9835.40	65.29	156.95	64.88	2.80	2.43	0.42
9835.40	9910.60	491.67	559.51	75.33	21.10	7.44	0.88
LB 9910.60	9932.54	313.25	211.39	21.95	13.44	9.63	1.48
9932.54	9954.48	341.28	222:49	21.94	14.65	10.14	1.53
9954.48	9976.42	350.21	225.97	21.94	15.03	10.30	1.55
9976.42	9998.36	358.78	229.33	21.96	15.40	10.45	1.56
9998.36	RB 10020.30	365.68	234.98	22.68	15.69	10.71	1.56
10020.30	10032.87	40.88	70.68	13.53	1.75	5.62	0.58
10032.87	10045.43	2.97	12.10	8.38	0.13	1.56	0.25

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9760.20	9835.40	65.29	156.95	64.88	2.80	2.43	0.42
9835.40	9910.60	491.67	559.51	75.33	21.10	7.44	0.88
LB 9910.60	9932.54	313.24	211.39	21.95	13.44	9.63	1.48
9932.54	9954.48	341.28	222.49	21.94	14.65	10.14	1.53
9954.48	9976.42	350.21	225.97	21.94	15.03	10.30	1.55
9976.42	9998.36	358.77	229.33	21.96	15.40	10.45	1.56
9998.36	RB 10020.30	365.68	234.98	22.68	15.69	10.71	1.56
10020.30	10032.87	40.88	70.68	13.53	1.75	5.62	0.58
10032.87	10045.43	2.97	12.10	8.37	0.13	1.56	0.25

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.671

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9692.5	1650.6	9704.6	1648.9	9716.7	1647.4	9728.1	1645.8	9743.1	1643.5
9745.6	1643	9754.6	1641.8	9755.4	1641.8	9756	1641.7	9767.7	1639.2
9769.3	1639	9772.9	1638.7	9776.2	1638.1	9780	1637.4	9780.5	1637.3
9791.6	1635.3	9792.5	1635	9794.3	1634.7	9815	1633.8	9825.5	1632.9
9827.8	1633	9829.3	1632.9	9839.6	1632.4	9840.2	1632.4	9845.8	1632.1
9850.7	1631.8	9850.9	1631.8	9860.8	1630.5	9863.3	1630.2	9866.8	1629.9
9875	1629	9877.2	1629	9879.4	1629	9883.1	1629	9916.8	1629.2
9942.8	1629.3	9943.5	1629.3	9943.9	1629.3	9944.9	1629.3	9988.5	1629.3
10004.7	1629.2	10014.3	1630.3	10026.1	1631.8	10057.4	1635.9	10062.2	1636.7
10065.1	1636.7	10072	1638	10079.6	1638.9	10082.3	1639.3	10086	1639.5
10087.4	1639.5	10099.9	1640	10100.6	1640.1	10100.9	1640.1	10113.6	1641.3
10123.7	1642.6	10137.7	1644.1	10143.2	1644.5	10149.6	1645.6	10153.1	1645.9
10158	1646.5	10161.1	1646.7	10162.8	1647	10180.9	1649.6	10198.3	1652.1
10198.6	1652.1	10200.3	1652.3	10203.3	1652.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9692.5	.05	9850.9	.04	10026.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850.9	10026.1	117.28	149.51	153.42	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9732.10	9771.70	5.41	33.31	19.95	0.23	1.70	0.16
9771.70	9811.30	99.38	252.41	40.00	4.27	6.37	0.39
9811.30	9850.90	187.88	368.66	39.68	8.06	9.31	0.51
LB 9850.90	9885.94	360.94	428.30	35.21	15.49	12.22	0.84
9885.94	9920.98	402.12	456.13	35.04	17.26	13.02	0.88
9920.98	9956.02	394.24	450.74	35.04	16.92	12.86	0.87
9956.02	9991.06	392.95	449.86	35.04	16.86	12.84	0.87
9991.06	RB 10026.10	357.28	425.66	35.20	15.33	12.15	0.84
10026.10	10070.40	112.19	329.37	44.73	4.82	7.44	0.34
10070.40	10114.70	17.54	107.94	44.50	0.75	2.44	0.16
10114.70	10159.00	0.08	1.88	5.45	0.00	0.35	0.04

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9732.10	9771.70	5.41	33.31	19.95	0.23	1.70	0.16
9771.70	9811.30	99.38	252.41	40.00	4.27	6.37	0.39
9811.30	9850.90	187.88	368.66	39.68	8.06	9.31	0.51
LB 9850.90	9885.94	360.94	428.30	35.21	15.49	12.22	0.84
9885.94	9920.98	402.12	456.13	35.04	17.26	13.02	0.88
9920.98	9956.02	394.24	450.74	35.04	16.92	12.86	0.87
9956.02	9991.06	392.94	449.86	35.04	16.86	12.84	0.87
9991.06	RB 10026.10	357.28	425.66	35.20	15.33	12.15	0.84
10026.10	10070.40	112.19	329.37	44.73	4.82	7.44	0.34
10070.40	10114.70	17.54	107.94	44.50	0.75	2.44	0.16
10114.70	10159.00	0.08	1.88	5.45	0.00	0.35	0.04

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.643

INPUT
Description: Cross section immediately upstream of stock tank embankment
(modeled as an inline weir).
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700.9	1650.3	9705.9	1649.6	9709.9	1648.9	9719.5	1647.5	9733.7	1645.1
9738.8	1644.4	9754.9	1641.1	9760.2	1641.6	9771.6	1643.7	9771.8	1643.6
9771.9	1643.6	9789.7	1640.8	9814.9	1637.8	9819.6	1636.7	9833.8	1633.5
9836.3	1632.9	9851.8	1631.3	9859.4	1630.5	9867.4	1629.5	9867.5	1629.5
9872.4	1629	9883.9	1627.8	9884	1627.8	9885.1	1627.7	9897.7	1627.7
9908.7	1627.6	9913.4	1627.5	9914	1627.5	9916	1627.6	9929.6	1627.5
9930.6	1627.5	9930.8	1627.5	9944.9	1627.4	9948.8	1627.9	9950	1627.5
9960	1627.6	9965.9	1627.7	9971.5	1627.8	9977.7	1627.8	9982.8	1627.9
9988.9	1628	9993.4	1628	9999.2	1628.1	10005.9	1628.2	10007.5	1628.2
10025.6	1628.4	10030.1	1628.6	10035.3	1628.6	10038.6	1628.6	10041.9	1628.8
10044.6	1628.9	10045.2	1629	10045.4	1629	10058	1629.1	10058.2	1629.1
10069.6	1628.9	10070	1628.9	10080.6	1629.7	10082.1	1629.9	10083.9	1630.3
10089.8	1630.8	10094.2	1631.5	10096.3	1632.1	10099.4	1632.8	10107.2	1634.4
10108	1634.5	10112.1	1635	10118.5	1635.8	10123	1636.5	10129.3	1637.5
10135.8	1638.8	10137.3	1639	10143.3	1639.9	10145	1640.2	10183.8	1646.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700.9	.05	9867.5	.04	10045.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.5	10045.2	137.8	139.23	137.67	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9700.9	9771.52	1644.95

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9736.21	9771.52	0.00	7.59	13.46	0.00	0.57	0.00
9771.52	9819.51	15.90	99.68	38.72	0.68	2.60	0.16
9819.51	9867.50	176.14	462.13	48.61	7.56	9.63	0.38
LB 9867.50	9903.04	356.24	497.54	35.63	15.29	14.00	0.72
9903.04	9938.58	382.50	518.72	35.54	16.42	14.60	0.74
9938.58	9974.12	378.89	516.32	35.64	16.26	14.53	0.73
9974.12	10009.66	362.39	502.17	35.54	15.55	14.13	0.72
10009.66	RB 10045.20	341.81	484.96	35.56	14.67	13.65	0.70
10045.20	10079.85	179.94	451.93	34.68	7.72	13.04	0.40
10079.85	10114.50	109.75	337.79	35.17	4.71	9.75	0.32
10114.50	10149.15	26.17	142.81	35.10	1.12	4.12	0.18
10149.15	10183.80	0.28	5.25	8.28	0.01	0.64	0.05

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9736.21	9771.52	0.00	7.59	13.46	0.00	0.57	0.00
9771.52	9819.51	15.90	99.68	38.72	0.68	2.60	0.16
9819.51	9867.50	176.14	462.13	48.61	7.56	9.63	0.38
LB 9867.50	9903.04	356.24	497.54	35.63	15.29	14.00	0.72
9903.04	9938.58	382.50	518.72	35.54	16.42	14.60	0.74
9938.58	9974.12	378.89	516.32	35.64	16.26	14.53	0.73
9974.12	10009.66	362.39	502.17	35.54	15.55	14.13	0.72
10009.66	RB 10045.20	341.81	484.96	35.56	14.67	13.65	0.70

10045.20	10079.85	179.94	451.93	34.68	7.72	13.04	0.40
10079.85	10114.50	109.75	337.79	35.17	4.71	9.75	0.32
10114.50	10149.15	26.17	142.81	35.10	1.12	4.12	0.18
10149.15	10183.80	0.28	5.25	8.28	0.01	0.64	0.05

Warning: The encroachment was ignored because the encroachment was coded either outside of the cross section or inside of the channel.

INLINE WEIR RIVER: Unnamed 1
REACH: Reach 1 RS: 3.631

INPUT
Description: Earthen embankment at Bailey stock tank
Distance from Upstream XS = 65
Deck/Roadway Width = 10
Weir Coefficient = 3
Bridge Deck/Roadway Skew = 0
Weir Embankment Coordinates num = 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9781	1642	9955	1642	9960	1640	10060	1640	10080	1636
10110	1640	10183.8	1646.3						

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
Downstream Embankment side slope = 2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1636
Weir crest shape = Broad Crested

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.617

INPUT
Description: Cross section immediately downstream of stock tank embankment (modeled as an inline weir).
No reduction in peak discharge due to potential storage behind the embankment
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9762.8	1640.9	9791.3	1635.9	9813.5	1631	9816.5	1630.5	9819	1630.2
9828.8	1628.1	9838.7	1626.2	9848.5	1624.4	9850.8	1623.9	9864.1	1624
9879.7	1624	9889	1624	9891	1624	9901.4	1624	9903.6	1624
9913.6	1623.9	9913.7	1623.9	9923.5	1624.7	9933	1625.1	9933.9	1625.2
9934	1625.2	9935.2	1625	9945.2	1624.5	9945.6	1624.5	9945.7	1624.5
9946.5	1624.4	9957.2	1624.5	9958.7	1624.4	9966	1624.5	9976.8	1624.4
9977.5	1624.3	9979.5	1624.3	9990.2	1624.2	9994.4	1624.2	9995.1	1624.2
9998.7	1624.6	10008.02	1625.71	10023.1	1627	10023.7	1627	10024.8	1627.1
10032.3	1628.5	10038.3	1629.3	10038.7	1629.4	10039.8	1629.6	10040.5	1629.7
10042.2	1629.8	10052.9	1631.3	10062.2	1630.8	10062.6	1630.8	10062.8	1630.8
10073.1	1632.8	10082.1	1633.8	10086.5	1634.5	10094.8	1635.8	10099	1636.7
10103	1637.8	10105.5	1638.1	10118	1639.4	10119.9	1639.6	10129.8	1641.1
10133.1	1641.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9762.8	.05	9838.7	.04	10008.02	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9838.7	10008.02	221.82	208.6	196.65	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9838.70	9872.56	467.69	61.42	33.97	20.07	1.82	7.61
9872.56	9906.43	637.63	73.88	33.86	27.37	2.18	8.63
9906.43	9940.29	400.08	55.90	33.93	17.17	1.65	7.16
9940.29	9974.16	421.31	57.62	33.88	18.08	1.70	7.31
9974.16	RB 10008.02	401.60	56.04	33.96	17.24	1.65	7.17
10008.02	10070.56	1.69	1.29	5.52	0.07	0.24	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9838.70	9872.56	467.70	61.47	33.97	20.07	1.82	7.61
9872.56	9906.43	637.49	73.92	33.86	27.36	2.18	8.62
9906.43	9940.29	400.13	55.95	33.93	17.17	1.65	7.15
9940.29	9974.16	421.34	57.67	33.88	18.08	1.70	7.31
9974.16	RB 10008.02	401.64	56.09	33.96	17.24	1.66	7.16
10008.02	10070.56	1.71	1.30	5.52	0.07	0.24	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.577

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9885.1	1628.1	9887.4	1628	9910.6	1625.7	9913.4	1625.5	9915.1	1625.1
9925.9	1622.3	9932.5	1622.1	9954.5	1621.1	9954.6	1621.1	9957	1620.9
9965.7	1620.3	9969.2	1620	9970.8	1619.9	9980.6	1619.7	9984.9	1619.6
9991.4	1619.5	9995.7	1619.2	9999.4	1619.1	10000.7	1619.1	10002.4	1619
10008.9	1619.8	10015.9	1620.7	10016	1620.7	10018.3	1620.5	10021.1	1620.2
10026.6	1619.6	10032.2	1620.9	10042.3	1623.1	10051.3	1623.6	10054.6	1623.8
10060.7	1624.4	10066.8	1625.3	10069.8	1625.6	10073.1	1626.1	10077.9	1626.6
10082.8	1627.2	10087.9	1627.7	10092.8	1628.2	10102.8	1629.6	10105.7	1629.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9885.1	.05	9954.6	.04	10015.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954.6	10015.9	333.89	325.38	296.36	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9919.85	9937.22	57.48	19.55	16.38	2.47	1.21	2.94
9937.22	9954.60	153.30	36.08	17.39	6.58	2.08	4.25
LB 9954.60	9966.86	245.83	35.82	12.29	10.55	2.92	6.86
9966.86	9979.12	361.52	45.12	12.27	15.52	3.68	8.01
9979.12	9991.38	409.09	48.57	12.26	17.56	3.96	8.42
9991.38	10003.64	481.70	53.61	12.28	20.67	4.37	8.98
10003.64	RB 10015.90	354.82	44.73	12.36	15.23	3.65	7.93
10015.90	10038.35	260.24	67.14	22.80	11.17	2.99	3.88
10038.35	10060.80	6.02	5.50	12.46	0.26	0.45	1.09

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9919.85	9937.22	81.36	28.55	16.94	3.49	1.76	2.85
9937.22	9954.60	175.22	45.72	17.39	7.52	2.63	3.83
LB 9954.60	9966.86	250.31	42.62	12.29	10.74	3.48	5.87
9966.86	9979.12	348.16	51.92	12.27	14.94	4.23	6.71
9979.12	9991.38	387.87	55.37	12.26	16.65	4.52	7.01
9991.38	10003.64	447.97	60.41	12.28	19.23	4.93	7.42
10003.64	RB 10015.90	342.34	51.53	12.36	14.69	4.20	6.64
10015.90	10038.35	278.62	79.59	22.80	11.96	3.55	3.50
10038.35	10060.80	18.15	12.35	13.01	0.78	1.00	1.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.515

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9911.6	1625.1	9914	1624.7	9916.8	1624.3	9924.2	1623.1	9930.1	1622.4
9931.6	1622.1	9936	1621.2	9939.9	1620.8	9942.4	1620.2	9966.3	1616.1
9967.6	1615.9	9971.5	1615.5	9980.9	1616.2	9984.4	1616.4	9996	1615
10000.1	1614.4	10000.9	1614.4	10001.6	1614.5	10009.5	1615.8	10016	1616.8
10019.6	1617.4	10023.6	1617.7	10044.1	1619.4	10057.1	1621.2	10059.8	1621.6
10087	1624								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9911.6	.05	9967.6	.04	10016	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

9967.6 10016 331.88 331.98 327.06 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.60	9953.60	11.53	5.19	7.90	0.49	0.67	2.22
9953.60	9967.60	191.66	35.49	14.20	8.23	2.53	5.40
LB 9967.60	9977.28	385.05	37.80	9.72	16.53	3.90	10.19
9977.28	9986.96	308.21	33.07	9.71	13.23	3.42	9.32
9986.96	9996.64	417.90	39.76	9.75	17.94	4.11	10.51
9996.64	10006.32	555.98	47.26	9.79	23.86	4.88	11.77
10006.32	RB 10016.00	328.82	34.50	9.80	14.11	3.56	9.53
10016.00	10033.75	119.27	32.46	17.85	5.12	1.83	3.67
10033.75	10051.50	11.57	6.82	11.94	0.50	0.57	1.70

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9967.60	9977.28	385.05	39.72	13.63	16.53	4.10	9.69
9977.28	9986.96	390.66	34.99	9.71	16.77	3.61	11.16
9986.96	9996.64	521.57	41.68	9.75	22.38	4.31	12.51
9996.64	10006.32	685.46	49.18	9.79	29.42	5.08	13.94
10006.32	RB 10016.00	347.26	36.42	12.81	14.90	3.76	9.54

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.453

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9923.9	1626.7	9926.6	1626	9928.5	1625.5	9929.5	1625.3	9939.1	1622.5
9939.3	1622.5	9939.4	1622.4	9940.5	1622.4	9944.8	1622.1	9949	1622
9954	1621.6	9969.5	1617.5	9977.5	1614.8	9992	1610	10003.8	1610
10012.4	1609.8	10028.3	1612.9	10034	1613.8	10034.5	1613.8	10035.1	1613.8
10039.4	1613.8	10080.3	1615.9	10093.7	1616.7	10127.7	1620.1	10135.9	1620.9
10166.2	1625.8	10178.7	1627.8	10183	1628.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9923.9	.05	9977.5	.04	10034.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.5	10034.5	447.87	454.49	458.74	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9950.70	9977.50	4.79	2.84	4.33	0.21	0.69	1.68
LB 9977.50	9988.90	211.75	37.30	12.01	9.09	3.27	5.68
9988.90	10000.30	604.04	68.91	11.56	25.92	6.05	8.77
10000.30	10011.70	644.38	71.24	11.40	27.66	6.25	9.05
10011.70	10023.10	500.22	61.62	11.60	21.47	5.41	8.12
10023.10	RB 10034.50	214.86	37.07	11.57	9.22	3.25	5.80
10034.50	10071.63	145.52	61.88	37.17	6.25	1.67	2.35
10071.63	10108.75	4.44	5.08	13.47	0.19	0.38	0.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9950.70	9977.50	6.29	3.26	4.43	0.27	0.80	1.93
LB 9977.50	9988.90	233.22	38.47	12.01	10.01	3.37	6.06
9988.90	10000.30	649.92	70.08	11.56	27.89	6.15	9.27
10000.30	10011.70	692.70	72.40	11.40	29.73	6.35	9.57
10011.70	10023.10	539.98	62.78	11.60	23.18	5.51	8.60
10023.10	RB 10034.50	207.89	38.24	14.06	8.92	3.35	5.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.366

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9891	1627.1	9897.5	1625.9	9898	1625.9	9898.3	1625.8	9899.9	1625.5
9909.1	1622.7	9909.5	1622.6	9920.2	1621.1	9928.6	1619.8	9933.3	1619.3
9936.3	1618.6	9937.8	1618.3	9938.6	1618.1	9943.9	1616.7	9950.1	1614.8
9961.3	1611.4	9964	1610.6	9965.7	1610.1	9968.5	1609.3	9971.8	1608.8
9976.4	1608.1	9979.9	1607.6	9995.5	1605.9	10013.1	1607.7	10018.2	1608.2
10026.2	1610.7	10038.6	1614.7	10038.9	1614.8	10039	1614.8	10039.3	1614.8
10068.7	1620.3	10069.1	1620.3	10080	1621.8	10084.8	1622.6	10091.9	1624
10099.6	1625.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9891	.05	9964	.04	10026.2	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9964 10026.2 485.35 486.11 488.32 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9927.50	9964.00	1.37	0.78	2.40	0.06	0.34	1.75
LB 9964.00	9976.44	188.75	26.53	12.72	8.10	2.13	7.11
9976.44	9988.88	536.08	49.34	12.53	23.01	3.97	10.87
9988.88	10001.32	802.86	62.83	12.51	34.46	5.05	12.78
10001.32	10013.76	578.96	51.63	12.50	24.85	4.15	11.21
10013.76	RB 10026.20	221.29	29.30	12.84	9.50	2.36	7.55
10026.20	10062.90	0.69	0.52	1.89	0.03	0.29	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9927.50	9964.00	1.49	0.83	2.42	0.06	0.36	1.79
LB 9964.00	9976.44	190.08	26.79	12.72	8.16	2.15	7.09
9976.44	9988.88	535.80	49.60	12.53	23.00	3.99	10.80
9988.88	10001.32	800.93	63.09	12.51	34.37	5.07	12.69
10001.32	10013.76	578.43	51.89	12.50	24.83	4.17	11.15
10013.76	RB 10026.20	222.50	29.56	12.84	9.55	2.38	7.53
10026.20	10062.90	0.76	0.56	1.91	0.03	0.31	1.35

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.274

INPUT

Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9889.6	1620.9	9891.1	1620.4	9895.2	1618.9	9897.1	1618.1	9900.5	1617.3
9901.3	1617.2	9906.3	1616.6	9907.5	1616.2	9915.6	1614.7	9920.5	1613.8
9936.4	1610.2	9937.3	1610	9960.3	1607.5	9965.3	1606.8	9966.5	1606.6
9977	1603.9	9987.7	1601.3	10001.4	1597.9	10010.1	1598.7	10020.8	1599.7
10026.7	1603.7	10037.2	1610.7	10037.9	1611.2	10038.4	1611.5	10054.9	1620.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9889.6	.05	9977	.04	10026.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977	10026.7	465.24	469.43	471.12	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.30	9977.00	2.33	1.38	3.38	0.10	0.42	1.69
LB 9977.00	9986.94	115.28	20.38	10.23	4.95	2.05	5.66
9986.94	9996.88	425.01	44.60	10.24	18.24	4.49	9.53
9996.88	10006.82	785.63	64.13	10.10	33.72	6.45	12.25
10006.82	10016.76	679.00	58.48	9.98	29.14	5.88	11.61
10016.76	RB 10026.70	321.56	39.09	11.19	13.80	3.93	8.23
10026.70	10040.80	1.19	0.82	1.88	0.05	0.52	1.46

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.30	9977.00	6.79	3.11	3.91	0.29	0.95	2.19
LB 9977.00	9986.94	142.10	25.61	10.23	6.10	2.58	5.55
9986.94	9996.88	430.66	49.83	10.24	18.48	5.01	8.64
9996.88	10006.82	754.13	69.36	10.10	32.37	6.98	10.87
10006.82	10016.76	659.71	63.71	9.98	28.31	6.41	10.35
10016.76	RB 10026.70	333.93	44.32	11.19	14.33	4.46	7.53
10026.70	10040.80	2.69	1.64	2.40	0.12	1.05	1.64

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.186

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9850.4	1605.7	9870.5	1603.9	9877.8	1603.2	9884.9	1602.3	9904.9	1600.1
9926.9	1599.3	9936.6	1598.9	9946.3	1599.3	9946.4	1599.3	9947.1	1599.3
9967.3	1598.7	9967.4	1598.7	9975.4	1597	9977.4	1596.6	9984.1	1596.3
9985.6	1596.3	9986.3	1596.2	9986.8	1596.2	9994	1595.9	9995.7	1595.8
10005.1	1595.4	10016.3	1599.7	10017	1599.8	10018.2	1599.9	10020.4	1600.1
10025.7	1600	10028.7	1600.1	10035.5	1600	10037.3	1600.2	10043.3	1600.5
10045	1600.8	10049	1601.2	10050.9	1601.5	10057.9	1602.5	10064.6	1602.8
10070.5	1603.8	10077.4	1604.9	10082.6	1605.5	10087.7	1605.9	10096.6	1607

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9850.4	.05	9967.4	.04	10016.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.4	10016.3	328.94	340.33	345.52	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9873.80	9897.20	0.08	0.15	1.68	0.00	0.09	0.49
9897.20	9920.60	64.46	25.34	23.46	2.77	1.08	2.54
9920.60	9944.00	173.60	45.89	23.42	7.45	1.96	3.78
9944.00	9967.40	194.17	49.07	23.41	8.33	2.10	3.96
LB 9967.40	9977.18	237.30	33.92	9.99	10.18	3.47	7.00
9977.18	9986.96	403.47	46.27	9.80	17.32	4.73	8.72
9986.96	9996.74	464.58	50.34	9.79	19.94	5.15	9.23
9996.74	10006.52	521.53	54.17	9.89	22.38	5.54	9.63
10006.52	RB 10016.30	212.58	32.35	10.48	9.12	3.31	6.57
10016.30	10036.38	48.39	22.26	20.10	2.08	1.11	2.17
10036.38	10056.45	9.83	6.96	11.99	0.42	0.58	1.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9967.40	9977.18	257.70	37.72	12.81	11.06	3.86	6.83
9977.18	9986.96	494.13	50.07	9.80	21.21	5.12	9.87
9986.96	9996.74	563.17	54.14	9.79	24.17	5.54	10.40
9996.74	10006.52	626.97	57.97	9.89	26.91	5.93	10.82
10006.52	RB 10016.30	274.67	36.15	10.48	11.79	3.70	7.60
10016.30	10036.38	88.40	30.06	20.10	3.79	1.50	2.94
10036.38	10056.45	24.96	11.59	12.38	1.07	0.97	2.15

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.121

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9814.8	1603.8	9823.3	1602.9	9830.9	1602.4	9837.6	1602	9870.9	1598.8
9892.2	1597.8	9900	1597.3	9913.7	1596.5	9919	1596.1	9925.8	1595.8
9931.1	1595.6	9934.2	1595.7	9942.4	1595.7	9944.2	1595.7	9945.8	1595.7
9968.5	1595.7	9968.6	1595.6	9975.9	1593.9	9980.6	1593	9984.6	1592.7
9991.8	1592.2	10000.1	1592.4	10003.9	1592.5	10010.1	1593.5	10024.9	1596.2
10032.3	1597.5	10051.6	1599.2	10070.4	1601.3	10083.5	1602.9	10084.4	1602.9
10085.9	1603	10103.4	1604.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9814.8	.06	9968.6	.065	10024.9	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.6	10024.9	271.57	253.82	205.72	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9876.32	9907.08	11.99	7.00	14.98	0.51	0.47	1.71
9907.08	9937.84	219.01	53.40	30.80	9.40	1.74	4.10
9937.84	9968.60	301.62	64.71	30.80	12.94	2.10	4.66
LB 9968.60	9979.86	242.64	39.25	11.53	10.41	3.49	6.18
9979.86	9991.12	472.36	58.07	11.30	20.27	5.16	8.13
9991.12	10002.38	524.03	61.72	11.26	22.49	5.48	8.49
10002.38	10013.64	390.27	51.97	11.40	16.75	4.61	7.51
10013.64	RB 10024.90	152.50	29.62	11.45	6.55	2.63	5.15
10024.90	10064.15	15.58	7.58	10.97	0.67	0.70	2.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.84	9968.60	346.07	70.27	26.62	14.85	2.98	4.92
LB 9968.60	9979.86	294.54	49.09	11.53	12.64	4.36	6.00
9979.86	9991.12	512.65	67.91	11.30	22.00	6.03	7.55
9991.12	10002.38	560.62	71.56	11.26	24.06	6.36	7.83
10002.38	10013.64	435.65	61.81	11.40	18.70	5.49	7.05
10013.64	RB 10024.90	180.48	39.46	13.92	7.75	3.50	4.57

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.073

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9920.6	1606.7	9928	1604.8	9933.5	1603.9	9939	1603	9948.3	1600.7
9949.5	1600.3	9960.1	1596.9	9960.5	1596.8	9971.1	1593.6	9985.7	1589.3
9987	1588.9	9989.1	1588.3	10007.5	1588.6	10007.7	1588.6	10007.8	1588.6
10007.9	1588.6	10008.8	1588.9	10015.6	1590.6	10016.9	1591	10021.7	1591.3
10035.2	1592.5	10037.7	1592.9	10047.2	1594.4	10047.3	1594.4	10048	1594.4
10050.9	1594.3	10063.4	1593.8	10077.2	1594.3	10087.1	1594.7	10091	1594.5
10094.5	1594.3	10101.8	1593.6	10115.9	1592.5	10119.4	1591.5	10122	1591.3
10126.7	1590.8	10133.9	1589.6	10140.8	1588.6	10144.6	1590.1	10150.6	1591.9
10161.3	1594.7	10161.4	1594.7	10178.1	1595.7	10185.2	1596	10191.6	1596.1
10194.5	1596.2	10207.5	1596.8	10215.9	1597.2	10225.1	1597.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9920.6	.06	9971.1	.065	10047.3	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.1	10047.3	332.16	306.29	158.74	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9945.85	9971.10	0.44	0.38	1.66	0.02	0.24	1.16
LB 9971.10	9986.34	198.34	41.50	15.89	8.51	2.72	4.78
9986.34	10001.58	679.53	85.71	15.36	29.16	5.62	7.93
10001.58	10016.82	517.48	73.16	15.55	22.21	4.80	7.07
10016.82	10032.06	178.17	38.33	15.29	7.65	2.51	4.65
10032.06	RB 10047.30	33.38	13.24	13.24	1.43	1.01	2.52
10047.30	10069.52	1.36	2.00	13.10	0.06	0.15	0.68
10069.52	10091.75	0.01	0.04	1.57	0.00	0.03	0.22
10091.75	10113.97	25.00	12.81	17.23	1.07	0.75	1.95
10113.97	10136.20	354.43	69.98	22.53	15.21	3.15	5.06
10136.20	10158.42	341.85	69.15	23.09	14.67	3.11	4.94
10158.42	10180.65	0.01	0.03	0.52	0.00	0.07	0.38

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9945.85	9971.10	2.99	1.23	2.20	0.13	0.78	2.42
LB 9971.10	9986.34	313.54	49.70	15.89	13.46	3.26	6.31
9986.34	10001.58	926.33	93.90	15.36	39.76	6.16	9.86
10001.58	10016.82	723.09	81.35	15.55	31.03	5.34	8.89
10016.82	10032.06	288.10	46.52	15.29	12.36	3.05	6.19
10032.06	RB 10047.30	75.95	21.08	15.62	3.26	1.38	3.60

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 3.015

INPUT
Description: 100-year, 6-hour peak discharge of 2890 cfs from HEC-1 model at station C104.
Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9846.2	1598.1	9865.1	1596.4	9876	1595.6	9877.5	1595.4	9884.8	1594.7
9885.8	1594.6	9891.4	1593.9	9892.6	1593.8	9897.1	1593.7	9905.7	1593
9913.6	1592.4	9917.6	1592.1	9934.1	1591	9934.3	1591	9934.9	1590.9
9939.8	1590	9944.8	1589.3	9947.6	1588.8	9950.1	1588.5	9955.5	1588.1
9960.1	1587.8	9960.2	1587.7	9961.1	1587.5	9965.5	1586.4	9977.7	1583.9
9991.4	1582.3	9992.3	1582.2	9992.7	1582.2	9997	1581.4	9997.4	1581.4
10002.2	1581.7	10002.5	1581.8	10008.4	1583.5	10016.1	1584.2	10020.6	1584.5
10021.8	1584.6	10031.7	1587.7	10039	1590.1	10040.5	1590.2	10046.7	1590.9
10077.5	1594	10089.8	1595.1	10099.5	1596.1	10104.9	1596.6	10106.5	1596.8
10113.8	1597.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9846.2	.055	9960.2	.055	10031.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.2	10031.7	460.62	483.24	501.59	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9903.20	9960.20	4.50	2.73	8.79	0.16	0.31	1.65
LB 9960.20	9974.50	193.19	33.38	14.64	6.68	2.33	5.79
9974.50	9988.80	677.55	70.47	14.44	23.44	4.93	9.61
9988.80	10003.10	1083.69	93.43	14.45	37.50	6.53	11.60
10003.10	10017.40	673.55	70.43	14.55	23.31	4.93	9.56
10017.40	RB 10031.70	256.24	39.69	14.79	8.87	2.78	6.46
10031.70	10072.75	1.28	0.74	2.24	0.04	0.35	1.72

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9903.20	9960.20	4.53	2.74	8.79	0.16	0.31	1.65
LB 9960.20	9974.50	193.30	33.40	14.64	6.69	2.34	5.79
9974.50	9988.80	677.52	70.50	14.44	23.44	4.93	9.61
9988.80	10003.10	1083.51	93.45	14.45	37.49	6.53	11.59

10003.10	10017.40	673.52	70.46	14.55	23.31	4.93	9.56
10017.40	RB 10031.70	256.34	39.72	14.79	8.87	2.78	6.45
10031.70	10072.75	1.29	0.75	2.24	0.04	0.35	1.72

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.923

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9948	1588.1	9949.7	1587.8	9961.1	1584.7	9973	1580.3	9973.1	1580.2
9977.3	1578.9	9981.1	1577.2	9985.1	1576.4	9989.5	1575.2	9994.5	1574
9999.4	1573.7	9999.5	1573.7	9999.6	1573.7	10004.8	1574.9	10005.5	1574.9
10010.6	1575	10011.3	1575.2	10015.9	1576.1	10023.7	1576.7	10025.5	1576.8
10033.8	1581	10042.2	1585.3	10046	1587.4	10047.1	1587.5	10050.6	1587.3
10057	1587.5	10057.8	1587.6	10059	1587.7	10064.4	1588.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9948	.055	9973	.055	10033.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973	10033.8	240.71	229.35	196.32	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.50	9973.00	6.38	2.86	4.19	0.22	0.73	2.23
LB 9973.00	9985.16	269.06	43.62	12.84	9.31	3.59	6.17
9985.16	9997.32	814.15	83.75	12.47	28.17	6.89	9.72
9997.32	10009.48	907.31	88.90	12.30	31.39	7.31	10.21
10009.48	10021.64	631.30	71.50	12.29	21.84	5.88	8.83
10021.64	RB 10033.80	261.02	43.27	13.17	9.03	3.56	6.03
10033.80	10049.10	0.77	0.55	1.65	0.03	0.38	1.39

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.50	9973.00	6.35	2.85	4.18	0.22	0.73	2.23
LB 9973.00	9985.16	268.93	43.58	12.84	9.31	3.58	6.17
9985.16	9997.32	814.26	83.72	12.47	28.18	6.88	9.73
9997.32	10009.48	907.47	88.87	12.30	31.40	7.31	10.21
10009.48	10021.64	631.32	71.46	12.29	21.84	5.88	8.83
10021.64	RB 10033.80	260.90	43.23	13.17	9.03	3.56	6.03
10033.80	10049.10	0.77	0.55	1.65	0.03	0.38	1.39

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.880

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9960.9	1603.8	9963.2	1602.3	9965.4	1600.9	9988.2	1577.7	9994.6	1571.2
9995	1570.8	9995.2	1570.7	9995.6	1570.8	9997.9	1570.8	10002.6	1571
10006.8	1571.1	10007.6	1571.1	10008.8	1571.3	10015.7	1572.8	10025.8	1573.1
10032.8	1573.3	10045.4	1575.7	10052.4	1577	10054	1577.2	10081.5	1581.8
10091.4	1582.2	10104.7	1582.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9960.9	.06	9988.2	.06	10032.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.2	10032.8	159.24	167.27	171.89	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9974.55	9988.20	0.01	0.01	0.22	0.00	0.08	0.53
LB 9988.20	9997.12	305.90	39.57	11.84	10.58	4.44	7.73
9997.12	10006.04	774.06	61.68	8.93	26.78	6.91	12.55
10006.04	10014.96	628.93	54.83	9.08	21.76	6.15	11.47
10014.96	10023.88	443.75	44.20	8.94	15.35	4.96	10.04
10023.88	RB 10032.80	405.05	41.82	8.92	14.02	4.69	9.69
10032.80	10056.77	332.21	55.32	24.36	11.50	2.31	6.01
10056.77	10080.73	0.09	0.12	1.20	0.00	0.10	0.74

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9974.55	9988.20	0.01	0.01	0.23	0.00	0.08	0.54
LB 9988.20	9997.12	305.95	39.61	11.84	10.59	4.44	7.72
9997.12	10006.04	773.65	61.72	8.93	26.77	6.92	12.53
10006.04	10014.96	628.69	54.88	9.08	21.75	6.15	11.46
10014.96	10023.88	443.72	44.25	8.94	15.35	4.96	10.03
10023.88	RB 10032.80	405.07	41.86	8.92	14.02	4.69	9.68
10032.80	10056.77	332.82	55.44	24.36	11.52	2.31	6.00
10056.77	10080.73	0.09	0.12	1.20	0.00	0.10	0.76

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.848

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9940.7	1583.7	9949	1582.9	9953.3	1582.5	9954.3	1582.5	9957	1582.2
9960	1581.1	9960.6	1580.9	9961.7	1580.1	9965.7	1578.5	9978.7	1572.7
9987.4	1568.9	9990	1568.7	10003.2	1567.9	10005	1567.8	10007.7	1568.4
10011.8	1569	10015.9	1569	10016.4	1569.1	10026	1570.9	10027	1571
10027.5	1571.1	10040.5	1573.3	10050.2	1574.9	10052.4	1575	10056.6	1575.2
10058.7	1575.2	10063.5	1574.5	10068.8	1573.8	10072.6	1574.8	10074.9	1575
10082.1	1574.7	10085.2	1575	10091.8	1575.7	10122.3	1578.4	10123.1	1578.6
10148.1	1589.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9940.7	.06	9978.7	.06	10040.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.7	10040.5	153.85	188.43	225.87	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10056.15	10148.1	1575.41

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.70	9978.70	15.40	4.80	5.08	0.53	1.04	3.20
LB 9978.70	9991.06	472.96	56.54	13.16	16.37	4.57	8.37
9991.06	10003.42	886.89	80.45	12.38	30.69	6.51	11.02
10003.42	10015.78	817.08	76.81	12.47	28.27	6.21	10.64
10015.78	10028.14	499.61	57.34	12.56	17.29	4.64	8.71
10028.14	RB 10040.50	180.46	31.10	12.54	6.24	2.52	5.80
10040.50	10056.15	17.60	6.55	9.03	0.61	0.74	2.69
10056.15	10086.80	0.00	5.41	13.46	0.00	0.41	0.00

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.70	9978.70	15.21	4.74	5.05	0.53	1.03	3.21
LB 9978.70	9991.06	472.77	56.37	13.16	16.36	4.56	8.39
9991.06	10003.42	887.81	80.29	12.38	30.72	6.50	11.06
10003.42	10015.78	817.80	76.65	12.47	28.30	6.20	10.67
10015.78	10028.14	499.45	57.18	12.56	17.28	4.63	8.73
10028.14	RB 10040.50	179.69	30.94	12.54	6.22	2.50	5.81
10040.50	10056.15	17.27	6.44	8.95	0.60	0.73	2.68
10056.15	10086.80	0.00	5.24	12.86	0.00	0.41	0.00

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.813

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9877.2	1580.2	9881.8	1578.7	9894.4	1574.9	9921	1574.8	9922.9	1574.8
9932.3	1572.7	9950.7	1568.6	9966.4	1567	9968.6	1566.9	9969.9	1566.9
9976.7	1566.8	9982.6	1565.8	9992.1	1564.1	9992.2	1564.1	10001.9	1563.9
10003.6	1564.6	10005.9	1567.3	10008.2	1570.3	10010.7	1572.6	10013.9	1574.8
10018.9	1579.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9877.2	.06	9976.7	.06	10008.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.7	10008.2	216.74	225.46	210.16	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9936.90	9956.80	173.27	36.31	18.94	6.00	1.95	4.77
9956.80	9976.70	675.28	83.85	19.95	23.37	4.21	8.05
LB 9976.70	9983.00	302.42	32.25	6.39	10.46	5.12	9.38
9983.00	9989.30	418.01	39.19	6.40	14.46	6.22	10.67
9989.30	9995.60	535.63	45.33	6.35	18.53	7.19	11.82
9995.60	10001.90	566.67	46.75	6.30	19.61	7.42	12.12
10001.90	RB 10008.20	217.57	30.58	9.17	7.53	4.85	7.11
10008.20	10013.55	1.16	0.64	1.60	0.04	0.54	1.81

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9936.90	9956.80	175.19	36.71	18.96	6.06	1.97	4.77
9956.80	9976.70	676.54	84.28	19.95	23.41	4.23	8.03
LB 9976.70	9983.00	302.34	32.39	6.39	10.46	5.14	9.33
9983.00	9989.30	417.39	39.33	6.40	14.44	6.24	10.61
9989.30	9995.60	534.42	45.46	6.35	18.49	7.22	11.76
9995.60	10001.90	565.31	46.89	6.30	19.56	7.44	12.06
10001.90	RB 10008.20	217.60	30.72	9.17	7.53	4.88	7.08
10008.20	10013.55	1.22	0.67	1.63	0.04	0.56	1.82

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.770

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9949	1578.4	9953.5	1575.6	9958.9	1573.6	9959.7	1573	9969.8	1567.1
9970.2	1566.8	9970.3	1566.8	9990.6	1562.1	9990.7	1562.1	9990.9	1562.1
10000.7	1561.9	10001.9	1561.9	10008.1	1561.9	10015.6	1563.4	10019.1	1564.1
10024.4	1564.4	10034.6	1564.8	10036.9	1565	10041	1565.9	10048.9	1567.8
10079.6	1580								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9949	.055	9970.3	.055	10019.1	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.3	10019.1	499.23	506.19	499.62	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.65	9970.30	7.63	3.16	3.82	0.26	0.96	2.42
LB 9970.30	9980.06	163.01	29.80	10.02	5.64	3.05	5.47
9980.06	9989.82	410.37	51.85	10.02	14.20	5.31	7.91
9989.82	9999.58	613.00	65.35	9.78	21.21	6.70	9.38
9999.58	10009.34	629.92	66.43	9.78	21.80	6.81	9.48
10009.34	RB 10019.10	449.84	54.65	9.95	15.57	5.60	8.23
10019.10	10031.20	349.63	52.20	12.11	12.10	4.31	6.70
10031.20	10043.30	237.79	41.64	12.28	8.23	3.44	5.71
10043.30	10055.40	28.81	10.02	8.26	1.00	1.26	2.88

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.65	9970.30	7.03	2.91	3.67	0.24	0.92	2.41
LB 9970.30	9980.06	160.24	29.05	10.02	5.54	2.98	5.52
9980.06	9989.82	410.77	51.11	10.02	14.21	5.24	8.04
9989.82	9999.58	616.70	64.60	9.78	21.34	6.62	9.55
9999.58	10009.34	633.93	65.68	9.78	21.94	6.73	9.65
10009.34	RB 10019.10	450.85	53.90	9.95	15.60	5.52	8.36
10019.10	10031.20	348.28	51.27	12.11	12.05	4.24	6.79
10031.20	10043.30	235.06	40.72	12.28	8.13	3.36	5.77
10043.30	10055.40	27.13	9.42	8.05	0.94	1.22	2.88

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.674

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9921.7	1570	9921.8	1570	9933	1568.5	9934	1568.2	9935.7	1567.7
9938.5	1566.8	9942.6	1565.5	9947.3	1564.1	9953.6	1561.6	9956.6	1560.9
9956.7	1560.9	9961.9	1559.4	9973.7	1556.1	9975.4	1555.7	9977.4	1555.5
9985.5	1554.7	9988	1554.5	9990.1	1554.4	9994.2	1554.2	10003.4	1553.8
10009.8	1559.8	10013.8	1562.3	10019.2	1565.7	10035.5	1577.4	10040.7	1580.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9921.7	.06	9956.7	.06	10009.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9956.7	10009.8	269.32	330.79	339.22	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.20	9956.70	3.07	1.64	3.61	0.11	0.47	1.87
LB 9956.70	9967.32	130.32	25.25	11.04	4.51	2.38	5.16
9967.32	9977.94	496.18	56.07	10.92	17.17	5.28	8.85
9977.94	9988.56	773.59	72.50	10.66	26.77	6.83	10.67
9988.56	9999.18	914.06	80.03	10.63	31.63	7.54	11.42
9999.18	RB 10009.80	564.21	64.93	13.00	19.52	6.11	8.69
10009.80	10025.25	8.57	3.07	3.69	0.30	0.98	2.80

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.20	9956.70	4.76	2.24	3.78	0.16	0.64	2.12
LB 9956.70	9967.32	139.53	27.07	11.04	4.83	2.55	5.15
9967.32	9977.94	498.88	57.90	10.92	17.26	5.45	8.62
9977.94	9988.56	768.59	74.32	10.66	26.59	7.00	10.34
9988.56	9999.18	904.67	81.85	10.63	31.30	7.71	11.05
9999.18	RB 10009.80	563.23	66.75	13.00	19.49	6.29	8.44
10009.80	10025.25	10.34	3.60	3.86	0.36	1.15	2.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.611

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9829.9	1570.2	9853.4	1562	9855.7	1561.2	9860.9	1560.8	9886.8	1559
9893.5	1558.3	9893.8	1558.3	9897.3	1557.9	9902.7	1557.5	9907.1	1557.6
9913.6	1557.8	9932.4	1557.6	9934.4	1557.6	9936.2	1557.6	9937.2	1557.3
9946.1	1555.4	9949.6	1554.6	9950.4	1554.5	9960.6	1554	9977.4	1553.2
9977.5	1553.2	9982.9	1551.4	9989.5	1549.4	9991.9	1548.6	9995	1547.5
9998.8	1547.7	10000.4	1547.8	10008.7	1548.1	10011.4	1549.5	10019.7	1555.4
10027	1560.7	10027.4	1560.9	10028.1	1561.5	10036.2	1569.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9829.9	.06	9977.4	.06	10019.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.4	10019.7	297.19	285.83	257.33	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9940.53	9977.40	257.46	53.79	32.88	8.91	1.64	4.79
LB 9977.40	9985.86	248.73	32.70	8.88	8.61	3.87	7.61
9985.86	9994.32	595.63	55.26	8.90	20.61	6.53	10.78
9994.32	10002.78	861.38	67.73	8.51	29.81	8.01	12.72
10002.78	10011.24	753.34	63.29	8.78	26.07	7.48	11.90
10011.24	RB 10019.70	173.41	28.01	10.36	6.00	3.31	6.19
10019.70	10027.95	0.05	0.06	0.52	0.00	0.15	0.85

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9940.53	9977.40	153.66	27.87	14.37	5.32	2.25	5.51
LB 9977.40	9985.86	260.20	33.03	8.88	9.00	3.90	7.88
9985.86	9994.32	618.91	55.59	8.90	21.42	6.57	11.13
9994.32	10002.78	893.44	68.05	8.51	30.91	8.04	13.13
10002.78	10011.24	781.82	63.62	8.78	27.05	7.52	12.29
10011.24	RB 10019.70	181.90	28.33	10.36	6.29	3.35	6.42
10019.70	10027.95	0.08	0.08	0.56	0.00	0.19	0.97

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.557

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9950.6	1572.8	9952.1	1571.6	9959.7	1565.9	9964	1563.3	9968.5	1558.2
9979.3	1548.7	9979.4	1548.7	9982.9	1543.7	9998.1	1543.2	9998.9	1543.2
9999.4	1543.2	10008.6	1544.9	10008.8	1544.9	10020.4	1546.3	10025.6	1548.3
10037.8	1553.1	10046.7	1556.9	10063	1562.7	10066.7	1564.2	10076.2	1568.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9950.6	.055	9979.4	.055	10020.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.4	10020.4	476.26	475.97	475.25	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9965.00	9979.40	6.35	2.26	2.99	0.22	1.00	2.80
LB 9979.40	9987.60	432.27	48.27	10.81	14.96	5.89	8.95
9987.60	9995.80	726.35	59.03	8.20	25.13	7.20	12.30
9995.80	10004.00	715.46	58.71	8.28	24.76	7.16	12.19
10004.00	10012.20	511.78	48.08	8.30	17.71	5.86	10.65
10012.20	RB 10020.40	368.52	39.40	8.26	12.75	4.80	9.35
10020.40	10039.00	129.26	23.98	11.88	4.47	2.17	5.39

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9965.00	9979.40	5.87	2.10	2.88	0.20	0.96	2.79
LB 9979.40	9987.60	432.26	47.68	10.81	14.96	5.81	9.07
9987.60	9995.80	729.09	58.44	8.20	25.23	7.13	12.48
9995.80	10004.00	718.09	58.11	8.28	24.85	7.09	12.36
10004.00	10012.20	511.72	47.48	8.30	17.71	5.79	10.78
10012.20	RB 10020.40	366.79	38.80	8.26	12.69	4.73	9.45
10020.40	10039.00	126.18	23.19	11.68	4.37	2.13	5.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.467

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9904.2	1567.9	9923.7	1560.5	9944	1553.6	9949.7	1550.6	9954.6	1548.1
9961.6	1544.6	9969.1	1540.9	9973.2	1540.3	9974.6	1540.1	9985.4	1539.7
9992.8	1539.3	9994.9	1539.1	9998.1	1538.4	10001.6	1538.4	10005.2	1538.6
10011.4	1539.2	10012.8	1539.4	10015.8	1539.6	10023.9	1540.6	10031.4	1543.8
10047.3	1550.6	10050.5	1551.9	10050.8	1552	10068.9	1558.8	10073.7	1561.1
10083.9	1565.2	10090.3	1567.2	10097.5	1569.3	10098	1569.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9904.2	.055	9961.6	.055	10031.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9961.6	10031.4	403.61	406.44	407.61	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9932.90	9961.60	0.76	0.58	1.71	0.03	0.38	1.31
LB 9961.60	9975.56	304.32	51.45	14.88	10.53	3.69	5.92

9975.56	9989.52	631.57	77.75	13.97	21.85	5.57	8.12
9989.52	10003.48	819.27	91.09	14.05	28.35	6.52	8.99
10003.48	10017.44	762.39	87.17	14.02	26.38	6.24	8.75
10017.44	RB 10031.40	365.55	57.09	14.66	12.65	4.09	6.40
10031.40	10064.70	6.14	2.86	3.98	0.21	0.78	2.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9932.90	9961.60	1.06	0.74	1.81	0.04	0.49	1.43
LB 9961.60	9975.56	308.67	52.90	14.88	10.68	3.79	5.83
9975.56	9989.52	630.70	79.20	13.97	21.82	5.67	7.96
9989.52	10003.48	814.47	92.55	14.05	28.18	6.63	8.80
10003.48	10017.44	758.81	88.63	14.02	26.26	6.35	8.56
10017.44	RB 10031.40	369.10	58.55	14.66	12.77	4.19	6.30
10031.40	10064.70	7.19	3.24	4.08	0.25	0.89	2.22

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.390

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9869	1548.4	9874	1547.4	9880.9	1546.3	9895.2	1543.8	9899.4	1543.2
9905.7	1542.5	9919.3	1540.8	9926	1540.3	9929	1539.7	9951.4	1538
9969.8	1536.6	9969.9	1536.6	9973.5	1535.9	9982.5	1534.2	9983.5	1534
9984.7	1534	9993.7	1534.5	9995.4	1534.6	9996.2	1534.6	10002.7	1534.8
10003.5	1534.8	10005.8	1534.6	10007	1534.6	10017.9	1534.5	10024.5	1535.8
10034.8	1537.8	10042.8	1539.8	10049.4	1540.6	10056	1541.4	10059.3	1541.4
10075.8	1542.7	10091.6	1544.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9869	.07	9969.8	.07	10042.8	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.8	10042.8	254.76	229.15	116.94	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9919.40	9944.60	29.32	13.04	16.84	1.01	0.78	2.25
9944.60	9969.80	283.83	59.89	25.27	9.82	2.38	4.74
LB 9969.80	9984.40	539.25	68.74	14.85	18.66	4.71	7.84
9984.40	9999.00	719.04	81.19	14.62	24.88	5.56	8.86
9999.00	10013.60	660.94	77.17	14.61	22.87	5.29	8.56
10013.60	10028.20	541.78	68.84	14.80	18.75	4.72	7.87
10028.20	RB 10042.80	115.79	27.40	14.97	4.01	1.88	4.23
10042.80	10067.20	0.04	0.08	1.12	0.00	0.07	0.49

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9919.40	9944.60	20.32	9.78	15.82	0.70	0.62	2.08
9944.60	9969.80	263.23	54.84	25.27	9.11	2.18	4.80
LB 9969.80	9984.40	544.98	65.81	14.85	18.86	4.51	8.28
9984.40	9999.00	734.95	78.26	14.62	25.43	5.36	9.39
9999.00	10013.60	673.38	74.24	14.61	23.30	5.09	9.07
10013.60	10028.20	547.59	65.91	14.80	18.95	4.51	8.31
10028.20	RB 10042.80	105.55	24.48	14.70	3.65	1.71	4.31

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.347

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9986.9	1551.1	9994.8	1537	9998.7	1530.1	10004.3	1530.9	10010.7	1531.2
10013.7	1531.3	10014.2	1531.4	10020.5	1531.4	10027.7	1531.5	10030.3	1531.5
10034.4	1531.8	10035.3	1531.9	10045.7	1533.2	10050.9	1533.7	10055.1	1534
10060.9	1534.7	10061.5	1534.7	10067.3	1534.7	10072.7	1534.8	10072.9	1534.8
10074.6	1534.7	10088.4	1533.7	10090.7	1533.9	10095	1534.2	10102.3	1534.7
10108.9	1534.9	10116.4	1535.2	10122.4	1534.3	10123.6	1534.1	10151.8	1536
10154.1	1536.1	10156.5	1536.1	10157.5	1536.1	10157.7	1536.2	10164.9	1537.4
10165.5	1537.4	10169.7	1537.9	10173.7	1538.2	10177.4	1538.2	10178.6	1538.3
10178.9	1538.3	10185.5	1539.5	10190.8	1540.2	10200.7	1541.9	10201.4	1542

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9986.9	.07	9994.8	.07	10060.9	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9994.8	10060.9	200.15	183.17	104.86	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9990.85	9994.80	0.00	0.00	0.12	0.00	0.05	0.19
LB 9994.80	10008.02	424.56	73.56	17.31	14.69	5.56	5.77
10008.02	10021.24	542.56	76.55	13.24	18.77	5.79	7.09
10021.24	10034.46	509.44	73.70	13.23	17.63	5.58	6.91
10034.46	10047.68	352.88	59.28	13.32	12.21	4.48	5.95
10047.68	RB 10060.90	191.63	41.06	13.29	6.63	3.11	4.67
10060.90	10080.97	192.04	49.29	20.09	6.65	2.46	3.90
10080.97	10101.04	268.15	60.26	20.12	9.28	3.00	4.45
10101.04	10121.11	160.35	44.27	20.14	5.55	2.21	3.62
10121.11	10141.19	191.91	49.32	20.14	6.64	2.46	3.89
10141.19	10161.26	56.31	23.65	20.17	1.95	1.18	2.38
10161.26	10181.33	0.17	0.29	1.88	0.01	0.15	0.61

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9990.85	9994.80	0.01	0.03	0.51	0.00	0.44	0.26
LB 9994.80	10008.02	401.57	78.71	17.31	13.90	5.95	5.10
10008.02	10021.24	511.00	81.70	13.24	17.68	6.18	6.25
10021.24	10034.46	481.75	78.86	13.23	16.67	5.96	6.11
10034.46	10047.68	342.59	64.43	13.32	11.85	4.87	5.32
10047.68	RB 10060.90	197.17	46.21	13.29	6.82	3.50	4.27
10060.90	10080.97	209.21	57.11	20.09	7.24	2.85	3.66
10080.97	10101.04	280.08	68.08	20.12	9.69	3.39	4.11
10101.04	10121.11	179.23	52.10	20.14	6.20	2.60	3.44
10121.11	10141.19	209.04	57.14	20.14	7.23	2.85	3.66
10141.19	10161.26	77.27	31.47	20.17	2.67	1.57	2.46
10161.26	10181.33	1.07	1.01	2.27	0.04	0.54	1.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.312

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9819.2	1541.7	9820.2	1541.4	9835.9	1539.1	9843.2	1538.2	9849.4	1537.1
9866.5	1533.4	9868.6	1533.1	9870.3	1532.9	9871.4	1532.9	9874.2	1532.7
9884.3	1532	9885	1531.9	9886.3	1531.7	9892.4	1531.3	9903.3	1530.7
9904.2	1530.7	9905.3	1530.7	9907.7	1530.8	9917.7	1531.4	9919.2	1531.7
9923.5	1532.4	9932.1	1533.9	9934	1534	9938.7	1534.1	9963	1533.9
9967.3	1533.7	9981.9	1530.2	9982.9	1530	9983.7	1529.8	9984.2	1529.7
9985.7	1529.5	9997.5	1527.9	9999.1	1527.9	10000	1527.9	10001.7	1528
10010.7	1528.4	10013.2	1529.1	10020.6	1530.9	10029.2	1531.7	10029.8	1531.8
10029.9	1531.8	10042.2	1535.8	10042.8	1535.9	10043.4	1536.1	10052.2	1537
10057.1	1537.7	10061	1538.2	10068.2	1539	10072.5	1539.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9819.2	.05	9967.3	.055	10029.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.3	10029.9	362.26	433.25	447.01	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9863.63	9878.44	25.73	8.29	12.56	0.89	0.66	3.11
9878.44	9893.25	147.65	25.28	14.86	5.11	1.71	5.84
9893.25	9908.06	302.23	38.83	14.83	10.46	2.62	7.78
9908.06	9922.87	215.56	31.77	14.91	7.46	2.14	6.79
9922.87	9937.68	12.71	4.34	7.16	0.44	0.61	2.93
9937.68	9967.30						
LB 9967.30	9979.82	77.83	16.61	12.10	2.69	1.41	4.69
9979.82	9992.34	475.40	50.15	12.71	16.45	4.01	9.48
9992.34	10004.86	794.05	67.94	12.57	27.48	5.43	11.69
10004.86	10017.38	620.95	58.94	12.74	21.49	4.71	10.54
10017.38	RB 10029.90	202.71	30.03	12.66	7.01	2.40	6.75
10029.90	10044.10	15.18	4.55	5.56	0.53	0.86	3.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9908.06	9922.87	139.00	29.83	14.50	4.81	2.64	4.66
9922.87	9937.68	24.54	10.67	14.95	0.85	0.72	2.30
9937.68	9952.49	1.14	1.68	14.81	0.04	0.11	0.68
9952.49	9967.30	4.47	3.83	14.81	0.15	0.26	1.17
LB 9967.30	9979.82	138.66	24.55	12.88	4.80	1.96	5.65
9979.82	9992.34	588.96	58.16	12.71	20.38	4.65	10.13
9992.34	10004.86	925.33	75.95	12.57	32.02	6.07	12.18
10004.86	10017.38	743.13	66.94	12.74	25.71	5.35	11.10
10017.38	RB 10029.90	290.94	38.04	12.66	10.07	3.04	7.65
10029.90	10044.10	33.83	7.93	6.20	1.17	1.50	4.26

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.230

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9842	1532	9845	1531.8	9850.2	1531.5	9875.9	1528.8	9880	1528.3
9882.5	1528	9900.3	1524.9	9900.7	1524.9	9901.1	1524.8	9902.4	1524.7
9913.4	1523.8	9934.4	1523.4	9935.9	1523.3	9936.3	1523.3	9937.8	1524
9949.3	1528.2	9951.4	1528	9962.1	1526.7	9962.3	1526.7	9983.7	1523.7
9994.2	1522.1	9997	1521.6	10002.1	1521.4	10003	1521.3	10005	1521.4
10005.8	1521.5	10008.9	1522.1	10015.4	1523.6	10018.7	1522.7	10019.3	1522.5
10022	1522.6	10022.1	1522.6	10024.4	1524	10029.4	1527.2	10043.5	1536.3
10047.2	1537	10056.7	1539.2	10059.4	1540	10075.7	1541.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9842	.05	9962.3	.055	10029.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962.3	10029.4	496.31	509.18	505.48	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9878.09	9890.12	5.97	3.60	6.52	0.21	0.56	1.66
9890.12	9902.15	105.92	25.94	12.20	3.67	2.16	4.08
9902.15	9914.18	246.33	42.85	12.07	8.52	3.56	5.75
9914.18	9926.21	314.75	49.59	12.03	10.89	4.12	6.35
9926.21	9938.24	333.37	51.64	12.22	11.54	4.29	6.46
9938.24	9950.27	63.65	18.06	10.59	2.20	1.82	3.53
9950.27	9962.30	8.55	5.13	9.26	0.30	0.56	1.67
LB 9962.30	9975.72	101.68	27.28	13.55	3.52	2.03	3.73
9975.72	9989.14	304.58	52.71	13.56	10.54	3.93	5.78
9989.14	10002.56	592.95	78.54	13.53	20.52	5.85	7.55
10002.56	10015.98	532.78	73.98	13.68	18.44	5.51	7.20
10015.98	RB 10029.40	279.21	51.93	14.88	9.66	3.87	5.38
10029.40	10044.83	0.24	0.27	1.09	0.01	0.30	0.90

Warning: Divided flow computed for this cross-section.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9926.21	9938.24	172.62	31.35	11.52	5.97	4.97	5.51
9938.24	9950.27	114.92	25.58	12.75	3.98	2.13	4.49
9950.27	9962.30	37.30	12.76	12.11	1.29	1.06	2.92
LB 9962.30	9975.72	184.06	36.32	13.55	6.37	2.71	5.07
9975.72	9989.14	445.51	61.75	13.56	15.42	4.60	7.22
9989.14	10002.56	798.86	87.58	13.53	27.64	6.53	9.12
10002.56	10015.98	725.41	83.02	13.68	25.10	6.19	8.74
10015.98	RB 10029.40	409.90	60.96	14.88	14.18	4.54	6.72
10029.40	10044.83	1.42	0.89	1.77	0.05	0.97	1.60

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.134

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9898.7	1524.2	9910.7	1522.8	9929.6	1521.9	9936.5	1521.1	9939.7	1521
9946.8	1520	9951.2	1519.1	9954.5	1518.3	9960.7	1517.3	9971.5	1515.7
9975.8	1515.6	9978.2	1515.1	9983.5	1514.4	9986.3	1514.3	9996.9	1513.5
10002.7	1513.6	10003.9	1513.7	10011.5	1519.3	10020.6	1526.2	10025.5	1530.5
10030.3	1531.9	10032.4	1532.9	10034.1	1533.2	10038.6	1534.3	10040.7	1535.3
10042.5	1536.8	10043.7	1537.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9898.7	.055	9951.2	.055	10011.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9951.2	10011.5	434.95	458.98	449.99	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.70	9951.20	6.78	2.79	5.66	0.23	0.50	2.43
LB 9951.20	9963.26	171.83	27.28	12.26	5.95	2.26	6.30
9963.26	9975.32	458.10	48.96	12.15	15.85	4.06	9.36
9975.32	9987.38	735.57	65.07	12.16	25.45	5.40	11.30
9987.38	9999.44	975.16	76.88	12.09	33.74	6.37	12.68
9999.44	RB 10011.50	541.61	57.13	13.90	18.74	4.74	9.48
10011.50	10022.23	0.94	0.49	1.43	0.03	0.43	1.91

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.70	9951.20	5.79	2.40	5.13	0.20	0.48	2.41
LB 9951.20	9963.26	166.84	26.39	12.26	5.77	2.19	6.32
9963.26	9975.32	455.94	48.07	12.15	15.78	3.99	9.49
9975.32	9987.38	737.73	64.18	12.16	25.53	5.32	11.50
9987.38	9999.44	981.49	75.98	12.09	33.96	6.30	12.92
9999.44	RB 10011.50	541.45	56.24	13.90	18.74	4.66	9.63
10011.50	10022.23	0.76	0.41	1.31	0.03	0.39	1.85

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 2.047

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9924.8	1521.2	9930.1	1520.8	9940.1	1519	9947.4	1520.2	9950.5	1520.4
9969.5	1510.3	9973.5	1508.1	9977.7	1505.8	9978.2	1505.7	9989.4	1504.1
9998.3	1503.2	10004.1	1503.5	10005.5	1503.5	10006.3	1503.5	10014.1	1505.7
10021.1	1507.5	10021.2	1507.5	10036.8	1509.4	10042.1	1510	10047.5	1512.3
10066.8	1519.1	10077.3	1521	10083.1	1522.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9924.8	.055	9973.5	.055	10021.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.5	10021.2	298.81	290.36	298.2	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.27	9973.50	8.87	2.65	3.54	0.31	0.85	3.35
LB 9973.50	9983.04	321.78	35.58	10.19	11.13	3.73	9.05
9983.04	9992.58	630.63	52.06	9.62	21.82	5.46	12.11
9992.58	10002.12	823.74	61.00	9.57	28.50	6.39	13.50
10002.12	10011.66	710.21	56.21	9.75	24.57	5.89	12.63
10011.66	RB 10021.20	297.99	33.54	9.86	10.31	3.52	8.89
10021.20	10041.83	96.77	21.89	19.33	3.35	1.14	4.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.27	9973.50	9.81	2.88	3.62	0.34	0.93	3.40
LB 9973.50	9983.04	323.83	36.30	10.19	11.21	3.81	8.92
9983.04	9992.58	627.93	52.79	9.62	21.73	5.53	11.89
9992.58	10002.12	817.45	61.73	9.57	28.29	6.47	13.24
10002.12	10011.66	705.97	56.94	9.75	24.43	5.97	12.40
10011.66	RB 10021.20	300.50	34.27	9.86	10.40	3.59	8.77
10021.20	10041.83	104.52	23.36	19.40	3.62	1.22	4.47

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.992

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9943	1516.8	9961	1501.9	9967.1	1498.9	9977.3	1499.7	9986.1	1501.2
9986.2	1501.2	9993.6	1496.4	9999	1493.8	10000.3	1493.9	10004.2	1494
10011.1	1494.4	10016.4	1496.8	10022.2	1500.1	10028.8	1501.3	10033.2	1501.4
10050.2	1502.4	10058.2	1505.5	10065.8	1507.9	10075.7	1511.1	10078.3	1512.2
10080.3	1512.9	10087.6	1516.1	10089.7	1516.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9943	.06	9986.1	.06	10022.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.1	10022.2	340.59	337.51	319.26	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.62	9960.24	1.86	1.39	2.38	0.06	0.76	1.34
9960.24	9968.86	141.07	32.56	9.55	4.88	3.78	4.33
9968.86	9977.48	214.57	40.25	8.65	7.42	4.67	5.33
9977.48	9986.10	136.82	30.86	8.74	4.73	3.58	4.43
LB 9986.10	9993.32	187.03	36.98	8.59	6.47	5.12	5.06
9993.32	10000.54	521.90	66.11	7.87	18.06	9.16	7.89
10000.54	10007.76	641.75	72.33	7.23	22.21	10.02	8.87
10007.76	10014.98	540.02	66.56	7.61	18.69	9.22	8.11
10014.98	RB 10022.20	249.21	43.19	8.23	8.62	5.98	5.77
10022.20	10035.70	158.18	40.37	13.61	5.47	2.99	3.92
10035.70	10049.20	88.24	28.36	13.52	3.05	2.10	3.11

10049.20	10062.70	9.35	5.17	5.55	0.32	0.99	1.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.62	9960.24	1.86	1.39	2.38	0.06	0.76	1.34
9960.24	9968.86	141.07	32.56	9.55	4.88	3.78	4.33
9968.86	9977.48	214.58	40.25	8.65	7.42	4.67	5.33
9977.48	9986.10	136.82	30.86	8.74	4.73	3.58	4.43
LB 9986.10	9993.32	187.03	36.98	8.59	6.47	5.12	5.06
9993.32	10000.54	521.90	66.11	7.87	18.06	9.16	7.89
10000.54	10007.76	641.75	72.33	7.23	22.21	10.02	8.87
10007.76	10014.98	540.02	66.56	7.61	18.69	9.22	8.11
10014.98	RB 10022.20	249.20	43.19	8.23	8.62	5.98	5.77
10022.20	10035.70	158.18	40.37	13.61	5.47	2.99	3.92
10035.70	10049.20	88.24	28.36	13.52	3.05	2.10	3.11
10049.20	10062.70	9.35	5.17	5.55	0.32	0.99	1.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.928

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9953.9	1529.6	9962.1	1522.8	9962.3	1522.7	9962.3	1522.6	9962.4	1522.5
9981.4	1499.4	9987.3	1492.3	10000.5	1491.5	10001	1491.5	10001.8	1491.6
10015.9	1493.7	10024	1496	10024.3	1496.1	10031.1	1498.1	10031.8	1498.3
10033.2	1498.9	10042	1502.4	10054.8	1507.6	10079.6	1510		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9953.9	.06	9981.4	.06	10031.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.4	10031.1	365.87	345.26	306.03	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9981.40	9991.34	391.73	48.61	13.08	13.55	4.95	8.06
9991.34	10001.28	956.21	74.46	9.96	33.09	7.49	12.84
10001.28	10011.22	845.74	69.42	10.05	29.26	6.98	12.18
10011.22	10021.16	531.39	52.84	10.20	18.39	5.32	10.06
10021.16	RB 10031.10	160.53	25.92	10.36	5.55	2.61	6.19
10031.10	10047.27	4.40	1.79	3.19	0.15	0.60	2.46

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9981.40	9991.34	391.75	48.61	13.08	13.56	4.96	8.06
9991.34	10001.28	956.20	74.46	9.96	33.09	7.49	12.84
10001.28	10011.22	845.73	69.42	10.05	29.26	6.98	12.18
10011.22	10021.16	531.39	52.84	10.20	18.39	5.32	10.06
10021.16	RB 10031.10	160.53	25.92	10.36	5.55	2.61	6.19
10031.10	10047.27	4.40	1.79	3.19	0.15	0.60	2.46

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.862

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9947.3	1507.8	9949.7	1507.8	9968.3	1498.8	9981	1491.8	9985.3	1489.5
9995.1	1485.5	10003.8	1485.6	10006.6	1485.5	10011.7	1486.4	10016.2	1487
10017.8	1487.3	10026	1492	10042.1	1502.8	10055.4	1504.5	10063.7	1505.3
10073	1507.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9947.3	.06	9981	.06	10026	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981	10026	508.64	499.19	473.46	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.77	9981.00	16.73	5.91	5.29	0.58	1.28	2.83
LB 9981.00	9990.00	288.80	43.23	9.95	9.99	4.80	6.68
9990.00	9999.00	738.93	74.27	9.41	25.57	8.25	9.95
9999.00	10008.00	842.23	79.01	9.02	29.14	8.78	10.66
10008.00	10017.00	698.44	70.89	9.11	24.17	7.88	9.85
10017.00	RB 10026.00	294.19	44.26	10.27	10.18	4.92	6.65
10026.00	10041.67	10.68	4.12	4.22	0.37	1.18	2.59

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.77	9981.00	16.73	5.91	5.29	0.58	1.28	2.83
LB 9981.00	9990.00	288.80	43.23	9.95	9.99	4.80	6.68
9990.00	9999.00	738.94	74.27	9.41	25.57	8.25	9.95
9999.00	10008.00	842.24	79.00	9.02	29.14	8.78	10.66
10008.00	10017.00	698.45	70.88	9.11	24.17	7.88	9.85
10017.00	RB 10026.00	294.18	44.25	10.27	10.18	4.92	6.65
10026.00	10041.67	10.67	4.12	4.22	0.37	1.18	2.59

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.768

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9928.4	1498.2	9942.4	1496.2	9964.3	1486.5	9972.6	1482.9	9977.9	1482
9994.6	1479.3	9996.3	1479.3	10006.4	1479.1	10021.7	1486.2	10023.4	1487
10047.7	1499.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9928.4	.06	9964.3	.06	10021.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964.3	10021.7	247.98	310.53	346.2	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.33	9964.30	0.02	0.03	0.37	0.00	0.08	0.59
LB 9964.30	9975.78	165.88	28.97	12.27	5.74	2.52	5.73
9975.78	9987.26	579.80	60.08	11.63	20.06	5.23	9.65
9987.26	9998.74	939.06	80.08	11.58	32.49	6.98	11.73
9998.74	10010.22	974.29	82.70	11.87	33.71	7.20	11.78
10010.22	RB 10021.70	230.70	35.75	12.66	7.98	3.11	6.45
10021.70	10030.37	0.26	0.22	1.06	0.01	0.23	1.22

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.33	9964.30	0.02	0.03	0.37	0.00	0.08	0.59
LB 9964.30	9975.78	165.90	28.98	12.27	5.74	2.52	5.73
9975.78	9987.26	579.80	60.08	11.63	20.06	5.23	9.65
9987.26	9998.74	939.03	80.09	11.58	32.49	6.98	11.72
9998.74	10010.22	974.26	82.71	11.87	33.71	7.20	11.78
10010.22	RB 10021.70	230.72	35.75	12.66	7.98	3.11	6.45
10021.70	10030.37	0.26	0.22	1.06	0.01	0.23	1.22

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.709

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9938.7	1493.8	9952.1	1490.3	9965	1485.3	9979.3	1479.2	9986.7	1476
9999.4	1476.1	10013.2	1476.5	10016.4	1476.6	10019.4	1477.1	10035.3	1480
10039.2	1480.7	10039.7	1480.8	10042.2	1481.3	10067.6	1487	10076.3	1488.5
10096.4	1492.1	10098.7	1492.6	10105.8	1493.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9938.7	.06	9979.3	.06	10019.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.3	10019.4	172.32	179.1	189.35	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.00	9979.30	90.52	27.34	12.31	3.13	2.41	3.31
LB 9979.30	9987.32	337.70	52.56	8.68	11.69	6.55	6.43
9987.32	9995.34	495.71	64.10	8.02	17.15	7.99	7.73
9995.34	10003.36	487.08	63.44	8.02	16.85	7.91	7.68
10003.36	10011.38	465.52	61.74	8.02	16.11	7.70	7.54
10011.38	RB 10019.40	436.11	59.54	8.08	15.09	7.42	7.32
10019.40	10036.68	483.71	92.51	17.56	16.74	5.35	5.23
10036.68	10053.96	93.65	34.63	17.67	3.24	2.00	2.70
10053.96	10071.24	0.00	0.02	0.41	0.00	0.05	0.22

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.00	9979.30	90.46	27.32	12.30	3.13	2.41	3.31
LB 9979.30	9987.32	337.71	52.54	8.68	11.69	6.55	6.43
9987.32	9995.34	495.76	64.08	8.02	17.15	7.99	7.74
9995.34	10003.36	487.13	63.42	8.02	16.86	7.91	7.68
10003.36	10011.38	465.56	61.72	8.02	16.11	7.70	7.54
10011.38	RB 10019.40	436.14	59.52	8.08	15.09	7.42	7.33
10019.40	10036.68	483.69	92.48	17.56	16.74	5.35	5.23
10036.68	10053.96	93.55	34.59	17.67	3.24	2.00	2.70
10053.96	10071.24	0.00	0.02	0.40	0.00	0.04	0.21

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.675

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9966.5	1502.6	9968.3	1502.1	9981.6	1479.2	9983.6	1475.6	9985.1	1473.2
9987	1473.1	9998.3	1471.9	10002.2	1472	10016.7	1477	10025.6	1479.5
10030.9	1481.1	10036.4	1481.9	10040.3	1481.9	10041.2	1481.9	10041.9	1481.9
10044.6	1482	10048.9	1482.2	10070.2	1483.3	10085.9	1483.3	10095.9	1484.7
10115.8	1488	10134.3	1491						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9966.5	.06	9981.6	.06	10030.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.6	10030.9	200.81	203	198.24	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9974.05	9981.60	5.95	2.98	3.70	0.21	1.60	2.00
LB 9981.60	9991.46	588.37	82.13	13.34	20.36	8.33	7.16
9991.46	10001.32	1012.21	100.95	9.90	35.02	10.24	10.03
10001.32	10011.18	790.05	88.66	10.38	27.34	8.99	8.91
10011.18	10021.04	366.67	55.87	10.35	12.69	5.67	6.56
10021.04	RB 10030.90	111.62	27.29	10.27	3.86	2.77	4.09
10030.90	10065.37	15.13	10.63	21.97	0.52	0.49	1.42

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9974.05	9981.60	5.92	2.96	3.69	0.20	1.60	2.00
LB 9981.60	9991.46	588.47	82.06	13.34	20.36	8.32	7.17
9991.46	10001.32	1012.62	100.88	9.90	35.04	10.23	10.04
10001.32	10011.18	790.25	88.60	10.38	27.34	8.99	8.92
10011.18	10021.04	366.51	55.81	10.35	12.68	5.66	6.57
10021.04	RB 10030.90	111.35	27.23	10.27	3.85	2.76	4.09
10030.90	10065.37	14.88	10.49	21.85	0.51	0.48	1.42

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.637

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9928.7	1499	9936.7	1496.9	9940.6	1495.6	9955.2	1493.5	9957.8	1493.2
9963.2	1489.1	9967.8	1485.3	9972.4	1483.2	9982.7	1477.5	9985.1	1475.9
9988.8	1473.5	9990.3	1472.4	9993.8	1469.1	9997	1468	9997.8	1467.7
10001.8	1467.4	10005.9	1466.8	10015.9	1475.8	10018.8	1478.5	10018.9	1478.6
10036.2	1482.6	10065.4	1490.5	10071.6	1492.2	10077.2	1493.1	10083.2	1494.8
10083.5	1494.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9928.7	.06	9985.1	.06	10015.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.1	10015.9	80.11	82.9	84.66	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.90	9985.10	1.58	0.64	1.67	0.05	0.46	2.46
LB 9985.10	9991.26	136.39	18.36	7.59	4.72	2.98	7.43
9991.26	9997.42	664.34	46.81	7.32	22.99	7.60	14.19
9997.42	10003.58	1045.92	57.56	6.22	36.19	9.34	18.17
10003.58	10009.74	847.82	54.73	7.51	29.34	8.88	15.49
10009.74	RB 10015.90	192.59	23.40	8.29	6.66	3.80	8.23
10015.90	10049.70	1.37	0.56	1.51	0.05	0.51	2.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.90	9985.10	1.65	0.66	1.69	0.06	0.48	2.49
LB 9985.10	9991.26	137.09	18.46	7.59	4.74	3.00	7.43
9991.26	9997.42	664.24	46.90	7.32	22.98	7.61	14.16
9997.42	10003.58	1045.10	57.65	6.22	36.16	9.36	18.13
10003.58	10009.74	847.27	54.83	7.51	29.32	8.90	15.45
10009.74	RB 10015.90	193.22	23.49	8.29	6.69	3.81	8.23
10015.90	10049.70	1.42	0.58	1.52	0.05	0.53	2.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the

cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.621

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9949.7	1484.7	9953.7	1483.9	9957.1	1482.8	9963.9	1478.2	9970.6	1472
9973.7	1471.4	9974.2	1471.2	9979.6	1470.2	9982	1469.7	9987.4	1469.4
9987.5	1469.4	9990.3	1467.9	9991.1	1467.7	9991.7	1467.8	9996.6	1468
10003.9	1467.9	10009.6	1467.4	10011.6	1467.4	10013.5	1467.3	10013.7	1467.3
10014.3	1467.7	10019.9	1471.5	10034.5	1479.7	10049.2	1486	10050.9	1487

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9949.7	.055	9987.5	.055	10019.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.5	10019.9	158.28	161.94	163.12	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.15	9968.60	0.40	0.31	1.11	0.01	0.38	1.29
9968.60	9978.05	170.69	28.50	10.34	5.91	3.02	5.99
9978.05	9987.50	394.18	45.60	9.54	13.64	4.82	8.65
LB 9987.50	9993.98	444.76	41.64	6.89	15.39	6.43	10.68
9993.98	10000.46	489.48	43.04	6.48	16.94	6.64	11.37
10000.46	10006.94	502.98	43.78	6.49	17.40	6.76	11.49
10006.94	10013.42	555.47	46.46	6.49	19.22	7.17	11.96
10013.42	RB 10019.90	297.73	34.34	7.77	10.30	5.30	8.67
10019.90	10035.40	34.31	8.58	6.34	1.19	1.55	4.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.15	9968.60	0.40	0.31	1.11	0.01	0.38	1.30
9968.60	9978.05	170.87	28.54	10.34	5.91	3.02	5.99
9978.05	9987.50	394.27	45.63	9.54	13.64	4.83	8.64
LB 9987.50	9993.98	444.70	41.67	6.89	15.39	6.43	10.67
9993.98	10000.46	489.39	43.06	6.48	16.93	6.65	11.36
10000.46	10006.94	502.88	43.80	6.49	17.40	6.76	11.48
10006.94	10013.42	555.34	46.49	6.49	19.22	7.17	11.95
10013.42	RB 10019.90	297.75	34.36	7.77	10.30	5.30	8.66
10019.90	10035.40	34.40	8.60	6.35	1.19	1.56	4.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.590

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9929.6	1486.8	9930.4	1486.4	9931.8	1485.7	9941.1	1482.3	9945.2	1481.1
9953.1	1479.1	9956.8	1478.7	9967.1	1473.7	9981.5	1469	9981.6	1469
9990	1465.1	9996.4	1464.9	10009.8	1464.7	10009.9	1464.7	10016.5	1466.8
10032	1471.9	10033.3	1472.9	10040.8	1475.1	10043.7	1475.9	10067.1	1484.4
10070.7	1485.7	10075.7	1487.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9929.6	.055	9981.6	.055	10032	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.6	10032	595.02	588.5	561.54	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.60	9981.60	112.18	28.17	13.82	3.88	2.14	3.98
LB 9981.60	9991.68	509.93	65.87	10.94	17.64	6.53	7.74
9991.68	10001.76	808.97	84.09	10.08	27.99	8.34	9.62
10001.76	10011.84	821.10	85.16	10.18	28.41	8.45	9.64
10011.84	10021.92	492.58	63.70	10.60	17.04	6.32	7.73
10021.92	RB 10032.00	143.29	30.38	10.61	4.96	3.01	4.72
10032.00	10053.85	1.95	1.33	2.90	0.07	0.53	1.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.60	9981.60	113.22	28.44	13.84	3.92	2.16	3.98
LB 9981.60	9991.68	509.89	66.08	10.94	17.64	6.56	7.72
9991.68	10001.76	807.99	84.30	10.08	27.96	8.36	9.58
10001.76	10011.84	820.06	85.37	10.18	28.38	8.47	9.61
10011.84	10021.92	492.63	63.90	10.60	17.05	6.34	7.71
10021.92	RB 10032.00	144.15	30.59	10.61	4.99	3.03	4.71
10032.00	10053.85	2.06	1.38	2.92	0.07	0.55	1.49

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.479

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9953.6	1492.6	9955	1492.1	9955.3	1491.8	9956.3	1491.3	9964.3	1486.6
9966.4	1484.1	9984.2	1464.8	9988.9	1459.6	9992.1	1459.2	10005.7	1459.3
10010.3	1459.4	10012	1459.5	10017	1459.9	10024.2	1460.3	10024.4	1460.4
10026.7	1461	10027.6	1461.3	10028.9	1461.8	10031.9	1462.7	10036.9	1464.4
10069.2	1475	10072.6	1475.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9953.6	.055	9984.2	.055	10036.9	.055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9984.2 10036.9 421.65 428.79 433.45 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.90	9984.20	0.59	0.37	1.22	0.02	0.45	1.61
LB 9984.20	9994.74	476.85	53.68	12.87	16.50	5.09	8.88
9994.74	10005.28	804.79	67.83	10.54	27.85	6.44	11.87
10005.28	10015.82	759.57	65.56	10.56	26.28	6.22	11.59
10015.82	10026.36	617.85	58.11	10.64	21.38	5.51	10.63
10026.36	RB 10036.90	223.77	32.13	11.11	7.74	3.05	6.96
10036.90	10054.75	6.57	2.55	4.15	0.23	0.65	2.58

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.90	9984.20	0.54	0.34	1.17	0.02	0.43	1.58
LB 9984.20	9994.74	476.52	53.29	12.87	16.49	5.06	8.94
9994.74	10005.28	806.28	67.44	10.54	27.90	6.40	11.96
10005.28	10015.82	760.72	65.17	10.56	26.32	6.18	11.67
10015.82	10026.36	618.00	57.72	10.64	21.38	5.48	10.71
10026.36	RB 10036.90	221.80	31.75	11.11	7.67	3.01	6.99
10036.90	10054.75	6.16	2.41	4.03	0.21	0.63	2.56

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.398

INPUT
Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9970.5	1468.2	9977.3	1466.3	9977.9	1465.8	9979.3	1463.1	9990	1452.2
9999.8	1440.9	10013.4	1450.6	10013.7	1450.8	10034.1	1464.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

9970.5 .055 9990 .055 10013.7 .055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9990 10013.7 125.78 126.94 130.26 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.25	9990.00	5.83	1.67	2.58	0.20	0.92	3.49
LB 9990.00	9994.74	195.06	21.69	7.23	6.75	4.58	8.99
9994.74	9999.48	722.79	47.60	7.24	25.01	10.04	15.18
9999.48	10004.22	1059.99	55.26	5.92	36.68	11.66	19.18
10004.22	10008.96	608.21	39.35	5.82	21.05	8.30	15.46
10008.96	RB 10013.70	254.64	23.32	5.81	8.81	4.92	10.92
10013.70	10023.90	43.49	7.66	5.73	1.50	1.62	5.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.25	9990.00	6.37	1.79	2.65	0.22	0.99	3.55
LB 9990.00	9994.74	197.19	22.03	7.23	6.82	4.65	8.95
9994.74	9999.48	720.72	47.93	7.24	24.94	10.11	15.04
9999.48	10004.22	1055.26	55.60	5.92	36.51	11.73	18.98
10004.22	10008.96	607.93	39.68	5.82	21.04	8.37	15.32
10008.96	RB 10013.70	256.97	23.66	5.81	8.89	4.99	10.86
10013.70	10023.90	45.56	8.00	5.80	1.58	1.69	5.70

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.374

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9982.4	1460.2	9991.9	1448	9996	1442.5	9999.7	1438.2	10025.9	1448.3
10026.1	1448.3	10031.2	1449.5	10033.5	1451.6	10049.4	1464	10072.5	1483.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9982.4	.055	9991.9	.055	10025.9	.055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9991.9 10025.9 31.52 34.55 28.31 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9987.15	9991.90	1.83	0.72	1.72	0.06	0.68	2.56
LB 9991.90	9998.70	382.00	39.59	11.00	13.22	5.82	9.65
9998.70	10005.50	1211.98	68.80	7.75	41.94	10.12	17.61
10005.50	10012.30	785.57	51.76	7.29	27.18	7.61	15.18
10012.30	10019.10	388.58	33.93	7.29	13.45	4.99	11.45
10019.10	RB 10025.90	112.22	16.10	7.29	3.88	2.37	6.97
10025.90	10049.20	7.83	2.59	4.82	0.27	0.55	3.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9987.15	9991.90	1.96	0.76	1.76	0.07	0.72	2.59
LB 9991.90	9998.70	382.58	39.86	11.00	13.24	5.86	9.60
9998.70	10005.50	1207.96	69.08	7.75	41.80	10.16	17.49
10005.50	10012.30	784.67	52.03	7.29	27.15	7.65	15.08
10012.30	10019.10	389.91	34.20	7.29	13.49	5.03	11.40
10019.10	RB 10025.90	114.26	16.37	7.29	3.95	2.41	6.98
10025.90	10049.20	8.66	2.77	4.85	0.30	0.59	3.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.367

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9969.2	1457.6	9970.7	1455.4	9977.5	1446	9983	1438.7	9985.6	1438.6
9992.4	1438	9996.5	1430.1	10000	1425.1	10005.6	1432.2	10013.8	1442.7
10019.7	1450.4	10047.6	1475.5	10057.1	1483.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9969.2	.055	9992.4	.055	10013.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.4	10013.8	433.56	429.03	431.88	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.80	9986.60	80.14	11.51	6.71	2.77	2.11	6.96
9986.60	9992.40	167.85	16.95	5.82	5.81	2.92	9.90
LB 9992.40	9996.68	312.26	31.25	9.22	10.80	7.30	9.99
9996.68	10000.96	1088.61	60.35	7.34	37.67	14.10	18.04
10000.96	10005.24	883.80	52.00	6.91	30.58	12.15	17.00
10005.24	10009.52	326.44	28.67	6.95	11.30	6.70	11.39
10009.52	RB 10013.80	30.92	6.12	5.02	1.07	1.98	5.05

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.80	9986.60	82.04	11.78	6.76	2.84	2.15	6.96
9986.60	9992.40	170.85	17.24	5.82	5.91	2.97	9.91
LB 9992.40	9996.68	312.73	31.46	9.22	10.82	7.35	9.94
9996.68	10000.96	1084.29	60.56	7.34	37.52	14.15	17.90
10000.96	10005.24	881.13	52.21	6.91	30.49	12.20	16.88
10005.24	10009.52	327.26	28.88	6.95	11.32	6.75	11.33
10009.52	RB 10013.80	31.70	6.28	5.07	1.10	2.03	5.05

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.286

INPUT
Description: 100-year, 6-hour Peak Discharge of 3190 cfs from HEC-1 model at station C105L.

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9942.3	1458.2	9946.9	1455.3	9950.1	1453.5	9958.7	1442.1	9967	1434.8
9974.5	1431	9977.2	1427.3	9982.4	1420.2	9992	1418.8	10001.9	1419.3
10004.6	1419.5	10009.1	1422.4	10016	1426.8	10033.9	1438.3	10044.9	1447

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9942.3	.055	9977.2	.055	10016	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.2	10016	428.18	413.04	409.95	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.75	9977.20	0.62	0.41	1.32	0.02	0.53	1.50
LB 9977.20	9984.96	340.95	45.38	11.39	10.69	5.85	7.51
9984.96	9992.72	913.74	70.60	7.84	28.64	9.10	12.94
9992.72	10000.48	958.89	72.43	7.77	30.06	9.33	13.24
10000.48	10008.24	759.01	65.13	8.46	23.79	8.39	11.65
10008.24	RB 10016.00	212.09	31.35	9.21	6.65	4.04	6.77
10016.00	10030.45	4.69	1.91	2.90	0.15	0.78	2.46

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.75	9977.20	0.62	0.41	1.32	0.02	0.53	1.50
LB 9977.20	9984.96	340.95	45.38	11.39	10.69	5.85	7.51
9984.96	9992.72	913.74	70.60	7.84	28.64	9.10	12.94
9992.72	10000.48	958.89	72.43	7.77	30.06	9.33	13.24
10000.48	10008.24	759.01	65.13	8.46	23.79	8.39	11.65
10008.24	RB 10016.00	212.09	31.35	9.21	6.65	4.04	6.77
10016.00	10030.45	4.69	1.91	2.90	0.15	0.78	2.46

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.208

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9938.7	1439.2	9941.9	1437.3	9960.6	1425.4	9962.5	1424.1	9962.9	1423.5
9964.4	1422.8	9974.3	1418.2	9974.3	1418.1	9978.4	1415.9	9982	1415.5
9982.9	1415.3	9986.1	1414.7	9994.7	1413.4	10003	1413.3	10007.3	1413.5
10015.3	1414.8	10019	1415.4	10021	1419.2	10027.4	1431.7	10039.8	1449.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9938.7	.055	9974.3	.055	10021	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.3	10021	467.62	482.74	493.73	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.50	9974.30	12.14	3.27	4.14	0.38	0.87	3.71
LB 9974.30	9983.64	334.83	34.93	10.05	10.50	3.74	9.59
9983.64	9992.98	676.47	51.99	9.46	21.21	5.57	13.01
9992.98	10002.32	895.41	61.25	9.36	28.07	6.56	14.62
10002.32	10011.66	843.62	59.20	9.40	26.45	6.34	14.25
10011.66	RB 10021.00	427.35	43.01	11.73	13.40	4.61	9.94
10021.00	10030.40	0.19	0.14	0.84	0.01	0.37	1.33

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

9956.50	9974.30	12.14	3.27	4.14	0.38	0.87	3.71
LB 9974.30	9983.64	334.82	34.92	10.05	10.50	3.74	9.59
9983.64	9992.98	676.47	51.99	9.46	21.21	5.57	13.01
9992.98	10002.32	895.41	61.25	9.36	28.07	6.56	14.62
10002.32	10011.66	843.62	59.20	9.40	26.45	6.34	14.25
10011.66	RB 10021.00	427.35	43.01	11.73	13.40	4.60	9.94
10021.00	10030.40	0.19	0.14	0.84	0.01	0.37	1.33

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.116

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9968.5	1430.3	9977.5	1420.1	9985.4	1410.8	9991	1404.2	10005.2	1404.2
10008.7	1404.1	10013	1405.4	10014.5	1406.2	10025.1	1411.6	10025.7	1412.1
10028.9	1414.5	10032.8	1420.3	10036.3	1422.8	10039.7	1425.4	10041.7	1426.9
10046.9	1430.4	10047.7	1430.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9968.5	.055	9985.4	.055	10025.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.4	10025.7	561.45	558.41	558.75	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.95	9985.40	18.75	6.83	5.26	0.59	2.01	2.74
LB 9985.40	9993.46	485.06	67.04	11.12	15.21	8.32	7.24
9993.46	10001.52	901.85	85.53	8.06	28.27	10.61	10.54
10001.52	10009.58	901.27	85.67	8.10	28.25	10.63	10.52
10009.58	10017.64	638.51	72.00	8.80	20.02	8.93	8.87
10017.64	RB 10025.70	232.52	39.90	9.15	7.29	4.95	5.83
10025.70	10036.70	12.05	4.87	4.37	0.38	1.43	2.48

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.95	9985.40	18.75	6.83	5.26	0.59	2.01	2.74
LB 9985.40	9993.46	485.06	67.04	11.12	15.21	8.32	7.24
9993.46	10001.52	901.85	85.53	8.06	28.27	10.61	10.54
10001.52	10009.58	901.27	85.67	8.10	28.25	10.63	10.52
10009.58	10017.64	638.51	72.00	8.80	20.02	8.93	8.87
10017.64	RB 10025.70	232.52	39.90	9.15	7.29	4.95	5.83
10025.70	10036.70	12.05	4.87	4.37	0.38	1.43	2.48

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 1.010

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9952.4	1442	9955.5	1438.6	9960.5	1431.7	9973.7	1424.8	9974.4	1424.4
9975.7	1422.4	9986.6	1406.2	9987.3	1405.1	9994.6	1394.5	9995	1393.5
9996.4	1393.6	10005.9	1394.1	10010.7	1401.9	10014	1407.4	10020.5	1418.9
10021.2	1419.1	10022.4	1419.1	10025.3	1419.8	10030	1420.6	10042	1423.6
10048.3	1425.5	10053.9	1426.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9952.4	.055	9987.3	.055	10010.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.3	10010.7	501.4	506.24	504.42	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.85	9987.30	0.35	0.23	1.00	0.01	0.42	1.54
LB 9987.30	9991.98	125.15	19.84	8.25	3.92	4.24	6.31
9991.98	9996.66	637.36	50.33	7.36	19.98	10.75	12.66
9996.66	10001.34	1063.22	57.11	4.69	33.33	12.20	18.62
10001.34	10006.02	1011.95	55.96	4.80	31.72	11.96	18.08
10006.02	RB 10010.70	331.10	36.71	8.93	10.38	7.84	9.02
10010.70	10032.30	20.87	4.90	4.71	0.65	2.02	4.26

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.85	9987.30	0.35	0.23	1.00	0.01	0.42	1.54
LB 9987.30	9991.98	125.15	19.84	8.25	3.92	4.24	6.31
9991.98	9996.66	637.36	50.33	7.36	19.98	10.75	12.66
9996.66	10001.34	1063.22	57.11	4.69	33.33	12.20	18.62
10001.34	10006.02	1011.95	55.96	4.80	31.72	11.96	18.08
10006.02	RB 10010.70	331.10	36.71	8.93	10.38	7.84	9.02
10010.70	10032.30	20.87	4.90	4.71	0.65	2.02	4.26

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.914

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9955.8	1415.1	9956.2	1414.7	9967.7	1404.2	9982.3	1396	9994.9	1389		
9996.1	1388.2	9996.8	1388.2	10007.1	1388.3	10010.8	1390.2	10012.7	1392.4		
10019	1397.6	10022.6	1400.4	10028.5	1405.4	10034.5	1410	10043.3	1413.3		
10049.9	1417.7	10052.3	1418.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9955.8	.055	9982.3	.055	10019	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.3	10019	339.38	340.55	341.31	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.05	9982.30	38.54	10.66	7.07	1.21	1.73	3.61
LB 9982.30	9989.64	291.33	40.37	8.40	9.13	5.50	7.22
9989.64	9996.98	737.38	70.28	8.34	23.12	9.57	10.49
9996.98	10004.32	1046.41	82.39	7.34	32.80	11.22	12.70
10004.32	10011.66	852.89	76.38	8.26	26.74	10.41	11.17
10011.66	RB 10019.00	218.48	36.07	9.76	6.85	4.91	6.06
10019.00	10035.65	4.98	2.23	3.03	0.16	0.93	2.24

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.05	9982.30	38.54	10.66	7.07	1.21	1.73	3.61
LB 9982.30	9989.64	291.32	40.36	8.40	9.13	5.50	7.22
9989.64	9996.98	737.38	70.28	8.34	23.12	9.57	10.49
9996.98	10004.32	1046.42	82.39	7.34	32.80	11.22	12.70
10004.32	10011.66	852.89	76.38	8.26	26.74	10.41	11.17
10011.66	RB 10019.00	218.47	36.07	9.76	6.85	4.91	6.06
10019.00	10035.65	4.98	2.23	3.03	0.16	0.93	2.24

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.850

INPUT

Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9941.9	1413.9	9946.9	1411.1	9948.6	1410.1	9959.2	1405	9961.1	1404
9968.6	1401.3	9978.7	1395.6	9981.2	1394.2	9992.2	1387.2	9992.3	1387.2
9997.6	1386.9	10004.3	1386.8	10009.6	1386.8	10016	1388.5	10017.1	1388.8
10017.6	1388.9	10017.7	1389	10026.3	1393.1	10043	1401	10051.9	1402.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9941.9	.055	9978.7	.055	10026.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.7	10026.3	166.45	164.21	162.99	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.30	9978.70	0.09	0.11	0.73	0.00	0.18	0.82
LB 9978.70	9988.22	156.68	30.65	11.19	4.91	3.22	5.11
9988.22	9997.74	806.53	79.17	10.27	25.28	8.32	10.19
9997.74	10007.26	989.71	86.85	9.52	31.03	9.12	11.40
10007.26	10016.78	854.08	80.33	9.77	26.77	8.44	10.63
10016.78	RB 10026.30	353.98	48.75	10.51	11.10	5.12	7.26
10026.30	10039.10	28.93	8.63	6.68	0.91	1.43	3.35

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.30	9978.70	0.09	0.11	0.72	0.00	0.18	0.82
LB 9978.70	9988.22	156.68	30.65	11.19	4.91	3.22	5.11
9988.22	9997.74	806.53	79.17	10.27	25.28	8.32	10.19
9997.74	10007.26	989.71	86.85	9.52	31.03	9.12	11.40
10007.26	10016.78	854.08	80.33	9.77	26.77	8.44	10.63
10016.78	RB 10026.30	353.98	48.75	10.51	11.10	5.12	7.26
10026.30	10039.10	28.93	8.63	6.68	0.91	1.43	3.35

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.819

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9948.7	1401.9	9968.3	1393.8	9985.9	1386.5	9986	1386.4	9986.3	1386.3
9986.5	1386.2	9987.9	1386.3	10011.1	1386.5	10022.6	1390	10025.7	1390.8
10030	1392.3	10035.4	1394.2	10063.9	1403.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9948.7	.055	9968.3	.055	10035.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.3	10035.4	495.87	500.37	513.68	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9958.50	9968.30	1.20	0.88	2.23	0.04	0.43	1.37
LB 9968.30	9981.72	254.30	48.80	14.53	7.97	3.64	5.21
9981.72	9995.14	978.54	107.47	13.85	30.68	8.01	9.11
9995.14	10008.56	1046.70	110.50	13.42	32.81	8.23	9.47
10008.56	10021.98	745.27	91.43	13.91	23.36	6.81	8.15
10021.98	RB 10035.40	163.71	37.05	14.13	5.13	2.76	4.42
10035.40	10049.65	0.28	0.30	1.41	0.01	0.23	0.91

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9958.50	9968.30	1.20	0.88	2.24	0.04	0.43	1.37
LB 9968.30	9981.72	254.31	48.81	14.53	7.97	3.64	5.21
9981.72	9995.14	978.53	107.47	13.85	30.67	8.01	9.11
9995.14	10008.56	1046.68	110.50	13.42	32.81	8.23	9.47
10008.56	10021.98	745.27	91.44	13.91	23.36	6.81	8.15
10021.98	RB 10035.40	163.72	37.06	14.13	5.13	2.76	4.42
10035.40	10049.65	0.28	0.30	1.41	0.01	0.23	0.91

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.724

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9938.6	1397.8	9943	1396.2	9948.6	1393.3	9958.8	1388	9968.2	1387
9975.2	1386	9982.9	1384.4	9989.4	1382.7	10017.1	1382.9	10017.3	1382.9
10017.4	1382.9	10017.6	1383	10032.2	1389.1	10054	1398.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9938.6	.055	9958.8	.055	10032.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9958.8	10032.2	427.8	420.98	411.78	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.70	9958.80	11.90	4.69	4.79	0.37	1.10	2.54
LB 9958.80	9973.48	223.76	44.36	14.79	7.01	3.02	5.04
9973.48	9988.16	587.89	79.74	15.04	18.43	5.43	7.37
9988.16	10002.84	1009.29	109.34	14.72	31.64	7.45	9.23
10002.84	10017.52	989.86	108.00	14.70	31.03	7.36	9.17
10017.52	RB 10032.20	364.89	61.26	15.91	11.44	4.17	5.96
10032.20	10043.10	2.41	1.47	2.87	0.08	0.55	1.64

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.70	9958.80	11.88	4.68	4.78	0.37	1.10	2.54
LB 9958.80	9973.48	223.70	44.35	14.79	7.01	3.02	5.04
9973.48	9988.16	587.87	79.72	15.04	18.43	5.43	7.37
9988.16	10002.84	1009.37	109.33	14.72	31.64	7.45	9.23
10002.84	10017.52	989.93	107.98	14.70	31.03	7.36	9.17
10017.52	RB 10032.20	364.84	61.24	15.91	11.44	4.17	5.96
10032.20	10043.10	2.41	1.46	2.87	0.08	0.55	1.64

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.644

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9947	1401.7	9951	1399.6	9962.6	1393.1	9975.1	1387.1	9978	1385.4
9986.2	1380.7	9993.2	1378.9	10002.1	1378.9	10003.8	1378.9	10016.7	1380.2
10023.8	1380.7	10028.1	1381.8	10030.8	1382.4	10043.1	1382.7	10045	1382.6
10046.1	1382.8	10060.7	1384.7	10100.4	1401.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9947	.055	9978	.055	10030.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978	10030.8	370.82	365.58	340.31	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.50	9978.00	1.51	1.00	2.14	0.05	0.54	1.52
LB 9978.00	9988.56	242.02	42.50	11.89	7.59	4.02	5.69
9988.56	9999.12	703.09	77.30	10.71	22.04	7.32	9.10
9999.12	10009.68	724.12	78.32	10.59	22.70	7.42	9.25
10009.68	10020.24	577.01	68.38	10.60	18.09	6.48	8.44
10020.24	RB 10030.80	401.47	55.35	10.77	12.59	5.24	7.25
10030.80	10044.72	320.98	54.56	13.93	10.06	3.92	5.88
10044.72	10058.64	199.75	41.18	14.04	6.26	2.96	4.85
10058.64	10072.56	20.05	7.68	6.63	0.63	1.23	2.61

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.50	9978.00	1.53	1.01	2.15	0.05	0.54	1.52
LB 9978.00	9988.56	242.13	42.55	11.89	7.59	4.03	5.69

9988.56	9999.12	702.84	77.35	10.71	22.03	7.32	9.09
9999.12	10009.68	723.86	78.36	10.59	22.69	7.42	9.24
10009.68	10020.24	576.88	68.43	10.60	18.08	6.48	8.43
10020.24	RB 10030.80	401.49	55.40	10.77	12.59	5.25	7.25
10030.80	10044.72	321.16	54.62	13.93	10.07	3.92	5.88
10044.72	10058.64	199.98	41.24	14.04	6.27	2.96	4.85
10058.64	10072.56	20.13	7.70	6.63	0.63	1.23	2.61

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.575

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9968.2	1386.2	9973.1	1385.7	9974	1385.6	9974.5	1385.5	9987.9	1379.6
9993.6	1376.4	10004.7	1377.7	10009.6	1378.2	10011.9	1378.4	10012	1378.4
10027.9	1378	10036.1	1379.1	10038.3	1379.4	10040.8	1379.3	10056	1379.5
10064.8	1379.5	10066.9	1380.3	10091.1	1389.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9968.2	.06	9987.9	.045	10038.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.9	10038.3	170.42	149.84	113.13	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.05	9987.90	62.41	20.36	10.51	1.96	2.12	3.07
LB 9987.90	9997.98	554.57	64.69	10.95	17.38	6.42	8.57
9997.98	10008.06	571.61	63.90	10.14	17.92	6.34	8.95
10008.06	10018.14	458.81	55.90	10.10	14.38	5.55	8.21
10018.14	10028.22	482.66	57.60	10.09	15.13	5.71	8.38
10028.22	RB 10038.30	398.95	51.55	10.17	12.51	5.11	7.74
10038.30	10048.86	238.56	47.32	10.56	7.48	4.48	5.04
10048.86	10059.42	228.42	46.10	10.56	7.16	4.37	4.95
10059.42	10069.98	180.56	40.60	10.94	5.66	3.84	4.45
10069.98	10080.54	13.46	6.89	6.36	0.42	1.16	1.96

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.05	9987.90	62.67	20.46	10.52	1.96	2.13	3.06
LB 9987.90	9997.98	554.19	64.80	10.95	17.37	6.43	8.55
9997.98	10008.06	571.23	64.01	10.14	17.91	6.35	8.92
10008.06	10018.14	458.69	56.01	10.10	14.38	5.56	8.19
10018.14	10028.22	482.49	57.71	10.09	15.13	5.73	8.36
10028.22	RB 10038.30	398.96	51.66	10.17	12.51	5.13	7.72
10038.30	10048.86	238.73	47.44	10.56	7.48	4.49	5.03
10048.86	10059.42	228.61	46.22	10.56	7.17	4.38	4.95
10059.42	10069.98	180.81	40.72	10.94	5.67	3.86	4.44
10069.98	10080.54	13.61	6.95	6.37	0.43	1.17	1.96

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.547

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9960.9	1382.8	9968.2	1382.3	9970.4	1382.5	9975.8	1381	9995.7	1375.1
9997.1	1374.7	10002.3	1374.8	10017.9	1375	10022.5	1375.8	10028.4	1377
10036.2	1381	10040.1	1382.4	10050.3	1386.3	10051	1386.5	10052.4	1387
10056.6	1387.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9960.9	.06	9975.8	.045	10036.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.8	10036.2	149.9	126.72	79.38	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.35	9975.80	0.38	0.36	1.67	0.01	0.22	1.06
LB 9975.80	9987.88	163.75	27.02	12.60	5.13	2.24	6.06
9987.88	9999.96	785.47	68.94	12.47	24.62	5.71	11.39
9999.96	10012.04	1022.38	79.73	12.08	32.05	6.60	12.82
10012.04	10024.12	911.79	74.68	12.18	28.58	6.18	12.21
10024.12	RB 10036.20	305.94	39.97	13.13	9.59	3.31	7.65
10036.20	10046.40	0.29	0.28	1.32	0.01	0.22	1.04

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.35	9975.80	0.26	0.26	1.42	0.01	0.19	0.98
LB 9975.80	9987.88	159.20	26.24	12.60	4.99	2.17	6.07
9987.88	9999.96	786.77	68.16	12.47	24.66	5.64	11.54
9999.96	10012.04	1026.72	78.95	12.08	32.19	6.54	13.01
10012.04	10024.12	914.64	73.90	12.18	28.67	6.12	12.38
10024.12	RB 10036.20	302.22	39.19	13.13	9.47	3.24	7.71
10036.20	10046.40	0.19	0.20	1.13	0.01	0.19	0.96

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.523

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9963.7	1388	9964.5	1387.6	9975.6	1380.3	9977.7	1379.2	9983.9	1375.8
9986.5	1374.4	9987.2	1374.2	9991.5	1371.9	10000.3	1372.6	10003.7	1372.8
10008.2	1372.9	10009.9	1373.6	10014.9	1375.2	10021	1376.1	10040.9	1379
10049.2	1377.7	10054.7	1376.7	10062	1377.7	10062.2	1377.7	10109.6	1391.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9963.7	.06	9977.7	.045	10014.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.7	10014.9	144.91	202.29	225.91	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.70	9977.70	0.37	0.32	1.25	0.01	0.29	1.15
LB 9977.70	9985.14	121.12	19.50	8.48	3.80	2.62	6.21
9985.14	9992.58	555.73	48.07	8.23	17.42	6.46	11.56
9992.58	10000.02	760.69	55.80	7.46	23.85	7.50	13.63
10000.02	10007.46	681.26	52.18	7.45	21.36	7.01	13.06
10007.46	RB 10014.90	479.37	43.11	7.83	15.03	5.79	11.12
10014.90	10030.68	317.79	54.02	15.95	9.96	3.42	5.88
10030.68	10046.47	73.08	22.37	15.96	2.29	1.42	3.27
10046.47	10062.25	181.84	38.67	15.98	5.70	2.45	4.70
10062.25	10078.03	18.75	7.23	7.30	0.59	1.03	2.59

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.70	9977.70	2.09	1.38	2.21	0.07	1.25	1.51
LB 9977.70	9985.14	149.61	26.61	8.48	4.69	3.58	5.62
9985.14	9992.58	514.57	55.17	8.23	16.13	7.42	9.33
9992.58	10000.02	683.54	62.91	7.46	21.43	8.46	10.87
10000.02	10007.46	620.17	59.29	7.45	19.44	7.97	10.46
10007.46	RB 10014.90	454.89	50.22	7.83	14.26	6.75	9.06

10014.90	10030.68	360.11	69.10	15.95	11.29	4.38	5.21
10030.68	10046.47	129.68	37.45	15.96	4.07	2.37	3.46
10046.47	10062.25	236.66	53.75	15.98	7.42	3.41	4.40
10062.25	10078.03	38.68	13.92	8.25	1.21	1.99	2.78

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.484

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9881.3	1388	9904.7	1379.8	9914.1	1376.3	9914.6	1376.2	9915.2	1376.2
9923.3	1375.7	9924.9	1375.8	9926.1	1375.4	9928.7	1375.9	9932.6	1376.6
9939.3	1377	9940.6	1377.1	9941.2	1377	9948.5	1376.1	9960.8	1375.5
9965.2	1375.2	9965.4	1375.2	9966.3	1375.1	9969.2	1374.8	9971.2	1374.7
9972.2	1374.6	9973.7	1374.4	9974.1	1374.3	9978.1	1373.9	9992.4	1371.9
9996.2	1371.2	10010	1369.2	10015.5	1377.2	10017.3	1378.6	10026.5	1387.2
10026.5	1387.3	10031.1	1398.9	10033.3	1400				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9881.3	.05	9965.2	.04	10015.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9965.2	10015.5	145.65	166.98	170.79	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9905.27	9917.26	49.54	18.16	10.75	1.55	1.77	2.73
9917.26	9929.24	155.13	37.80	12.12	4.86	3.15	4.10
9929.24	9941.23	88.32	26.91	12.06	2.77	2.24	3.28
9941.23	9953.21	114.23	31.38	12.05	3.58	2.62	3.64
9953.21	9965.20	175.48	40.54	12.00	5.50	3.38	4.33
LB 9965.20	9975.26	264.57	42.39	10.12	8.29	4.21	6.24
9975.26	9985.32	395.31	53.99	10.14	12.39	5.37	7.32
9985.32	9995.38	581.85	68.18	10.18	18.24	6.78	8.53
9995.38	10005.44	824.97	84.04	10.17	25.86	8.35	9.82
10005.44	RB 10015.50	537.59	74.52	14.32	16.85	7.41	7.21
10015.50	10024.40	3.03	1.94	2.79	0.09	0.90	1.56

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.21	9965.20	95.38	25.83	10.17	2.99	4.22	3.69
LB 9965.20	9975.26	341.87	49.23	10.12	10.72	4.89	6.94
9975.26	9985.32	485.65	60.84	10.14	15.22	6.05	7.98
9985.32	9995.38	687.16	75.02	10.18	21.54	7.46	9.16
9995.38	10005.44	946.51	90.88	10.17	29.67	9.03	10.41
10005.44	RB 10015.50	626.70	81.36	14.32	19.65	8.09	7.70
10015.50	10024.40	6.72	3.42	3.47	0.21	1.58	1.97

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.453

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9889.1	1383.8	9901.4	1378.6	9903.9	1378.1	9910.1	1376.7	9915.8	1376.5
9916.2	1376.5	9917.2	1376.4	9921.1	1376	9922.9	1375.8	9923.3	1375.7
9928.1	1377.3	9929.7	1377.6	9935.6	1374.4	9937.5	1373.5	9938.6	1373.1
9939.1	1373	9940.8	1372.6	9941.7	1372.7	9943.9	1373.3	9952.1	1375.7
9953.7	1376.2	9953.9	1376.3	9954.7	1376.1	9958	1375.3	9959.4	1375.2
9973.2	1373.5	9977.3	1372.4	9985.8	1370.6	10002.6	1370.7	10007	1370.6
10014.7	1375.2	10018.1	1377.2	10039.8	1389.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9889.1	.05	9973.2	.04	10018.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.2	10018.1	163.64	204.56	222.74	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9901.11	9913.13	14.53	8.14	9.09	0.46	0.91	1.78
9913.13	9925.14	61.81	21.82	12.16	1.94	1.82	2.83
9925.14	9937.16	63.07	22.80	13.18	1.98	1.90	2.77
9937.16	9949.17	283.18	54.94	12.49	8.88	4.57	5.15
9949.17	9961.19	104.54	30.11	12.37	3.28	2.51	3.47

9961.19	9973.20	211.81	45.59	12.11	6.64	3.79	4.65
LB 9973.20	9982.18	406.89	50.86	9.23	12.76	5.66	8.00
9982.18	9991.16	624.77	65.29	9.06	19.59	7.27	9.57
9991.16	10000.14	643.68	66.23	8.98	20.18	7.38	9.72
10000.14	10009.12	607.69	64.97	9.33	19.05	7.23	9.35
10009.12	RB 10018.10	167.34	31.35	10.44	5.25	3.49	5.34
10018.10	10028.95	0.69	0.63	1.72	0.02	0.42	1.10

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.19	9973.20	255.27	50.38	15.54	8.00	4.20	5.07
LB 9973.20	9982.18	493.99	54.50	9.23	15.49	6.07	9.06
9982.18	9991.16	739.92	68.94	9.06	23.20	7.68	10.73
9991.16	10000.14	761.35	69.87	8.98	23.87	7.78	10.90
10000.14	10009.12	720.00	68.62	9.33	22.57	7.64	10.49
10009.12	RB 10018.10	217.45	35.00	10.44	6.82	3.90	6.21
10018.10	10028.95	2.01	1.24	2.13	0.06	0.82	1.61

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.414

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9846.9	1393.6	9848.8	1392.7	9857.5	1388.6	9865	1385.8	9869.3	1384.3
9879.2	1380.3	9900.7	1376.3	9901.7	1376.3	9903.4	1376.4	9908.2	1377.9
9908.4	1377.9	9908.5	1377.9	9909.3	1378	9912.5	1377.9	9914.2	1378
9915.6	1377.7	9916.8	1377.3	9920.6	1375.1	9924.2	1374.6	9935.7	1374.4
9942.9	1373.1	9947.7	1372.2	9950.7	1371.8	9962.5	1371.6	9966.1	1372
9969.1	1371.7	9987.3	1371	9993.9	1369.8	9995.6	1369.1	10004	1368.6
10007.7	1368.2	10009.4	1369.6	10013.8	1371.9	10020	1375.3	10020.2	1375.5
10046.9	1389.4	10048	1390.2	10059.6	1394.9	10061	1395.4	10063	1396.3
10066.9	1398	10071.3	1400.3	10077.7	1402.1	10078.9	1402.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9846.9	.065	9987.3	.05	10020	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.3	10020	349.95	306.24	216.97	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9887.01	9907.07	6.76	6.20	10.86	0.21	0.58	1.09
9907.07	9927.13	49.94	20.61	10.88	1.57	2.01	2.42
9927.13	9947.19	246.00	68.76	20.25	7.71	3.43	3.58
9947.19	9967.24	538.62	109.77	20.12	16.88	5.47	4.91
9967.24	9987.30	606.61	117.78	20.08	19.02	5.87	5.15
LB 9987.30	9993.84	334.44	44.85	6.65	10.48	6.86	7.46
9993.84	10000.38	445.93	53.43	6.69	13.98	8.17	8.35
10000.38	10006.92	498.96	56.73	6.56	15.64	8.67	8.80
10006.92	10013.46	344.18	48.06	7.57	10.79	7.35	7.16
10013.46	RB 10020.00	113.61	24.57	7.45	3.56	3.76	4.62
10020.00	10049.45	4.95	3.36	4.10	0.16	0.94	1.47

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.19	9967.24	391.24	84.45	20.26	12.26	5.86	4.63
9967.24	9987.30	751.10	124.44	20.08	23.55	6.20	6.04
LB 9987.30	9993.84	394.41	47.02	6.65	12.36	7.19	8.39
9993.84	10000.38	519.40	55.60	6.69	16.28	8.50	9.34
10000.38	10006.92	578.97	58.90	6.56	18.15	9.01	9.83
10006.92	10013.46	403.81	50.23	7.57	12.66	7.68	8.04
10013.46	RB 10020.00	142.60	26.74	7.45	4.47	4.09	5.33
10020.00	10049.45	8.46	4.55	4.44	0.27	1.27	1.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1

REACH: Reach 1 RS: 0.356

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9951.3	1386.8	9956.8	1383.3	9963.4	1379.2	9971.3	1375.4	9982.2	1369.9
9985.4	1368.1	9993	1368	10001.1	1367.7	10003.6	1368.4	10012.4	1371.2
10012.5	1371.2	10014.3	1370.9	10019.5	1369.7	10021.9	1369.9	10023.8	1370.6
10026.9	1371.5	10030.5	1373	10030.6	1373.1	10030.8	1373.1	10031.6	1373.4
10036.4	1374.6	10040	1374.8	10049.5	1374	10054.9	1374.9	10055.3	1375.1
10058.3	1374	10062.6	1372.8	10065	1372.5	10072.9	1372.4	10076.6	1372.4
10078.1	1372.4	10080.1	1372.3	10084.4	1372.3	10094.8	1372.3	10101	1372.2
10102.4	1372.3	10110.2	1372.6	10111.2	1372.7	10114.6	1373.6	10115.2	1373.7
10115.8	1373.8	10145	1383.9	10145.5	1384				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9951.3	.05	9971.3	.04	10012.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.3	10012.5	152.24	172.3	184.63	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.30	9971.30	0.33	0.44	1.49	0.01	0.32	0.76
LB 9971.30	9979.54	82.61	22.46	9.23	2.59	2.73	3.68
9979.54	9987.78	384.96	56.07	9.03	12.07	6.80	6.87
9987.78	9996.02	540.91	66.29	8.24	16.96	8.05	8.16
9996.02	10004.26	543.45	66.90	8.37	17.04	8.12	8.12
10004.26	RB 10012.50	332.82	50.48	8.64	10.43	6.13	6.59
10012.50	10025.80	376.07	75.20	13.68	11.79	5.65	5.00
10025.80	10039.10	106.54	35.51	13.89	3.34	2.67	3.00
10039.10	10052.40	49.32	22:03	13.38	1.55	1.66	2.24
10052.40	10065.70	82.43	30.32	13.76	2.58	2.28	2.72
10065.70	10079.00	182.54	48.20	13.30	5.72	3.62	3.79
10079.00	10092.30	192.79	49.81	13.30	6.04	3.74	3.87
10092.30	10105.60	194.12	50.02	13.31	6.09	3.76	3.88
10105.60	*10118.90*	*118.94*	*37.63*	*13.62*	*3.73*	*2.83*	*3.16*
10118.90	10132.20	2.16	1.99	3.59	0.07	0.59	1.08

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.30	9971.30	1.73	1.66	2.40	0.05	1.24	1.05
LB 9971.30	9979.54	104.52	29.98	9.23	3.28	3.64	3.49
9979.54	9987.78	371.35	63.58	9.03	11.64	7.72	5.84
9987.78	9996.02	506.03	73.80	8.24	15.86	8.96	6.86
9996.02	10004.26	507.63	74.41	8.37	15.91	9.03	6.82
10004.26	RB 10012.50	328.07	58.00	8.64	10.28	7.04	5.66
10012.50	10025.80	379.18	87.33	13.68	11.89	6.57	4.34
10025.80	10039.10	136.64	47.63	13.89	4.28	3.58	2.87
10039.10	10052.40	80.51	34.16	13.38	2.52	2.57	2.36
10052.40	10065.70	113.49	42.45	13.76	3.56	3.19	2.67
10065.70	10079.00	208.52	60.32	13.30	6.54	4.54	3.46
10079.00	10092.30	217.87	61.93	13.30	6.83	4.66	3.52
10092.30	10105.60	219.06	62.14	13.31	6.87	4.67	3.53
10105.60	10118.90	15.40	9.53	6.58	0.48	4.49	1.62

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.323

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9951.9	1376.4	9954.3	1374.9	9958.1	1373.2	9960.4	1371.8	9964.9	1371
9979.7	1369.1	9992.9	1369	9993	1369	9993.1	1369	9998.3	1367
9998.4	1367	9998.8	1367	10007.8	1366.9	10010.6	1366.8	10012.9	1367.2
10022.1	1369.5	10029.3	1371.1	10034.2	1372.3	10040.4	1373.8	10044.6	1373.8
10048.6	1373.6	10049.7	1373.7	10051.8	1373.9	10056.9	1374.7	10058.7	1374.8
10067.8	1375.3	10068.1	1375.3	10068.2	1375.3	10075.5	1375.7	10078.3	1376.2
10081.7	1377								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

9951.9 .05 9993 .04 10034.2 .05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9993	10034.2	421.52	450.58	437.29	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.90	9960.12	2.61	1.21	2.34	0.08	0.61	2.16
9960.12	9968.34	88.18	16.67	8.37	2.76	2.03	5.29
9968.34	9976.56	185.30	25.93	8.29	5.81	3.15	7.15
9976.56	9984.78	278.51	33.04	8.25	8.73	4.02	8.43
9984.78	9993.00	294.85	34.15	8.22	9.24	4.15	8.64
LB 9993.00	10001.24	577.75	45.59	8.61	18.11	5.53	12.67
10001.24	10009.48	731.07	51.60	8.24	22.92	6.26	14.17
10009.48	10017.72	623.12	47.29	8.42	19.53	5.74	13.18
10017.72	10025.96	308.83	31.10	8.47	9.68	3.77	9.93
10025.96	RB 10034.20	96.50	15.48	8.47	3.03	1.88	6.24
10034.20	10057.95	3.29	1.62	3.76	0.10	0.44	2.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.56	9984.78	112.40	19.54	8.83	3.52	4.51	5.75
9984.78	9993.00	349.06	37.49	8.22	10.94	4.56	9.31
LB 9993.00	10001.24	664.58	48.95	8.61	20.83	5.94	13.58
10001.24	10009.48	829.82	54.95	8.24	26.01	6.67	15.10
10009.48	10017.72	713.84	50.64	8.42	22.38	6.15	14.10
10017.72	10025.96	374.34	34.45	8.47	11.73	4.18	10.86
10025.96	RB 10034.20	136.74	18.83	8.47	4.29	2.28	7.26
10034.20	10057.95	9.23	3.11	4.17	0.29	0.85	2.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.238

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9968.5	1380.7	9972.3	1378.8	9983.2	1371.4	9986.2	1369.7	9996	1364.2
9997.1	1363.1	9998.1	1363.1	10010	1364.6	10024.5	1366.4	10033.6	1366.4
10101.8	1366.5	10106.4	1367.2	10116.5	1367.4	10136.3	1367.2	10143.4	1366.8
10163.2	1366	10168.2	1366	10171.7	1366.2	10184.6	1370.3	10218.5	1378.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9968.5	.05	9986.2	.04	10024.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.2	10024.5	262.63	256.1	202.91	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.30	9986.20	0.13	0.22	1.01	0.00	0.25	0.60
LB 9986.20	9993.86	70.04	20.29	8.78	2.20	2.65	3.45
9993.86	10001.52	316.53	49.40	8.46	9.92	6.45	6.41
10001.52	10009.18	313.69	47.37	7.72	9.83	6.19	6.62
10009.18	10016.84	236.91	40.03	7.72	7.43	5.23	5.92
10016.84	RB 10024.50	169.51	32.74	7.72	5.31	4.27	5.18
10024.50	10046.06	324.62	81.78	21.56	10.18	3.79	3.97
10046.06	10067.61	320.52	81.16	21.56	10.05	3.77	3.95
10067.61	10089.17	316.06	80.48	21.56	9.91	3.73	3.93

10089.17	10110.72	280.77	75.03	21.61	8.80	3.48	3.74
10110.72	10132.28	204.19	61.92	21.56	6.40	2.87	3.30
10132.28	10153.83	264.55	72.36	21.58	8.29	3.36	3.66
10153.83	10175.39	347.46	85.49	21.75	10.89	3.97	4.06
10175.39	10196.94	25.02	12.57	9.33	0.78	1.41	1.99

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.30	9986.20	0.86	0.90	1.79	0.03	1.02	0.95
LB 9986.20	9993.86	98.36	26.22	8.78	3.08	3.42	3.75
9993.86	10001.52	350.20	55.33	8.46	10.98	7.22	6.33
10001.52	10009.18	349.71	53.31	7.72	10.96	6.96	6.56
10009.18	10016.84	273.16	45.96	7.72	8.56	6.00	5.94
10016.84	RB 10024.50	204.89	38.68	7.72	6.42	5.05	5.30
10024.50	10046.06	402.80	98.47	21.56	12.63	4.57	4.09
10046.06	10067.61	398.58	97.85	21.56	12.49	4.54	4.07
10067.61	10089.17	393.97	97.17	21.56	12.35	4.51	4.05
10089.17	10110.72	357.28	91.73	21.61	11.20	4.26	3.90
10110.72	10132.28	276.74	78.61	21.56	8.68	3.65	3.52
10132.28	10153.83	83.45	30.20	11.91	2.62	3.82	2.76

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.190

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9941.6	1379.9	9941.6	1379.8	9943.5	1379.1	9955	1374.4	9967.4	1369.3
9979.6	1364.3	9983	1363	9984.6	1363	9987.5	1362.9	9997.9	1362.7
10001.7	1363	10012.1	1363.9	10014.9	1364.1	10015.2	1364.1	10017.3	1364.3
10017.6	1364.3	10045.5	1365.5	10045.6	1365.5	10047.5	1365.5	10051.3	1365.4
10073.3	1364.8	10079.8	1364.8	10086.8	1364.6	10091.6	1364.3	10099.3	1363.9
10107.2	1365.1	10114.4	1365.9	10115.9	1365.7	10143.6	1373	10167.4	1378.3
10173.6	1380.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9941.6	.05	9967.4	.04	10045.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.4	10045.6	123.69	258.62	318.63	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9958.80	9967.40	0.08	0.19	1.05	0.00	0.20	0.41
LB 9967.40	9983.04	191.79	56.18	16.86	6.01	3.59	3.41
9983.04	9998.68	591.73	107.18	15.65	18.55	6.85	5.52
9998.68	10014.32	510.87	98.26	15.69	16.01	6.28	5.20
10014.32	10029.96	374.80	81.53	15.66	11.75	5.21	4.60
10029.96	RB 10045.60	296.65	70.84	15.65	9.30	4.53	4.19
10045.60	10071.20	380.03	115.04	25.61	11.91	4.49	3.30
10071.20	10096.80	471.80	131.00	25.62	14.79	5.12	3.60
10096.80	10122.40	359.40	111.88	25.97	11.27	4.37	3.21
10122.40	10148.00	12.84	9.91	8.97	0.40	1.14	1.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9958.80	9967.40	0.78	1.00	1.88	0.02	1.03	0.78
LB 9967.40	9983.04	255.83	69.20	16.86	8.02	4.42	3.70
9983.04	9998.68	675.07	120.20	15.65	21.16	7.69	5.62
9998.68	10014.32	592.41	111.28	15.69	18.57	7.11	5.32
10014.32	10029.96	452.15	94.55	15.66	14.17	6.05	4.78
10029.96	RB 10045.60	370.35	83.86	15.65	11.61	5.36	4.42
10045.60	10071.20	489.44	136.35	25.61	15.34	5.33	3.59
10071.20	10096.80	353.96	111.85	25.38	11.10	5.82	3.16

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.141

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9848.7	1380.1	9882.3	1369.3	9887.6	1367.2	9896.4	1366.3	9899.1	1366

9902	1365.7	9912.1	1365.5	9913.7	1365.4	9924.1	1365.2	9981.6	1363.6
9996.1	1362.1	10001.4	1361.5	10011	1367.8	10015.1	1370.6	10025.2	1378.2
10027.4	1379.3	10036.8	1382.7	10037.2	1382.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9848.7	.05	9981.6	.04	10011	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.6	10011	479.81	499.49	501.46	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9881.92	9898.54	60.83	19.31	13.91	1.91	1.42	3.15
9898.54	9915.15	212.71	43.98	16.64	6.67	2.65	4.84
9915.15	9931.76	273.26	51.08	16.62	8.57	3.07	5.35
9931.76	9948.38	341.72	58.42	16.62	10.71	3.52	5.85
9948.38	9964.99	419.81	66.10	16.62	13.16	3.98	6.35
9964.99	9981.60	504.21	73.77	16.62	15.81	4.44	6.83
LB 9981.60	9987.48	266.44	29.26	5.91	8.35	4.98	9.11
9987.48	9993.36	322.90	32.84	5.91	10.12	5.58	9.83
9993.36	9999.24	384.39	36.47	5.92	12.05	6.20	10.54
9999.24	10005.12	333.15	35.01	6.62	10.44	5.96	9.51
10005.12	RB 10011.00	70.46	14.12	7.03	2.21	2.40	4.99
10011.00	10019.73	0.15	0.16	0.84	0.00	0.24	0.89

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9915.15	9931.76	18.56	7.21	5.87	0.58	4.16	2.57
9931.76	9948.38	443.36	73.38	16.62	13.90	4.42	6.04
9948.38	9964.99	523.34	81.06	16.62	16.41	4.88	6.46
9964.99	9981.60	608.54	88.74	16.62	19.08	5.34	6.86
LB 9981.60	9987.48	313.50	34.56	5.91	9.83	5.88	9.07
9987.48	9993.36	369.42	38.13	5.91	11.58	6.49	9.69
9993.36	9999.24	429.69	41.77	5.92	13.47	7.10	10.29
9999.24	10005.12	375.67	40.31	6.62	11.78	6.86	9.32
10005.12	RB 10011.00	106.83	19.42	7.03	3.35	3.30	5.50
10011.00	10019.73	1.08	0.79	1.74	0.03	1.14	1.38

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed 1
REACH: Reach 1 RS: 0.046

INPUT
Description: Confluence with Unnamed Wash 2 and downstream study limits.
Starting water surface elevations of 1367.6 and 1368.5 for the floodplain and floodway profiles, respectively. Starting water surface elevations are interpolated from water surface elevations of Unnamed Wash 2 at cross sections 0.252 and 0.308.

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9827.2	1381.6	9832.1	1379.7	9834.3	1378.6	9834.6	1378.4	9852.6	1371.7
9879.6	1364.8	9887.4	1363	9890.6	1362.8	9949	1361.9	9976.8	1361.7
9984.1	1360.9	9997.3	1359.5	10015.9	1360.2	10016.9	1360.2	10020.3	1361
10030.1	1363.4	10038.2	1365.3	10051.2	1369.8	10058.2	1372.2	10065.9	1374.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9827.2	.05	9976.8	.04	10030.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.8	10030.1	0	0	0	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9864.60	9883.30	38.07	27.28	15.11	1.19	1.86	1.40
9883.30	9902.00	230.24	87.68	18.82	7.22	4.69	2.63
9902.00	9920.70	267.65	95.74	18.70	8.39	5.12	2.80
9920.70	9939.40	293.23	101.13	18.70	9.19	5.41	2.90
9939.40	9958.10	318.03	106.17	18.70	9.97	5.68	3.00
9958.10	9976.80	332.64	109.07	18.70	10.43	5.83	3.05
LB 9976.80	9987.46	290.31	69.10	10.72	9.10	6.48	4.20
9987.46	9998.12	380.03	81.20	10.72	11.91	7.62	4.68

9998.12	10008.78	402.33	83.87	10.67	12.61	7.87	4.80
10008.78	10019.44	363.22	79.08	10.73	11.39	7.42	4.59
10019.44	RB 10030.10	217.71	58.68	10.97	6.82	5.50	3.71
10030.10	10042.03	55.80	32.60	12.38	1.75	2.73	1.71
10042.03	10053.97	0.73	1.37	2.98	0.02	0.49	0.53

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9920.70	9939.40	106.77	47.33	13.74	3.35	6.40	2.26
9939.40	9958.10	427.13	123.00	18.70	13.39	6.58	3.47
9958.10	9976.80	444.05	125.90	18.70	13.92	6.73	3.53
LB 9976.80	9987.46	377.24	78.70	10.72	11.83	7.38	4.79
9987.46	9998.12	478.97	90.79	10.72	15.01	8.52	5.28
9998.12	10008.78	504.23	93.47	10.67	15.81	8.77	5.39
10008.78	10019.44	459.95	88.68	10.73	14.42	8.32	5.19
10019.44	RB 10030.10	293.19	68.28	10.97	9.19	6.41	4.29
10030.10	10042.03	94.77	43.34	12.38	2.97	3.63	2.19
10042.03	10053.97	3.71	3.89	3.87	0.12	1.39	0.95

SUMMARY OF MANNING'S N VALUES

River:Unnamed 1

Reach	River Sta.	n1	n2	n3
Reach 1	6.311	.05	.04	.06
Reach 1	6.216	.05	.04	.06
Reach 1	6.100	.05	.04	.06
Reach 1	6.015	.05	.04	.06
Reach 1	5.969	.06	.045	.07
Reach 1	5.917	.06	.045	.07
Reach 1	5.862	.05	.04	.06
Reach 1	5.746	.05	.04	.06
Reach 1	5.632	.05	.04	.06
Reach 1	5.505	.05	.04	.06
Reach 1	5.439	.06	.045	.07
Reach 1	5.380	.05	.04	.06
Reach 1	5.310	.05	.04	.06
Reach 1	5.227	.06	.045	.07
Reach 1	5.207	.06	.045	.07
Reach 1	5.176	.05	.04	.06
Reach 1	5.096	.05	.04	.06
Reach 1	5.007	.05	.04	.06
Reach 1	4.920	.05	.04	.06
Reach 1	4.879	.06	.045	.07
Reach 1	4.839	.05	.04	.06
Reach 1	4.725	.05	.04	.06
Reach 1	4.628	.05	.04	.06
Reach 1	4.613	.05	.04	.06
Reach 1	4.536	.06	.04	.06
Reach 1	4.436	.05	.04	.06
Reach 1	4.412	.05	.04	.06
Reach 1	4.361	.05	.04	.06
Reach 1	4.256	.05	.04	.06
Reach 1	4.170	.05	.04	.06
Reach 1	4.077	.05	.04	.06
Reach 1	3.987	.05	.04	.06
Reach 1	3.895	.05	.04	.06
Reach 1	3.803	.05	.04	.06
Reach 1	3.706	.05	.04	.06
Reach 1	3.671	.05	.04	.06
Reach 1	3.643	.05	.04	.06
Reach 1	3.631	Inline Weir		
Reach 1	3.617	.05	.04	.06
Reach 1	3.577	.05	.04	.06
Reach 1	3.515	.05	.04	.06
Reach 1	3.453	.05	.04	.06
Reach 1	3.366	.05	.04	.06
Reach 1	3.274	.05	.04	.06
Reach 1	3.186	.05	.04	.06
Reach 1	3.121	.06	.065	.07
Reach 1	3.073	.06	.065	.07
Reach 1	3.015	.055	.055	.055
Reach 1	2.923	.055	.055	.055
Reach 1	2.880	.06	.06	.06
Reach 1	2.848	.06	.06	.06
Reach 1	2.813	.06	.06	.06
Reach 1	2.770	.055	.055	.055
Reach 1	2.674	.06	.06	.06
Reach 1	2.611	.06	.06	.06
Reach 1	2.557	.055	.055	.055
Reach 1	2.467	.055	.055	.055
Reach 1	2.390	.07	.07	.07
Reach 1	2.347	.07	.07	.07
Reach 1	2.312	.05	.055	.06
Reach 1	2.230	.05	.055	.06
Reach 1	2.134	.055	.055	.055
Reach 1	2.047	.055	.055	.055
Reach 1	1.992	.06	.06	.06

Reach 1	1.928	.06	.06	.06
Reach 1	1.862	.06	.06	.06
Reach 1	1.768	.06	.06	.06
Reach 1	1.709	.06	.06	.06
Reach 1	1.675	.06	.06	.06
Reach 1	1.637	.06	.06	.06
Reach 1	1.621	.055	.055	.055
Reach 1	1.590	.055	.055	.055
Reach 1	1.479	.055	.055	.055
Reach 1	1.398	.055	.055	.055
Reach 1	1.374	.055	.055	.055
Reach 1	1.367	.055	.055	.055
Reach 1	1.286	.055	.055	.055
Reach 1	1.208	.055	.055	.055
Reach 1	1.116	.055	.055	.055
Reach 1	1.010	.055	.055	.055
Reach 1	0.914	.055	.055	.055
Reach 1	0.850	.055	.055	.055
Reach 1	0.819	.055	.055	.055
Reach 1	0.724	.055	.055	.055
Reach 1	0.644	.055	.055	.055
Reach 1	0.575	.06	.045	.06
Reach 1	0.547	.06	.045	.06
Reach 1	0.523	.06	.045	.06
Reach 1	0.484	.05	.04	.05
Reach 1	0.453	.05	.04	.05
Reach 1	0.414	.065	.05	.065
Reach 1	0.356	.05	.04	.05
Reach 1	0.323	.05	.04	.05
Reach 1	0.238	.05	.04	.05
Reach 1	0.190	.05	.04	.05
Reach 1	0.141	.05	.04	.05
Reach 1	0.046	.05	.04	.05

SUMMARY OF REACH LENGTHS

River: Unnamed 1

Reach	River Sta.	Left	Channel	Right
Reach 1	6.311	500.34	502.22	485.2
Reach 1	6.216	586.24	612.12	616.6
Reach 1	6.100	451.51	450.15	445.11
Reach 1	6.015	211.42	243.72	251.7
Reach 1	5.969	230	275.47	239.47
Reach 1	5.917	324.93	289.48	252.02
Reach 1	5.862	589.89	611.99	649.58
Reach 1	5.746	616.79	600.4	486.61
Reach 1	5.632	631.09	672.93	668.96
Reach 1	5.505	358.44	349.58	297.83
Reach 1	5.439	304.7	308.38	186.86
Reach 1	5.380	320.42	372.83	351.4
Reach 1	5.310	421.6	435.07	440
Reach 1	5.227	133.79	104.47	92.26
Reach 1	5.207	178.73	164.6	122.28
Reach 1	5.176	370.18	425.37	451.12
Reach 1	5.096	471.85	467.51	464.25
Reach 1	5.007	443.93	461.58	472.84
Reach 1	4.920	217.01	217.23	200.01
Reach 1	4.879	233.03	210.17	100.03
Reach 1	4.839	556.24	603.05	622.93
Reach 1	4.725	468.06	507.76	505.61
Reach 1	4.628	98.84	82.09	73.9
Reach 1	4.613	430.45	408.6	345.74
Reach 1	4.536	488.47	524.83	547.46
Reach 1	4.436	113.89	127.12	100.61
Reach 1	4.412	270.09	270.35	257.05
Reach 1	4.361	556.72	552.25	500.69
Reach 1	4.256	394.19	454.34	451.53
Reach 1	4.170	452.9	494.4	500.88
Reach 1	4.077	464.33	473.79	447.83
Reach 1	3.987	482.25	485.32	487.05
Reach 1	3.895	486.27	485.61	441.58
Reach 1	3.803	464.92	512	525.26
Reach 1	3.706	228.4	183.34	184.01
Reach 1	3.671	117.28	149.51	153.42
Reach 1	3.643	137.8	139.23	137.67
Reach 1	3.631	Inline Weir		
Reach 1	3.617	221.82	208.6	196.65
Reach 1	3.577	333.89	325.38	296.36
Reach 1	3.515	331.88	331.98	327.06
Reach 1	3.453	447.87	454.49	458.74
Reach 1	3.366	485.35	486.11	488.32
Reach 1	3.274	465.24	469.43	471.12
Reach 1	3.186	328.94	340.33	345.52
Reach 1	3.121	271.57	253.82	205.72
Reach 1	3.073	332.16	306.29	158.74
Reach 1	3.015	460.62	483.24	501.59
Reach 1	2.923	240.71	229.35	196.32
Reach 1	2.880	159.24	167.27	171.89
Reach 1	2.848	153.85	188.43	225.87
Reach 1	2.813	216.74	225.46	210.16

Reach 1	2.770	499.23	506.19	499.62
Reach 1	2.674	269.32	330.79	339.22
Reach 1	2.611	297.19	285.83	257.33
Reach 1	2.557	476.26	475.97	475.25
Reach 1	2.467	403.61	406.44	407.61
Reach 1	2.390	254.76	229.15	116.94
Reach 1	2.347	200.15	183.17	104.86
Reach 1	2.312	362.26	433.25	447.01
Reach 1	2.230	496.31	509.18	505.48
Reach 1	2.134	434.95	458.98	449.99
Reach 1	2.047	298.81	290.36	298.2
Reach 1	1.992	340.59	337.51	319.26
Reach 1	1.928	365.87	345.26	306.03
Reach 1	1.862	508.64	499.19	473.46
Reach 1	1.768	247.98	310.53	346.2
Reach 1	1.709	172.32	179.1	189.35
Reach 1	1.675	200.81	203	198.24
Reach 1	1.637	80.11	82.9	84.66
Reach 1	1.621	158.28	161.94	163.12
Reach 1	1.590	595.02	588.5	561.54
Reach 1	1.479	421.65	428.79	433.45
Reach 1	1.398	125.78	126.94	130.26
Reach 1	1.374	31.52	34.55	28.31
Reach 1	1.367	433.56	429.03	431.88
Reach 1	1.286	428.18	413.04	409.95
Reach 1	1.208	467.62	482.74	493.73
Reach 1	1.116	561.45	558.41	558.75
Reach 1	1.010	501.4	506.24	504.42
Reach 1	0.914	339.38	340.55	341.31
Reach 1	0.850	166.45	164.21	162.99
Reach 1	0.819	495.87	500.37	513.68
Reach 1	0.724	427.8	420.98	411.78
Reach 1	0.644	370.82	365.58	340.31
Reach 1	0.575	170.42	149.84	113.13
Reach 1	0.547	149.9	126.72	79.38
Reach 1	0.523	144.91	202.29	225.91
Reach 1	0.484	145.65	166.98	170.79
Reach 1	0.453	163.64	204.56	222.74
Reach 1	0.414	349.95	306.24	216.97
Reach 1	0.356	152.24	172.3	184.63
Reach 1	0.323	421.52	450.58	437.29
Reach 1	0.238	262.63	256.1	202.91
Reach 1	0.190	123.69	258.62	318.63
Reach 1	0.141	479.81	499.49	501.46
Reach 1	0.046	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Unnamed 1

Reach	River Sta.	Contr.	Expan.
Reach 1	6.311	.1	.3
Reach 1	6.216	.1	.3
Reach 1	6.100	.1	.3
Reach 1	6.015	.1	.3
Reach 1	5.969	.1	.3
Reach 1	5.917	.1	.3
Reach 1	5.862	.1	.3
Reach 1	5.746	.1	.3
Reach 1	5.632	.1	.3
Reach 1	5.505	.3	.5
Reach 1	5.439	.3	.5
Reach 1	5.380	.3	.5
Reach 1	5.310	.1	.3
Reach 1	5.227	.1	.3
Reach 1	5.207	.1	.3
Reach 1	5.176	.1	.3
Reach 1	5.096	.1	.3
Reach 1	5.007	.1	.3
Reach 1	4.920	.1	.3
Reach 1	4.879	.1	.3
Reach 1	4.839	.1	.3
Reach 1	4.725	.1	.3
Reach 1	4.628	.1	.3
Reach 1	4.613	.1	.3
Reach 1	4.536	.1	.3
Reach 1	4.436	.1	.3
Reach 1	4.412	.1	.3
Reach 1	4.361	.1	.3
Reach 1	4.256	.1	.3
Reach 1	4.170	.1	.3
Reach 1	4.077	.1	.3
Reach 1	3.987	.1	.3
Reach 1	3.895	.1	.3
Reach 1	3.803	.1	.3
Reach 1	3.706	.1	.3
Reach 1	3.671	.1	.3
Reach 1	3.643	.1	.3
Reach 1	3.631	Inline Weir	
Reach 1	3.617	.1	.3
Reach 1	3.577	.1	.3

Reach 1	3.515	.1	.3
Reach 1	3.453	.1	.3
Reach 1	3.366	.1	.3
Reach 1	3.274	.1	.3
Reach 1	3.186	.1	.3
Reach 1	3.121	.1	.3
Reach 1	3.073	.1	.3
Reach 1	3.015	.1	.3
Reach 1	2.923	.1	.3
Reach 1	2.880	.1	.3
Reach 1	2.848	.1	.3
Reach 1	2.813	.1	.3
Reach 1	2.770	.1	.3
Reach 1	2.674	.1	.3
Reach 1	2.611	.1	.3
Reach 1	2.557	.1	.3
Reach 1	2.467	.1	.3
Reach 1	2.390	.1	.3
Reach 1	2.347	.1	.3
Reach 1	2.312	.1	.3
Reach 1	2.230	.1	.3
Reach 1	2.134	.1	.3
Reach 1	2.047	.1	.3
Reach 1	1.992	.1	.3
Reach 1	1.928	.1	.3
Reach 1	1.862	.1	.3
Reach 1	1.768	.1	.3
Reach 1	1.709	.1	.3
Reach 1	1.675	.1	.3
Reach 1	1.637	.1	.3
Reach 1	1.621	.1	.3
Reach 1	1.590	.1	.3
Reach 1	1.479	.1	.3
Reach 1	1.398	.1	.3
Reach 1	1.374	.1	.3
Reach 1	1.367	.1	.3
Reach 1	1.286	.1	.3
Reach 1	1.208	.1	.3
Reach 1	1.116	.1	.3
Reach 1	1.010	.1	.3
Reach 1	0.914	.1	.3
Reach 1	0.850	.1	.3
Reach 1	0.819	.1	.3
Reach 1	0.724	.1	.3
Reach 1	0.644	.1	.3
Reach 1	0.575	.1	.3
Reach 1	0.547	.1	.3
Reach 1	0.523	.1	.3
Reach 1	0.484	.1	.3
Reach 1	0.453	.1	.3
Reach 1	0.414	.1	.3
Reach 1	0.356	.3	.5
Reach 1	0.323	.3	.5
Reach 1	0.238	.1	.3
Reach 1	0.190	.1	.3
Reach 1	0.141	.1	.3
Reach 1	0.046	.1	.3

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Unnamed Wash 2
Project File : Un2_FpFw.prj
Run Date and Time: 5/23/01 11:57:37 AM

Project in English units

Project Description:
North Peoria Area Drainage Master Plan, FCD 99-45
Unnamed Wash 2 Floodplain
Delineation Study
Study Contractors: Stantec Consulting, Inc.
P82000146

Geometry Based on Aerial photography, Flight Date 2-18-00
Flow by
Cooper Aerial

Peak discharges are from 100-year, 24-hour HEC-1 model
dated
???, prepared by Stantec

PLAN DATA

Plan Title: 100-yr Existing Conditions Fp/Fw
Plan File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash2\Un2_FpFw.p01

Geometry Title: Existing Conditions
Geometry File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash2\Un2_FpFw.g01

Flow Title : 100-yr Existing Conditions
Flow File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash2\Un2_FpFw.f01

Plan Summary Information:
Number of: Cross Sections = 120 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = Unnamed Wash 2 Reach = Reach 1

RS	Profile	Method	Value1	Value2
6.789	Method 1	1	9974.6510037.74	
6.765	Method 1	1	9971.1210015.73	
6.714	Method 1	1	9984.3410014.73	
6.669	Method 1	1	9987.45 10042.8	
6.643	Method 1	1	9922.910028.92	
6.595	Method 1	1	9984.4210023.64	
6.570	Method 1	1	9971.0510014.61	
6.501	Method 1	1	9982.86 10024.6	
6.451	Method 1	1	9966.3410018.81	
6.418	Method 1	1	9960.110029.88	
6.392	Method 1	1	9953.42 10026.1	
6.318	Method 1	1	9911.2910014.33	
6.271	Method 1	1	9959.6510020.56	
6.218	Method 1	1	9969.9 10031	

6.161	Method 1	1	9792.48	10012.66
6.058	Method 1	1	9896.23	10022.07
5.974	Method 1	1	9956.36	10032.6
5.927	Method 1	1	9984.14	10041.9
5.865	Method 1	1	9948.82	10036.7
5.845	Method 1	1	9990.03	10055
5.759	Method 1	1	9972.41	10033
5.702	Method 1	1	9964.71	10033.04
5.624	Method 1	1	9939.78	10018.45
5.551	Method 1	1	9892.22	10027.69
5.508	Method 1	1	9967.13	10080.53
5.460	Method 1	1	9945.63	10028.4
5.364	Method 1	1	9960.91	10053.22
5.304	Method 1	1	9965.28	10043.08
5.266	Method 1	1	9964.91	10016.43
5.172	Method 1	1	9967.93	10036.6
5.114	Method 1	1	9974.17	10035.98
5.079	Method 1	1	9976.46	10026.29
4.974	Method 1	1	9970.62	10072.8
4.939	Method 1	1	9951.74	10020.13
4.884	Method 1	1	9949.61	10016.05
4.784	Method 1	1	9984.5	10044.5
4.692	Method 1	1	9970.41	10044.05
4.640	Method 1	1	9880.72	10032.01
4.600	Method 1	1	9983.75	10093.11
4.502	Method 1	1	9979.1	10039
4.430	Method 1	1	9923.41	10020.2
4.391	Method 1	1	9973.4	10039
4.365	Method 1	1	9974.03	10053.7
4.332	Method 1	1	9948.35	10041.57
4.286	Method 1	1	9965.21	10031.88
4.199	Method 1	1	9981.27	10047.4
4.102	Method 1	1	9973.64	10117.9
4.072	Method 1	1	9938.8	10075
4.013	Method 1	1	9887.99	10017.68
3.961	Method 1	1	9928.11	10026.08
3.923	Method 1	1	9968.91	10070.47
3.874	Method 1	1	9968.86	10099.3
3.825	Method 1	1	9946.02	10017.97
3.770	Method 1	1	9977.84	10027.85
3.725	Method 1	1	9922.11	10023.78
3.698	Method 1	1	9865.63	10011.41
3.660	Method 1	1	9947.91	10017.21
3.643	Method 1	1	9950.61	10019.94
3.618	Method 1	1	9965.95	10050.92
3.590	Method 1	1	9961.22	10065.75
3.523	Method 1	1	9949.56	10031.83
3.426	Method 1	1	9936.97	10043.77
3.311	Method 1	1	9967.67	10022.48
3.211	Method 1	1	9945.09	10026.6
3.122	Method 1	1	9932.27	10026.51
3.053	Method 1	1	9964.15	10061.02
3.033	Method 1	1	9975.96	10016.3
3.007	Method 1	1	9947.22	10026.31
2.976	Method 1	1	9984.15	10018.79
2.934	Method 1	1	9973.01	10026.83
2.903	Method 1	1	9973.29	10030.79
2.892	Method 1	1	9967.6	10027.3
2.856	Method 1	1	9958.97	10010.37
2.813	Method 1	1	9968.45	10034.92
2.718	Method 1	1	9963.45	10034.81
2.683	Method 1	1	9957.15	10070.05
2.656	Method 1	1	9967.19	10084.84
2.625	Method 1	1	9950.04	10080.08
2.603	Method 1	1	9983.17	10070.96
2.521	Method 1	1	9885.41	10024.06
2.424	Method 1	1	9966.88	10064.84
2.401	Method 1	1	9967.52	10059.72
2.319	Method 1	1	9947.67	10025.87
2.225	Method 1	1	9936.29	10027.28
2.131	Method 1	1	9977.71	10054.87
2.034	Method 1	1	9970.1	10044.7
1.940	Method 1	1	9954.46	10040.47
1.846	Method 1	1	9961.07	10047.29
1.818	Method 1	1	9963.51	10043.61
1.781	Method 1	1	9983.03	10054.5
1.742	Method 1	1	99	20100 35.63
1.677	Method 1	1	9942.03	10063.8
1.629	Method 1	1	9979.25	10066
1.535	Method 1	1	9926.77	10018.3
1.481	Method 1	1	9989.35	10054.96
1.438	Method 1	1	9968.66	10060.6
1.419	Method 1	1	9958.07	10031.74
1.363	Method 1	1	9955.34	10016.28
1.261	Method 1	1	9965.21	10054.03
1.168	Method 1	1	9915.63	10034.7
1.092	Method 1	1	9938.21	10085.75
1.052	Method 1	1	9925.84	10009.32
0.995	Method 1	1	9962.01	10031.85
0.957	Method 1	1	9981.28	10034.23
0.916	Method 1	1	9979.49	10040.82
0.864	Method 1	1	9969.12	10036.2
0.769	Method 1	1	9980.21	10037.32
0.745	Method 1	1	9946.19	10027.5
0.734	Method 1	1	9982.67	10018.71

0.703	Method 1	1	9976.7	10033.7
0.650	Method 1	1	9981.5	310018.74
0.625	Method 1	1	9984.7	10026.35
0.610	Method 1	1	9984.6	10019.84
0.589	Method 1	1	9951.69	10022.24
0.537	Method 1	1	9974.3	10051.09
0.441	Method 1	1	9966.79	10049.22
0.348	Method 1	1	9954.4	10045.13
0.309	Method 1	1	9960.3	10047.78
0.252	Method 1	1	9884.4	10069.8
0.205	Method 1	1	9835.2	10117.8

River = Unnamed Wash 2 Reach = Reach 1

RS	Profile	Method	Value1	Value2
6.789	PF 3	1	9974.65	10037.74
6.765	PF 3	1	9971.12	10015.73
6.714	PF 3	1	9984.34	10014.73
6.669	PF 3	1	9987.45	10042.8
6.643	PF 3	1	9922.91	10028.92
6.595	PF 3	1	9984.42	10023.64
6.570	PF 3	1	9971.05	10014.61
6.501	PF 3	1	9982.86	10024.6
6.451	PF 3	1	9966.34	10018.81
6.418	PF 3	1	9960.1	10029.88
6.392	PF 3	1	9953.42	10026.1
6.318	PF 3	1	9911.29	10014.33
6.271	PF 3	1	9959.65	10020.56
6.218	PF 3	1	9969.9	10031
6.161	PF 3	1	9792.48	10012.66
6.058	PF 3	1	9896.23	10022.07
5.974	PF 3	1	9956.36	10032.6
5.927	PF 3	1	9984.14	10041.9
5.865	PF 3	1	9948.82	10036.7
5.845	PF 3	1	9990.03	10055
5.759	PF 3	1	9972.41	10033
5.702	PF 3	1	9964.7	10033.04
5.624	PF 3	1	9939.78	10018.45
5.551	PF 3	1	9892.22	10027.69
5.508	PF 3	1	9967.13	10080.53
5.460	PF 3	1	9945.63	10028.4
5.364	PF 3	1	9960.9	10053.22
5.304	PF 3	1	9965.28	10043.08
5.266	PF 3	1	9964.9	10016.43
5.172	PF 3	1	9967.93	10036.6
5.114	PF 3	1	9974.17	10035.98
5.079	PF 3	1	9976.46	10026.29
4.974	PF 3	1	9970.62	10072.8
4.939	PF 3	1	9951.74	10020.13
4.884	PF 3	1	9949.6	10016.05
4.784	PF 3	1	9984.5	10044.5
4.692	PF 3	1	9970.4	10044.05
4.640	PF 3	1	9880.72	10032.01
4.600	PF 3	1	9983.75	10093.11
4.502	PF 3	1	9979.1	10039
4.430	PF 3	1	9923.41	10020.2
4.391	PF 3	1	9973.4	10039
4.365	PF 3	1	9974.03	10053.7
4.332	PF 3	1	9948.35	10041.57
4.286	PF 3	1	9965.2	10031.88
4.199	PF 3	1	9981.27	10047.4
4.102	PF 3	1	9973.64	10117.9
4.072	PF 3	1	9938.8	10075
4.013	PF 3	1	9887.99	10017.68
3.961	PF 3	1	9928.1	10026.08
3.923	PF 3	1	9968.9	10070.47
3.874	PF 3	1	9968.86	10099.3
3.825	PF 3	1	9946.02	10017.97
3.770	PF 3	1	9977.84	10027.85
3.725	PF 3	1	9922.1	10023.78
3.698	PF 3	1	9865.63	10011.41
3.660	PF 3	1	9947.9	10017.21
3.643	PF 3	1	9950.6	10019.94
3.618	PF 3	1	9965.95	10050.92
3.590	PF 3	1	9961.22	10065.75
3.523	PF 3	1	9949.56	10031.83
3.426	PF 3	1	9936.97	10043.77
3.311	PF 3	1	9967.67	10022.48
3.211	PF 3	1	9945.09	10026.6
3.122	PF 3	1	9932.27	10026.51
3.053	PF 3	1	9964.15	10061.02
3.033	PF 3	1	9975.96	10016.3
3.007	PF 3	1	9947.22	10026.31
2.976	PF 3	1	9984.15	10018.79
2.934	PF 3	1	9973.01	10026.83
2.903	PF 3	1	9973.29	10030.79
2.892	PF 3	1	9967.6	10027.3
2.856	PF 3	1	9958.97	10010.37
2.813	PF 3	1	9968.45	10034.92
2.718	PF 3	1	9963.45	10034.81
2.683	PF 3	1	9957.15	10070.05
2.656	PF 3	1	9967.19	10084.84
2.625	PF 3	1	9950.04	10080.08
2.603	PF 3	1	9983.17	10070.96
2.521	PF 3	1	9885.41	10024.06
2.424	PF 3	1	9966.88	10064.84

```
2.401   PF 3                    1 9967.5210059.72
2.319   PF 3                    1 9947.6710025.87
2.225   PF 3                    1 9936.2910027.28
2.131   PF 3                    1  9977.710054.87
2.034   PF 3                    1  9970.1 10044.7
1.940   PF 3                    1 9954.4610040.47
1.846   PF 3                    1 9961.0710047.29
1.818   PF 3                    1  9963.510043.61
1.781   PF 3                    1 9983.03 10054.5
1.742   PF 3                    1    992010035.63
1.677   PF 3                    1 9942.03 10063.8
1.629   PF 3                    1 9979.25   10066
1.535   PF 3                    1 9926.77 10018.3
1.481   PF 3                    1 9989.3510054.96
1.438   PF 3                    1 9968.66 10060.6
1.419   PF 3                    1 9958.0710031.74
1.363   PF 3                    1 9955.3410016.28
1.261   PF 3                    1  9965.210054.03
1.168   PF 3                    1 9915.63 10034.7
1.092   PF 3                    1 9938.2110085.75
1.052   PF 3                    1 9925.8410009.32
0.995   PF 3                    1 9962.0110031.85
0.957   PF 3                    1 9981.2810034.23
0.916   PF 3                    1 9979.4910040.82
0.864   PF 3                    1 9969.12 10036.2
0.769   PF 3                    1  9980.210037.32
0.745   PF 3                    1 9946.19 10027.5
0.734   PF 3                    1 9982.6710018.71
0.703   PF 3                    1  9976.7 10033.7
0.650   PF 3                    1 9981.5310018.74
0.625   PF 3                    1  9984.710026.35
0.610   PF 3                    1  9984.610019.84
0.589   PF 3                    1 9951.6910022.24
0.537   PF 3                    1  9974.310051.09
0.441   PF 3                    1 9966.7910049.22
0.348   PF 3                    1  9954.410045.13
0.309   PF 3                    1  9960.310047.78
0.252   PF 3                    1  9884.4 10069.8
0.205   PF 3                    1  9835.2 10117.8
```

FLOW DATA

Flow Title: 100-yr Existing Conditions
Flow File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash2\Un2_FpFw.f01

Flow Data (cfs)

River	Reach	RS	Floodplain	Method 1
Unnamed Wash 2	Reach 1	6.789	1750	1750
Unnamed Wash 2	Reach 1	6.161	2910	2910
Unnamed Wash 2	Reach 1	5.927	3380	3380
Unnamed Wash 2	Reach 1	4.939	4420	4420
Unnamed Wash 2	Reach 1	2.625	4570	4570
Unnamed Wash 2	Reach 1	1.629	4680	4680
Unnamed Wash 2	Reach 1	0.252	7300	7300

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Unnamed Wash 2	Reach 1	Floodplain		Normal S = .01056
Unnamed Wash 2	Reach 1	Method 1		Normal S = .01056

GEOMETRY DATA

Geometry Title: Existing Conditions
Geometry File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash2\Un2_FpFw.g01

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.789

INPUT
Description: Upstream study limits at State Route 74.
100-year, 24-hour Peak
Discharge of 1750 cfs from HEC-1 model at station C203R.
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9960.8	1850.2	9967.3	1847.7	9968.6	1847.3	9971.1	1846.7	9971.4	1846.6
9972	1846.4	9974.9	1845.1	9978.9	1844.8	9983.9	1842.2	9993	1840
9995	1839.9	9996.9	1839.9	9997.7	1839.9	10000.1	1840	10000.9	1840.1
10004.4	1841.4	10006.3	1840.3	10007.7	1840.1	10008	1840.1	10012.2	1839.7
10012.6	1839.8	10013.1	1840.5	10013.7	1840.8	10017.1	1840	10026.9	1840.9
10034.1	1841.7	10037.1	1844.6	10047.7	1854.7	10051.6	1858.1	10053.2	1859.6
10053.6	1859.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9960.8	.055	9983.9	.04	10004.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.9	10004.4	107.48	131.27	142.7	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.50	9976.20	0.13	0.22	1.58	0.01	0.14	0.60
9976.20	9983.90	22.45	9.39	8.34	1.28	1.22	2.39
LB 9983.90	9988.00	105.99	14.38	4.22	6.06	3.51	7.37
9988.00	9992.10	160.53	18.45	4.22	9.17	4.50	8.70
9992.10	9996.20	210.06	21.49	4.13	12.00	5.24	9.78
9996.20	10000.30	213.33	21.64	4.10	12.19	5.28	9.86
10000.30	RB 10004.40	161.25	18.70	4.34	9.21	4.56	8.62
10004.40	10014.24	310.30	49.01	10.63	17.73	4.98	6.33
10014.24	10024.08	314.06	48.08	9.95	17.95	4.89	6.53
10024.08	10033.92	232.43	40.05	9.89	13.28	4.07	5.80
10033.92	10043.76	19.46	7.01	5.24	1.11	1.84	2.78

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.50	9976.20	0.13	0.22	1.58	0.01	0.14	0.60
9976.20	9983.90	22.48	9.40	8.34	1.28	1.22	2.39
LB 9983.90	9988.00	106.01	14.38	4.22	6.06	3.51	7.37
9988.00	9992.10	160.53	18.45	4.22	9.17	4.50	8.70
9992.10	9996.20	210.04	21.49	4.13	12.00	5.24	9.77
9996.20	10000.30	213.31	21.64	4.10	12.19	5.28	9.86
10000.30	RB 10004.40	161.25	18.71	4.34	9.21	4.56	8.62
10004.40	10014.24	310.28	49.03	10.63	17.73	4.98	6.33
10014.24	10024.08	314.04	48.09	9.95	17.95	4.89	6.53
10024.08	10033.92	232.44	40.06	9.89	13.28	4.07	5.80
10033.92	10043.76	19.47	7.02	5.24	1.11	1.84	2.77

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.765

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9941.3	1859.4	9945.8	1858	9948.7	1856.5	9959.4	1854	9959.6	1853.9
9959.7	1853.8	9960.5	1853.3	9971.5	1843.3	9973	1842.3	9975.4	1841.9
9976	1841.8	9988.2	1838	10009.2	1837.8	10009.5	1837.8	10009.7	1837.9
10014.2	1842.2	10033.3	1860.2	10037.5	1866.6	10046.2	1869.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9941.3	.055	9975.4	.04	10014.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.4	10014.2	261.34	266.27	266.46	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.03	9975.40	12.95	5.04	4.75	0.74	1.18	2.57
LB 9975.40	9983.16	142.91	22.26	8.11	8.17	2.87	6.42
9983.16	9990.92	380.94	39.87	8.00	21.77	5.14	9.55
9990.92	9998.68	462.99	44.29	7.76	26.46	5.71	10.45
9998.68	10006.44	472.97	44.86	7.76	27.03	5.78	10.54
10006.44	RB 10014.20	275.47	35.18	9.51	15.74	4.53	7.83
10014.20	10024.87	1.78	1.11	2.11	0.10	0.72	1.61

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.03	9975.40	12.42	4.83	4.68	0.71	1.14	2.57
LB 9975.40	9983.16	141.26	21.89	8.11	8.07	2.82	6.45
9983.16	9990.92	381.26	39.50	8.00	21.79	5.09	9.65
9990.92	9998.68	464.10	43.92	7.76	26.52	5.66	10.57
9998.68	10006.44	474.19	44.48	7.76	27.10	5.73	10.66
10006.44	RB 10014.20	275.12	34.80	9.51	15.72	4.49	7.90
10014.20	10024.87	1.65	1.03	2.04	0.09	0.70	1.60

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.714

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9961	1850	9982	1840.4	9990.2	1836.7	9990.7	1836.5	9990.8	1836.4
9991.4	1835.9	9995	1832	9996.2	1832	10005.4	1832	10014.3	1839
10035	1855.4	10042.3	1861.1	10046.8	1860.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9961	.055	9990.8	.04	10014.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.8	10014.3	246.02	238.27	228.03	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.87	9990.80	37.89	9.40	7.11	2.17	1.46	4.03
LB 9990.80	9995.50	251.55	25.00	6.59	14.37	5.32	10.06
9995.50	10000.20	539.24	34.51	4.70	30.81	7.34	15.62
10000.20	10004.90	539.13	34.51	4.70	30.81	7.34	15.62
10004.90	10009.60	320.91	27.58	5.84	18.34	5.87	11.64
10009.60	RB 10014.30	61.22	10.30	5.98	3.50	2.19	5.94
10014.30	10025.13	0.07	0.07	0.55	0.00	0.17	0.88

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.87	9990.80	40.05	9.91	7.19	2.29	1.53	4.04
LB 9990.80	9995.50	252.08	25.37	6.59	14.40	5.40	9.94
9995.50	10000.20	536.77	34.88	4.70	30.67	7.42	15.39
10000.20	10004.90	536.66	34.88	4.70	30.67	7.42	15.39
10004.90	10009.60	320.85	27.95	5.84	18.33	5.95	11.48
10009.60	RB 10014.30	63.48	10.67	5.98	3.63	2.27	5.95
10014.30	10025.13	0.11	0.11	0.63	0.01	0.25	1.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.669

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9966.2	1847.5	9970.1	1846.3	9983.3	1837.3	9987.7	1833	9993	1827.7
9994.9	1827.7	9995.6	1827.8	10000.8	1828.2	10003.6	1828.4	10011.5	1829.7
10012.9	1829.9	10023.8	1830.3	10036.8	1830.8	10039.2	1831.2	10060.7	1843.4
10069.7	1848.6	10078.8	1852.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9966.2	.055	9987.7	.04	10012.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.7	10012.9	121.77	134.95	132.41	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.53	9987.70	0.02	0.03	0.34	0.00	0.12	0.66

LB 9987.70	9992.74	94.73	13.92	7.13	5.41	2.76	6.81
9992.74	9997.78	364.64	27.46	5.16	20.84	5.45	13.28
9997.78	10002.82	329.28	25.61	5.05	18.82	5.08	12.86
10002.82	10007.86	272.16	22.93	5.10	15.55	4.55	11.87
10007.86	RB 10012.90	195.36	18.80	5.10	11.16	3.73	10.39
10012.90	10026.08	279.29	40.84	13.19	15.96	3.10	6.84
10026.08	10039.26	204.09	33.87	13.23	11.66	2.57	6.02
10039.26	10052.44	10.44	3.55	4.07	0.60	1.00	2.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.53	9987.70	0.03	0.04	0.38	0.00	0.15	0.71
LB 9987.70	9992.74	95.20	14.06	7.13	5.44	2.79	6.77
9992.74	9997.78	363.27	27.61	5.16	20.76	5.48	13.16
9997.78	10002.82	328.26	25.76	5.05	18.76	5.11	12.74
10002.82	10007.86	271.63	23.08	5.10	15.52	4.58	11.77
10007.86	RB 10012.90	195.44	18.95	5.10	11.17	3.76	10.32
10012.90	10026.08	280.09	41.23	13.19	16.00	3.13	6.79
10026.08	10039.26	205.34	34.27	13.23	11.73	2.60	5.99
10039.26	10052.44	10.76	3.65	4.10	0.61	1.03	2.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.643

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9886	1840.3	9904.9	1831.2	9919.5	1830.8	9921.3	1830.7	9922.7	1830.5
9931.1	1829.4	9934.4	1829.5	9944.9	1829.4	9951	1829.3	9952.6	1829.3
9973.3	1828.5	9981.3	1828.2	9986.2	1827.4	9994	1826	10000.9	1825.7
10002.7	1825.6	10007.6	1825.3	10021.3	1828.5	10021.4	1828.5	10039.3	1833.2
10047.8	1839.1	10048.9	1839.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9886	.055	9981.3	.04	10021.3	.055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9981.3 10021.3 272.7 254.84 247.34 .6 .8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9905.06	9924.12	0.05	0.10	1.23	0.00	0.08	0.48
9924.12	9943.18	39.22	16.60	19.12	2.24	0.87	2.36
9943.18	9962.24	71.01	23.68	19.07	4.06	1.24	3.00
9962.24	9981.30	145.74	36.46	19.07	8.33	1.91	4.00
LB 9981.30	9989.30	177.57	23.49	8.11	10.15	2.94	7.56
9989.30	9997.30	330.50	34.05	8.08	18.89	4.26	9.71
9997.30	10005.30	407.34	38.47	8.01	23.28	4.81	10.59
10005.30	10013.30	384.61	37.44	8.16	21.98	4.68	10.27
10013.30	RB 10021.30	173.27	23.27	8.22	9.90	2.91	7.45
10021.30	10030.50	20.70	7.62	7.87	1.18	1.00	2.72

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9905.06	9924.12	1.22	1.04	2.00	0.07	0.85	1.17
9924.12	9943.18	79.02	31.34	19.12	4.52	1.64	2.52
9943.18	9962.24	111.16	38.41	19.07	6.35	2.02	2.89
9962.24	9981.30	179.36	51.19	19.07	10.25	2.69	3.50
LB 9981.30	9989.30	178.63	29.68	8.11	10.21	3.71	6.02
9989.30	9997.30	297.47	40.23	8.08	17.00	5.03	7.39
9997.30	10005.30	355.90	44.65	8.01	20.34	5.58	7.97
10005.30	10013.30	338.18	43.62	8.16	19.32	5.45	7.75
10013.30	RB 10021.30	174.90	29.45	8.22	9.99	3.68	5.94
10021.30	10030.50	34.16	13.51	8.65	1.95	1.77	2.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.595

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9968	1840.2	9969.6	1839	9975.1	1833.7	9985.2	1826.3	9987.5	1824.6
9989.1	1823	9991.2	1821.4	9992.8	1821.5	10005.8	1821.6	10006.4	1821.6
10006.5	1821.6	10013.7	1823.6	10014.2	1823.7	10017.8	1824.5	10024.2	1824.8
10032.8	1825	10032.9	1825	10033	1825	10033.5	1825	10046.1	1824.7
10049	1824.6	10061.7	1825	10063.7	1825.1	10070.9	1827.5	10071.8	1827.7
10079.5	1833.5	10088.8	1840.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9968	.055	9985.2	.04	10017.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.2	10017.8	130.35	133.67	127.33	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9979.47	9985.20	0.23	0.22	0.97	0.01	0.29	1.01
LB 9985.20	9991.72	135.60	20.84	8.28	7.75	3.20	6.51
9991.72	9998.24	376.57	34.96	6.52	21.52	5.36	10.77
9998.24	10004.76	370.18	34.60	6.52	21.15	5.31	10.70
10004.76	10011.28	306.22	31.22	6.70	17.50	4.79	9.81
10011.28	RB 10017.80	149.73	20.33	6.71	8.56	3.12	7.37
10017.80	10032.00	128.08	29.69	14.21	7.32	2.09	4.31
10032.00	10046.20	119.85	28.53	14.20	6.85	2.01	4.20
10046.20	10060.40	131.02	30.10	14.21	7.49	2.12	4.35
10060.40	10074.60	32.53	10.83	8.91	1.86	1.26	3.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9979.47	9985.20	0.35	0.26	1.01	0.02	0.33	1.34
LB 9985.20	9991.72	172.14	21.13	8.28	9.84	3.24	8.15
9991.72	9998.24	473.62	35.25	6.52	27.06	5.41	13.44
9998.24	10004.76	465.64	34.89	6.52	26.61	5.35	13.35
10004.76	10011.28	385.77	31.51	6.70	22.04	4.83	12.24
10011.28	RB 10017.80	190.19	20.62	6.71	10.87	3.16	9.22
10017.80	10032.00	62.29	13.32	7.99	3.56	2.28	4.68

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.570

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9954.1	1836.3	9955.3	1835.6	9971.2	1823.9	9975	1821.1	9979.1	1820.8
9987.2	1820.7	9991.5	1820.6	9999.3	1819.2	10000	1819.1	10001.4	1819.1
10010.1	1818.8	10011.2	1818.8	10011.3	1818.9	10014.6	1824	10026.3	1842.3
10031.1	1846.7	10036.4	1851.7	10037.9	1852.7	10039.5	1853.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9954.1	.055	9971.2	.04	10014.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.2	10014.6	347.97	365.33	347.22	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9965.50	9971.20	0.00	0.01	0.19	0.00	0.06	0.45
LB 9971.20	9979.88	162.73	20.81	9.61	9.30	2.40	7.82
9979.88	9988.56	293.13	28.44	8.68	16.75	3.28	10.31
9988.56	9997.24	363.15	32.47	8.77	20.75	3.74	11.18
9997.24	10005.92	567.81	42.36	8.72	32.45	4.88	13.40
10005.92	RB 10014.60	363.17	36.19	11.50	20.75	4.17	10.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9965.50	9971.20	0.01	0.01	0.23	0.00	0.10	0.55
LB 9971.20	9979.88	164.37	21.15	9.61	9.39	2.44	7.77
9979.88	9988.56	293.96	28.78	8.68	16.80	3.32	10.21
9988.56	9997.24	363.28	32.82	8.77	20.76	3.78	11.07
9997.24	10005.92	565.72	42.71	8.72	32.33	4.92	13.25
10005.92	RB 10014.60	362.66	36.53	11.50	20.72	4.21	9.93

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.501

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9950.4	1848.2	9950.7	1848	9952.9	1846.6	9964.6	1837.9	9965.6	1837.3
9965.9	1837.1	9968.8	1833.8	9980.9	1822.1	9982.9	1817.7	9983.5	1816.4
9989.3	1813.9	9990.2	1813.4	10006.1	1813.5	10008.9	1813.6	10022	1815.8
10024.6	1816.2	10033.6	1816.1	10066.1	1815.9	10110.5	1837	10115	1839.2
10117.2	1839.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9950.4	.055	9982.9	.04	10024.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.9	10024.6	278.64	261.99	244.41	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9972.07	9982.90	0.00	0.00	0.09	0.00	0.04	0.21
LB 9982.90	9991.24	181.71	24.01	9.82	10.38	2.88	7.57
9991.24	9999.58	403.49	36.30	8.34	23.06	4.35	11.11
9999.58	10007.92	394.50	35.82	8.34	22.54	4.29	11.01
10007.92	10016.26	297.37	30.38	8.44	16.99	3.64	9.79
10016.26	RB 10024.60	133.67	18.81	8.45	7.64	2.26	7.11
10024.60	10043.12	137.54	31.05	18.52	7.86	1.68	4.43
10043.12	10061.64	155.01	33.36	18.52	8.86	1.80	4.65
10061.64	10080.16	46.71	12.09	8.85	2.67	1.43	3.86

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9972.07	9982.90	0.01	0.02	0.48	0.00	0.43	0.37
LB 9982.90	9991.24	238.04	27.22	9.82	13.60	3.26	8.75
9991.24	9999.58	493.90	39.51	8.34	28.22	4.74	12.50
9999.58	10007.92	483.77	39.03	8.34	27.64	4.68	12.40
10007.92	10016.26	373.65	33.59	8.44	21.35	4.03	11.12
10016.26	RB 10024.60	160.63	22.02	10.42	9.18	2.64	7.30

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.451

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9844.8	1826.2	9851.3	1826.6	9859.5	1825.6	9866.3	1824.8	9872.4	1822.5
9877.5	1818.6	9882.1	1816.6	9888.4	1813.1	9896.9	1811.7	9899.1	1811.4
9911.2	1812.8	9912.5	1813	9913.8	1813	9931.2	1812.8	9964.8	1812.3
9972.3	1812.1	9972.4	1812.1	9976.4	1811.4	9982.6	1810.1	9991.1	1810.3
9994.8	1810.3	9998.6	1810.2	10003.1	1810	10006.9	1810	10009.5	1810.1
10017.3	1813.3	10039.7	1822.4	10073.5	1835.7	10076.3	1835.7	10080.5	1835.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9844.8	.055	9972.3	.04	10017.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9972.3	10017.3	205.76	176.32	167.91	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9870.30	9895.80	37.38	11.12	9.17	2.14	1.25	3.36
9895.80	9921.30	153.48	39.16	25.63	8.77	1.54	3.92
9921.30	9946.80	96.82	29.64	25.50	5.53	1.16	3.27
9946.80	9972.30	156.13	39.48	25.50	8.92	1.55	3.95
LB 9972.30	9981.30	178.38	23.67	9.17	10.19	2.63	7.54
9981.30	9990.30	320.65	33.45	9.03	18.32	3.72	9.59
9990.30	9999.30	311.03	32.80	9.00	17.77	3.64	9.48
9999.30	10008.30	344.25	34.86	9.00	19.67	3.87	9.87
10008.30	RB 10017.30	151.30	21.87	9.63	8.65	2.43	6.92
10017.30	10038.37	0.60	0.46	1.63	0.03	0.31	1.29

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.80	9972.30	53.94	12.17	7.93	3.08	2.04	4.43
LB 9972.30	9981.30	240.34	26.45	9.17	13.73	2.94	9.09
9981.30	9990.30	410.14	36.22	9.03	23.44	4.02	11.32
9990.30	9999.30	398.84	35.58	9.00	22.79	3.95	11.21
9999.30	10008.30	438.05	37.64	9.00	25.03	4.18	11.64
10008.30	RB 10017.30	206.80	24.65	9.63	11.82	2.74	8.39
10017.30	10038.37	1.89	0.93	1.94	0.11	0.62	2.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.418

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9896.5	1830.7	9905.7	1826.6	9916.7	1819.7	9929.7	1807.3	9930.9	1807.4
9940.4	1808.6	9953.6	1808.9	9958.6	1809	9960.1	1809	9960.2	1809
9964.1	1808.7	9974.5	1808.1	9983.6	1807.8	9989.5	1807.4	10001.4	1807.4

10008.1	1807.4	10009.3	1807.6	10024.5	1810.1	10024.6	1810.1	10026.5	1810.3
10034.6	1810.7	10041.2	1811.1	10042.3	1811.2	10044.2	1811.5	10053.4	1812.4
10069.2	1821.1	10079.7	1826.5	10082.6	1825.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9896.5	.055	9960.1	.04	10024.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.1	10024.6	102.7	137.59	147.11	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9921.94	9934.66	116.82	19.64	9.58	6.68	2.37	5.95
9934.66	9947.38	146.94	25.28	12.77	8.40	1.99	5.81
9947.38	9960.10	99.46	19.97	12.72	5.68	1.57	4.98
LB 9960.10	9973.00	183.70	24.47	12.93	10.50	1.90	7.51
9973.00	9985.90	298.18	32.70	12.91	17.04	2.54	9.12
9985.90	9998.80	402.13	39.13	12.91	22.98	3.03	10.28
9998.80	10011.70	390.49	38.49	12.95	22.31	2.98	10.15
10011.70	RB 10024.60	111.46	18.21	13.07	6.37	1.41	6.12
10024.60	10043.93	0.82	0.79	5.30	0.05	0.15	1.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9960.10	9973.00	231.27	30.85	14.89	13.22	2.39	7.50
9973.00	9985.90	377.27	39.08	12.91	21.56	3.03	9.65
9985.90	9998.80	486.28	45.51	12.91	27.79	3.53	10.69
9998.80	10011.70	474.02	44.87	12.95	27.09	3.48	10.56
10011.70	RB 10024.60	172.88	24.59	13.07	9.88	1.91	7.03
10024.60	10043.93	8.29	3.40	5.79	0.47	0.64	2.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.392

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9857.1	1828.8	9858.4	1828.7	9866.4	1827.9	9869.7	1826.9	9878.6	1822.8
9884.9	1820.5	9892.1	1816.5	9900.7	1811.9	9903.4	1810.4	9906.4	1809.1
9916.2	1805.4	9937.6	1806.1	9941	1806	9941.6	1805.8	9946.6	1806.1
9956.6	1806.9	9962.3	1806.8	9977.1	1806.5	9985	1805.9	9990.4	1805.5
10000.2	1805.2	10005.3	1805.1	10013.2	1805	10014.9	1805	10022.7	1805.4
10023.4	1805.6	10024	1806.3	10024.4	1806.6	10048.3	1827.2	10052.8	1831.3
10053.3	1831.3	10054.2	1831.1	10064.6	1832.4	10067.5	1832.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9857.1	.055	9962.3	.04	10024.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962.3	10024.4	371.19	386.27	389.38	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9899.18	9920.22	98.06	19.88	11.57	5.60	1.79	4.93
9920.22	9941.26	271.54	46.53	21.06	15.52	2.21	5.84
9941.26	9962.30	160.32	33.94	21.10	9.16	1.61	4.72
LB 9962.30	9974.72	99.66	17.30	12.42	5.69	1.39	5.76
9974.72	9987.14	162.63	23.23	12.45	9.29	1.87	7.00
9987.14	9999.56	288.91	32.78	12.43	16.51	2.64	8.81
9999.56	10011.98	350.78	36.81	12.42	20.04	2.96	9.53
10011.98	RB 10024.40	315.17	35.02	12.88	18.01	2.82	9.00
10024.40	10038.77	2.94	1.25	2.25	0.17	0.73	2.35

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.26	9962.30	68.43	15.54	10.82	3.91	1.75	4.40
LB 9962.30	9974.72	167.80	23.58	12.42	9.59	1.90	7.12
9974.72	9987.14	243.52	29.51	12.45	13.92	2.38	8.25
9987.14	9999.56	388.86	39.05	12.43	22.22	3.14	9.96
9999.56	10011.98	458.35	43.09	12.42	26.19	3.47	10.64
10011.98	RB 10024.40	416.93	41.30	12.88	23.82	3.33	10.10
10024.40	10038.77	6.10	2.11	2.75	0.35	1.24	2.90

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.318

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9810.7	1815.1	9813.6	1813.9	9817	1812.4	9822.5	1810.2	9830.8	1807.9
9847.1	1803.3	9863.5	1802.1	9868	1801.8	9869.3	1801.7	9870.6	1801.7
9890.4	1801.4	9894.4	1801	9900.6	1801.2	9905.9	1801.1	9914.2	1800.8
9931.8	1800.6	9937.2	1800.3	9948.6	1800.3	9955.9	1800.4	9959	1800.6
9968.3	1801.1	9969.2	1801.1	9970.4	1800.9	9970.9	1800.9	9980.4	1800
9984.5	1800	9990.4	1800.2	9999.4	1800	10000.1	1800	10001.5	1800.3
10005	1801.1	10006.6	1801.3	10011	1801.8	10012.9	1802.5	10015.3	1803.3
10033.2	1809.9	10039.8	1812.7	10042.7	1813.4	10047.8	1814.8	10051	1815
10057.9	1815.7	10060.7	1816						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9810.7	.055	9970.4	.04	10012.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.4	10012.9	248.69	252.16	252.02	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9842.64	9874.58	43.42	18.36	23.12	2.48	0.80	2.37
9874.58	9906.52	202.80	52.68	31.97	11.59	1.65	3.85
9906.52	9938.46	347.59	72.77	31.95	19.86	2.28	4.78
9938.46	9970.40	388.92	77.87	31.98	22.22	2.44	4.99
LB 9970.40	9978.90	145.78	20.69	8.54	8.33	2.43	7.04
9978.90	9987.40	201.05	25.06	8.51	11.49	2.95	8.02
9987.40	9995.90	188.43	24.10	8.50	10.77	2.84	7.82
9995.90	10004.40	174.58	23.13	8.61	9.98	2.72	7.55
10004.40	RB 10012.90	57.06	11.87	8.68	3.26	1.40	4.81
10012.90	10028.83	0.37	0.34	1.51	0.02	0.24	1.09

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9906.52	9938.46	364.31	89.95	30.23	20.82	3.31	4.05
9938.46	9970.40	484.87	109.20	31.98	27.71	3.42	4.44
LB 9970.40	9978.90	174.38	29.03	8.54	9.96	3.42	6.01
9978.90	9987.40	220.76	33.40	8.51	12.61	3.93	6.61
9987.40	9995.90	210.35	32.44	8.50	12.02	3.82	6.48
9995.90	10004.40	198.39	31.47	8.61	11.34	3.70	6.30
10004.40	RB 10012.90	94.25	20.21	8.68	5.39	2.38	4.66
10012.90	10028.83	2.70	1.74	2.49	0.15	1.22	1.55

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2

REACH: Reach 1 RS: 6.271

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9891.4	1817.6	9893.1	1817.5	9893.5	1817.5	9895.4	1817.4	9901.3	1813.1
9914.1	1803.2	9918.5	1801.7	9930.9	1796.6	9934	1796.7	9944.9	1797
9955.5	1797.4	9957.5	1797.5	9977.8	1797.6	9981.4	1797.6	9986.2	1797.1
9990.1	1796.7	9990.6	1796.7	10005.3	1797.2	10011	1798.1	10013.6	1798.4
10019.8	1800.4	10054.3	1811.4	10073.3	1817.3	10076.9	1817.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9891.4	.055	9981.4	.04	10019.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.4	10019.8	270.27	277.64	278.99	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9909.40	9927.40	21.27	8.24	6.84	1.22	1.30	2.58
9927.40	9945.40	364.66	67.16	18.29	20.84	3.73	5.43
9945.40	9963.40	301.21	59.51	18.01	17.21	3.31	5.06
9963.40	9981.40	266.41	55.28	18.00	15.22	3.07	4.82
LB 9981.40	9989.08	185.07	26.43	7.72	10.58	3.44	7.00
9989.08	9996.76	223.87	29.58	7.69	12.79	3.85	7.57
9996.76	10004.44	200.36	27.67	7.69	11.45	3.60	7.24
10004.44	10012.12	144.25	22.81	7.76	8.24	2.97	6.33
10012.12	RB 10019.80	42.86	11.15	8.00	2.45	1.45	3.84
10019.80	10038.83	0.05	0.09	0.80	0.00	0.12	0.56

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9945.40	9963.40	59.21	12.48	7.09	3.38	3.33	4.74
9963.40	9981.40	423.22	58.97	18.00	24.18	3.28	7.18
LB 9981.40	9989.08	292.74	28.01	7.72	16.73	3.65	10.45
9989.08	9996.76	350.59	31.15	7.69	20.03	4.06	11.25
9996.76	10004.44	315.60	29.24	7.69	18.03	3.81	10.79
10004.44	10012.12	231.58	24.38	7.76	13.23	3.17	9.50
10012.12	RB 10019.80	76.72	12.72	8.00	4.38	1.66	6.03
10019.80	10038.83	0.33	0.25	1.00	0.02	0.33	1.32

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.218

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9939.1	1806.1	9946.2	1805	9957.5	1800.4	9973.5	1795.3	9981.4	1795
9982.9	1794.9	9985.6	1794.6	9993.6	1792.9	9996	1792.3	10001.9	1792.2
10008.5	1792.1	10010.2	1792.1	10010.6	1792.1	10016.1	1792.6	10021.6	1792.5
10023.1	1792.5	10023.4	1792.7	10028.7	1794.4	10030.7	1796.2	10031.9	1797.2
10046	1804.4	10056.4	1808.8	10057.8	1809.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9939.1	.055	9982.9	.04	10030.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.9	10030.7	329.03	304.05	296.71	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.30	9982.90	51.27	14.58	13.19	2.93	1.12	3.52
LB 9982.90	9992.46	169.17	22.27	9.73	9.67	2.33	7.60
9992.46	10002.02	422.01	38.43	9.66	24.11	4.02	10.98
10002.02	10011.58	477.31	41.21	9.56	27.28	4.31	11.58
10011.58	10021.14	415.70	37.95	9.58	23.75	3.97	10.95
10021.14	RB 10030.70	214.52	26.55	10.58	12.26	2.78	8.08
10030.70	10039.73	0.03	0.04	0.39	0.00	0.12	0.69

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.30	9982.90	53.17	15.10	13.23	3.04	1.16	3.52
LB 9982.90	9992.46	170.67	22.65	9.73	9.75	2.37	7.54
9992.46	10002.02	420.76	38.81	9.66	24.04	4.06	10.84
10002.02	10011.58	475.37	41.59	9.56	27.16	4.35	11.43
10011.58	10021.14	414.55	38.34	9.58	23.69	4.01	10.81
10021.14	RB 10030.70	215.45	26.93	10.58	12.31	2.82	8.00
10030.70	10039.73	0.04	0.05	0.43	0.00	0.16	0.76

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.161

INPUT
Description: 100-year, 24-hour Peak Discharge of 2910 cfs from HEC-1 model at station C204.
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9749.1	1798.6	9766.4	1798.5	9769.5	1798	9772.1	1797.3	9784.8	1794.8
9792.8	1792.8	9795.6	1791.9	9806	1789.7	9807.3	1789.4	9809.1	1789.5
9822.1	1791.1	9822.2	1791.1	9832.3	1791.4	9839.1	1791.5	9860.3	1791.9
9867.4	1792.1	9881.9	1792.1	9906.5	1791.6	9907.1	1791.6	9910.4	1790.9
9913.7	1790.3	9926.4	1787.9	9929.1	1787.8	9934.9	1787.6	9935.9	1787.6
9944.1	1789.7	9947.8	1790.5	9948.7	1790.6	9948.9	1790.7	9955.7	1790.3
9960.7	1790	9975.1	1789.3	9977.8	1789	9982.1	1788.5	9996.2	1788.7
10002.8	1788.8	10011.2	1792.2	10011.3	1792.3	10024.6	1798	10041.7	1802.8
10064	1809.8	10064.2	1809.8	10064.6	1809.8	10073.1	1809.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9749.1	.055	9948.7	.04	10011.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9948.7	10011.3	466.05	543.86	551.8	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9789.02	9808.98	110.80	33.25	16.92	3.81	2.01	3.33
9808.98	9828.94	166.71	45.47	20.06	5.73	2.28	3.67
9828.94	9848.90	72.37	27.51	19.96	2.49	1.38	2.63
9848.90	9868.86	41.87	19.81	19.96	1.44	0.99	2.11
9868.86	9888.82	29.58	16.08	19.96	1.02	0.81	1.84
9888.82	9908.78	52.46	22.70	20.00	1.80	1.14	2.31
9908.78	9928.74	341.65	70.24	20.28	11.74	3.52	4.86
9928.74	9948.70	461.93	84.24	20.32	15.87	4.22	5.48
LB 9948.70	9961.22	198.30	31.80	12.56	6.81	2.54	6.24
9961.22	9973.74	293.58	40.20	12.54	10.09	3.21	7.30
9973.74	9986.26	432.40	50.77	12.57	14.86	4.05	8.52
9986.26	9998.78	465.73	53.00	12.52	16.00	4.23	8.79
9998.78	RB 10011.30	242.21	36.59	13.22	8.32	2.92	6.62
10011.30	10031.90	0.41	0.39	1.48	0.01	0.29	1.04

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9789.02	9808.98	110.17	32.74	16.80	3.79	2.00	3.36
9808.98	9828.94	165.42	44.86	20.06	5.68	2.25	3.69
9828.94	9848.90	70.75	26.90	19.96	2.43	1.35	2.63
9848.90	9868.86	40.33	19.20	19.96	1.39	0.96	2.10
9868.86	9888.82	28.14	15.47	19.96	0.97	0.77	1.82
9888.82	9908.78	50.88	22.08	20.00	1.75	1.11	2.30

9908.78	9928.74	341.73	69.63	20.28	11.74	3.49	4.91
9928.74	9948.70	463.17	83.63	20.32	15.92	4.19	5.54
LB 9948.70	9961.22	198.04	31.41	12.56	6.81	2.51	6.30
9961.22	9973.74	294.45	39.82	12.54	10.12	3.18	7.39
9973.74	9986.26	435.12	50.38	12.57	14.95	4.02	8.64
9986.26	9998.78	468.91	52.62	12.52	16.11	4.20	8.91
9998.78	RB 10011.30	242.54	36.21	13.22	8.33	2.89	6.70
10011.30	10031.90	0.36	0.35	1.40	0.01	0.28	1.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 6.058

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9849.3	1795.3	9849.9	1795.2	9861	1793.5	9861.9	1793.3	9862.2	1793.3
9862.4	1793.3	9894.4	1786.8	9898.6	1785.7	9902.2	1784.8	9910.9	1782.7
9915.4	1782.3	9925.8	1782.7	9928.9	1782.7	9931.7	1783	9942.6	1784.2
9948.3	1784.9	9955.8	1785	9963.8	1785	9964.1	1785	9964.3	1785
9981.2	1784.2	9981.3	1784.2	9991.4	1781.9	9993.2	1781.4	9994.4	1781.4
9999.7	1781.2	10004.1	1781.3	10007.2	1781.5	10009.5	1781.5	10014.5	1781.7
10014.6	1781.8	10021.7	1786.1	10023.2	1787	10025.1	1788	10038.3	1793.1
10040.1	1793.8	10043.1	1794.6	10057.7	1799.4	10059	1799.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9849.3	.055	9981.2	.04	10021.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.2	10021.7	442.27	441.89	421.2	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9875.68	9902.06	10.74	4.38	6.02	0.37	0.75	2.45
9902.06	9928.44	603.36	89.06	26.66	20.73	3.38	6.77
9928.44	9954.82	314.54	60.11	26.51	10.81	2.28	5.23
9954.82	9981.20	170.82	41.61	26.40	5.87	1.58	4.11
LB 9981.20	9989.30	214.68	24.46	8.30	7.38	3.02	8.78
9989.30	9997.40	450.69	38.03	8.22	15.49	4.69	11.85
9997.40	10005.50	514.92	40.95	8.11	17.70	5.06	12.57
10005.50	10013.60	470.68	38.81	8.11	16.17	4.79	12.13
10013.60	RB 10021.70	159.55	21.46	9.34	5.48	2.65	7.43
10021.70	10034.13	0.03	0.04	0.43	0.00	0.11	0.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9875.68	9902.06	11.55	4.65	6.06	0.40	0.80	2.48
9902.06	9928.44	603.84	90.28	26.66	20.75	3.42	6.69
9928.44	9954.82	318.20	61.32	26.51	10.93	2.32	5.19
9954.82	9981.20	175.35	42.82	26.40	6.03	1.62	4.09
LB 9981.20	9989.30	215.09	24.84	8.30	7.39	3.07	8.66
9989.30	9997.40	447.54	38.40	8.22	15.38	4.74	11.65
9997.40	10005.50	510.74	41.33	8.11	17.55	5.10	12.36
10005.50	10013.60	467.24	39.18	8.11	16.06	4.84	11.93
10013.60	RB 10021.70	160.41	21.83	9.34	5.51	2.70	7.35
10021.70	10034.13	0.04	0.06	0.48	0.00	0.16	0.78

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.974

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9927.9	1790.1	9950.3	1783.3	9962.9	1779.7	9963.7	1779.6	9964.2	1779.3
9964.6	1779.2	9969.3	1778.2	9976.5	1777	9982.7	1777.4	9985.2	1777.5
9986.9	1777.4	9999.1	1775.9	10001.9	1775.6	10002.2	1775.5	10002.4	1775.5
10004.7	1775.6	10016.4	1775.9	10022.7	1777.3	10032.6	1779.3	10056.4	1778.9
10062.2	1778.8	10077.3	1780.9	10097.7	1783.8	10117.5	1784.8	10132.8	1785.6
10139	1785.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9927.9	.055	9964.2	.04	10032.6	.055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9964.2 10032.6 257.05 247.47 187.18 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.10	9964.20	19.57	8.70	8.19	0.67	1.11	2.25
LB 9964.20	9977.88	331.98	49.23	13.90	11.41	3.60	6.74
9977.88	9991.56	451.35	58.90	13.73	15.51	4.31	7.66
9991.56	10005.24	683.18	75.62	13.77	23.48	5.53	9.03
10005.24	10018.92	727.02	78.43	13.74	24.98	5.73	9.27
10018.92	RB 10032.60	340.45	50.08	13.97	11.70	3.66	6.80
10032.60	10053.88	192.63	52.08	21.28	6.62	2.45	3.70
10053.88	10075.16	159.66	46.64	21.41	5.49	2.19	3.42
10075.16	10096.44	4.15	3.32	6.91	0.14	0.49	1.25

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.10	9964.20	36.96	13.62	8.82	1.27	1.74	2.71
LB 9964.20	9977.88	405.75	57.80	13.90	13.94	4.23	7.02
9977.88	9991.56	529.42	67.48	13.73	18.19	4.93	7.85
9991.56	10005.24	764.17	84.20	13.77	26.26	6.15	9.08
10005.24	10018.92	808.25	87.01	13.74	27.77	6.36	9.29
10018.92	RB 10032.60	365.46	58.66	16.87	12.56	4.29	6.23

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.927

INPUT
Description: 100-year, 24-hour Peak Discharge of 3380 cfs from HEC-1 model at station C205L.
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9943.5	1799.9	9955.5	1797.4	9964.3	1795	9965.9	1794.6	9973.1	1788.1
9984.5	1778	9990.3	1772.8	10006.4	1773	10027.3	1773.2	10033.6	1774.5
10041.8	1776	10041.9	1776	10049.2	1775.8	10050.3	1775.8	10052.6	1775.7
10065.9	1776.6	10070.6	1776.9	10088.4	1780.5	10099.3	1782.5	10104.2	1782.5
10112.2	1782.8	10114.3	1782.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9943.5	.055	9984.5	.04	10041.9	.055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9984.5 10041.9 328.04 325.84 311.12 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.83	9984.50	0.04	0.06	0.49	0.00	0.16	0.75
LB 9984.50	9995.98	464.75	48.13	13.47	13.75	4.19	9.66
9995.98	10007.46	783.82	61.77	11.48	23.19	5.38	12.69
10007.46	10018.94	754.19	60.36	11.48	22.31	5.26	12.49
10018.94	10030.42	705.80	58.14	11.55	20.88	5.06	12.14
10030.42	RB 10041.90	354.30	38.63	11.68	10.48	3.37	9.17
10041.90	10056.38	187.96	35.81	14.49	5.56	2.47	5.25
10056.38	10070.86	118.91	27.23	14.52	3.52	1.88	4.37
10070.86	10085.34	10.22	4.64	6.91	0.30	0.69	2.20

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.83	9984.50	0.10	0.10	0.59	0.00	0.27	1.00
LB 9984.50	9995.98	522.60	49.34	13.47	15.46	4.30	10.59
9995.98	10007.46	873.41	62.99	11.48	25.84	5.49	13.87
10007.46	10018.94	841.03	61.58	11.48	24.88	5.36	13.66
10018.94	10030.42	788.06	59.35	11.55	23.32	5.17	13.28
10030.42	RB 10041.90	354.81	39.85	14.11	10.50	3.47	8.90

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.865

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9910.6	1787.3	9915.7	1785.4	9954.9	1771.4	9965.2	1771	9970.4	1770.5
9973.3	1770.2	9974.7	1770.2	9978.7	1770.6	9979.8	1770.7	9980.9	1770.6
9989.1	1770.2	9989.3	1770.2	9989.4	1770.2	9989.7	1770.1	9993.1	1768.5
9994.4	1767.8	9994.5	1767.8	10001.3	1767.4	10001.8	1767.4	10002.1	1767.4
10002.2	1767.4	10003	1767.4	10012.5	1767.5	10019.6	1769.1	10024.7	1770
10026	1770.1	10028.5	1770	10036.7	1770	10043.5	1769.8	10048.7	1770.9
10057.8	1772.8	10063.1	1773	10065.2	1773.1	10070	1773.3	10080.3	1774
10080.6	1774	10093.8	1774.5	10094.7	1774.6	10100.4	1774.6	10103.7	1774.6
10112.8	1775.2	10125.3	1776.2	10128.3	1776.5	10129.3	1776.5	10142.9	1777.1
10144.6	1777.1	10145	1777.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9910.6	.055	9989.3	.04	10024.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.3	10024.7	100.12	104.62	110.39	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.08	9957.82	45.50	13.10	9.38	1.35	1.46	3.47
9957.82	9973.56	231.31	42.80	15.79	6.84	2.72	5.40
9973.56	9989.30	296.11	49.63	15.78	8.76	3.15	5.97
LB 9989.30	9996.38	368.88	34.46	7.63	10.91	4.87	10.70
9996.38	10003.46	559.97	42.98	7.09	16.57	6.07	13.03
10003.46	10010.54	569.45	43.39	7.08	16.85	6.13	13.12
10010.54	10017.62	492.29	40.05	7.21	14.56	5.66	12.29
10017.62	RB 10024.70	300.80	29.80	7.21	8.90	4.21	10.09
10024.70	10048.76	464.91	84.52	24.18	13.75	3.51	5.50
10048.76	10072.82	50.78	22.42	24.27	1.50	0.93	2.27
10072.82	10096.88	0.01	0.05	1.16	0.00	0.04	0.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.08	9957.82	55.10	14.55	9.54	1.63	1.62	3.79
9957.82	9973.56	261.74	45.34	15.79	7.74	2.88	5.77
9973.56	9989.30	330.77	52.17	15.78	9.79	3.31	6.34
LB 9989.30	9996.38	399.63	35.60	7.63	11.82	5.03	11.22
9996.38	10003.46	600.23	44.12	7.09	17.76	6.23	13.60
10003.46	10010.54	610.13	44.53	7.08	18.05	6.29	13.70
10010.54	10017.62	529.35	41.19	7.21	15.66	5.82	12.85
10017.62	RB 10024.70	328.61	30.94	7.21	9.72	4.37	10.62
10024.70	10048.76	264.44	44.60	15.74	7.82	3.72	5.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.845

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9889.3	1789.4	9902.2	1787.1	9919	1784	9924	1782.9	9934.9	1781.1
9951.7	1774.7	9955.7	1773.3	9962.7	1772.8	9971.5	1772	9988	1769.1
9991.3	1767.7	9991.4	1767.7	9991.9	1767.5	9992.6	1766.1	9997.8	1758.6
10006.7	1758.8	10006.9	1758.8	10007.1	1758.9	10015.7	1763.6	10016.4	1763.8
10016.7	1763.9	10017.3	1763.8	10017.7	1763.7	10024.9	1763.6	10027	1763.9
10034.7	1764.2	10037.5	1764	10043.8	1764.6	10051.3	1765.5	10056.9	1766.5
10060.2	1767	10061.7	1767.2	10065.3	1767.5	10068.2	1767.2	10070.1	1766.9
10072.8	1766.4	10081	1770	10083.8	1770.7	10099.3	1774.6	10106.5	1774.9
10122.7	1775.1	10128.1	1775.6	10134.2	1776				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9889.3	.07	9991.4	.05	10016.4	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9991.4 10016.4 396.36 458.8 281.48 .3 .5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.37	9991.40	0.47	0.40	1.48	0.01	0.29	1.17
LB 9991.40	9996.40	121.51	19.87	8.77	3.59	3.97	6.11
9996.40	10001.40	644.59	46.64	6.06	19.07	9.33	13.82
10001.40	10006.40	755.38	47.51	5.00	22.35	9.50	15.90
10006.40	10011.40	562.11	41.70	5.62	16.63	8.34	13.48
10011.40	RB 10016.40	292.31	28.18	5.63	8.65	5.64	10.37
10016.40	10039.96	687.92	102.20	23.64	20.35	4.34	6.73
10039.96	10063.52	278.28	59.51	23.78	8.23	2.53	4.68
10063.52	10087.08	37.44	14.43	13.95	1.11	1.07	2.59

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.37	9991.40	0.05	0.07	0.63	0.00	0.12	0.73
LB 9991.40	9996.40	115.00	18.21	8.77	3.40	3.64	6.32
9996.40	10001.40	664.32	44.97	6.06	19.65	8.99	14.77
10001.40	10006.40	779.39	45.85	5.00	23.06	9.17	17.00
10006.40	10011.40	575.10	40.04	5.62	17.01	8.01	14.36
10011.40	RB 10016.40	289.19	26.51	5.63	8.56	5.30	10.91
10016.40	10039.96	719.04	94.36	23.64	21.27	4.01	7.62
10039.96	10063.52	237.91	42.50	16.92	7.04	2.83	5.60

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.759

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9958.5	1766.4	9962	1766.4	9967.6	1765.8	9970	1761.5	9972.5	1758.7
9973.7	1757.3	9978.1	1756.9	9980.3	1756.3	9992.8	1754	9996.2	1753.2
10005.1	1752.7	10008.1	1752.5	10014.1	1753	10017.1	1753.3	10024.5	1752.6
10026.2	1752.4	10033	1758.8	10034.1	1759.8	10043.6	1769	10047.2	1769.6
10056.5	1771.2	10068.1	1774.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

9958.5 .055 9972.5 .04 10033 .055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9972.5	10033	281.9	300.61	308.52	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.83	9972.50	0.00	0.00	0.13	0.00	0.05	0.35
LB 9972.50	9984.60	176.92	25.72	12.91	5.23	2.13	6.88
9984.60	9996.70	621.34	53.66	12.33	18.38	4.43	11.58
9996.70	10008.80	1031.69	72.24	12.12	30.52	5.97	14.28
10008.80	10020.90	987.65	70.44	12.15	29.22	5.82	14.02
10020.90	RB 10033.00	562.40	54.17	14.66	16.64	4.48	10.38

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.83	9972.50	0.00	0.01	0.17	0.00	0.09	0.43
LB 9972.50	9984.60	180.06	26.20	12.91	5.33	2.17	6.87
9984.60	9996.70	622.37	54.13	12.33	18.41	4.47	11.50
9996.70	10008.80	1029.50	72.72	12.12	30.46	6.01	14.16
10008.80	10020.90	985.83	70.92	12.15	29.17	5.86	13.90
10020.90	RB 10033.00	562.23	54.65	14.70	16.63	4.52	10.29

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.702

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9812.4	1769.6	9818.3	1769.5	9849.1	1762.3	9864.1	1758.9	9869.7	1758.6
9873.8	1758.3	9906.4	1755.7	9914.8	1755.1	9918.5	1754.7	9929.4	1753.7
9933.5	1753.4	9944	1752.5	9958.8	1752.2	9964.7	1752.1	9964.8	1752.1
9968.2	1751.6	9975.6	1750.5	9980.1	1750.7	9982.7	1750.8	9986.3	1750.3
9991	1749.6	9999.6	1749.4	9999.9	1749.4	10010.3	1749.1	10013.9	1750.1
10019	1751.4	10022.9	1752.4	10024.1	1752.7	10024.7	1752.9	10031.2	1755.3
10047.8	1761.4	10066.8	1769.6	10069.7	1770.8	10075.6	1773.2	10094.4	1772.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9812.4	.055	9964.7	.04	10031.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964.7	10031.2	387.7	409.45	412.67	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9873.32	9903.78	0.01	0.03	0.85	0.00	0.03	0.19
9903.78	9934.24	87.30	40.51	30.57	2.58	1.33	2.15
9934.24	9964.70	435.02	106.09	30.50	12.87	3.48	4.10
LB 9964.70	9978.00	480.12	63.88	13.42	14.20	4.80	7.52
9978.00	9991.30	621.73	74.54	13.39	18.39	5.60	8.34
9991.30	10004.60	807.71	86.99	13.30	23.90	6.54	9.29
10004.60	10017.90	739.48	83.14	13.57	21.88	6.25	8.89
10017.90	RB 10031.20	208.06	39.30	13.96	6.16	2.95	5.29
10031.20	10052.27	0.58	0.62	1.96	0.02	0.34	0.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9964.70	9978.00	492.89	65.67	17.43	14.58	4.94	7.51
9978.00	9991.30	754.91	76.32	13.39	22.33	5.74	9.89
9991.30	10004.60	975.26	88.77	13.30	28.85	6.67	10.99
10004.60	10017.90	894.26	84.93	13.57	26.46	6.39	10.53
10017.90	RB 10031.20	261.53	41.08	13.96	7.74	3.09	6.37
10031.20	10052.27	1.14	0.87	2.09	0.03	0.47	1.31

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.624

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9907.8	1759.5	9932.7	1753.4	9952.7	1747.5	9968.2	1747.8	9971	1747.9
9980	1746.2	9980.6	1746.1	9984.9	1746	10008	1745.5	10012.8	1747.4
10014.6	1749	10018.1	1751.1	10025	1755.3	10031.1	1758.9	10041.3	1764
10054.4	1766.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9907.8	.055	9971	.04	10018.1	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971	10018.1	358.06	385.01	390.73	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.08	9945.72	13.92	5.20	6.19	0.41	0.88	2.68
9945.72	9958.36	262.37	40.68	12.94	7.76	3.22	6.45
9958.36	9971.00	317.34	45.18	12.64	9.39	3.57	7.02
LB 9971.00	9980.42	454.51	40.51	9.58	13.45	4.30	11.22
9980.42	9989.84	654.03	50.06	9.42	19.35	5.31	13.07
9989.84	9999.26	696.92	52.00	9.42	20.62	5.52	13.40
9999.26	10008.68	735.49	53.82	9.47	21.76	5.71	13.67
10008.68	RB 10018.10	245.40	29.49	10.92	7.26	3.13	8.32
10018.10	10030.20	0.02	0.04	0.41	0.00	0.11	0.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.08	9945.72	15.26	5.60	6.26	0.45	0.94	2.73
9945.72	9958.36	265.21	41.53	12.94	7.85	3.29	6.39
9958.36	9971.00	319.69	46.02	12.64	9.46	3.64	6.95
LB 9971.00	9980.42	454.98	41.14	9.58	13.46	4.37	11.06
9980.42	9989.84	651.51	50.69	9.42	19.28	5.38	12.85
9989.84	9999.26	693.70	52.63	9.42	20.52	5.59	13.18
9999.26	10008.68	731.59	54.45	9.47	21.64	5.78	13.44
10008.68	RB 10018.10	248.00	30.12	10.92	7.34	3.20	8.23
10018.10	10030.20	0.05	0.06	0.48	0.00	0.17	0.79

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.551

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9857.1	1757.5	9862.6	1755.4	9865.1	1754.4	9865.5	1754.2	9865.7	1754.2
9876.5	1750.5	9878.5	1749.7	9886.3	1747.2	9886.7	1747.1	9887.6	1746.9
9890.2	1746.6	9897.2	1745.5	9898.2	1745.4	9904.4	1744.6	9912.6	1744.1
9914.5	1744	9923.5	1744.3	9923.6	1744.3	9923.7	1744.3	9927.2	1743.9
9930.8	1743.2	9935.3	1742.9	9947.7	1742.8	9950	1743.1	9957	1743.1
9961.5	1742.5	9976.5	1743.9	9977.6	1744.1	9977.7	1744.1	9978	1744
9978.2	1743.9	9978.5	1743.9	9990.4	1740.9	9996	1740.9	10009.4	1741
10015.8	1740.9	10016.6	1740.9	10017.9	1741.6	10027.1	1746	10047.9	1756
10049.5	1756.2	10053.4	1757.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9857.1	.05	9977.6	.04	10027.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.6	10027.1	255.68	229.78	183.88	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9881.20	9905.30	33.05	12.28	13.20	0.98	0.94	2.69
9905.30	9929.40	240.81	51.51	24.18	7.12	2.14	4.68
9929.40	9953.50	502.62	80.06	24.16	14.87	3.32	6.28
9953.50	9977.60	455.77	75.58	24.22	13.48	3.14	6.03
LB 9977.60	9987.50	267.61	33.73	10.22	7.92	3.41	7.93
9987.50	9997.40	563.06	52.22	9.99	16.66	5.28	10.78
9997.40	10007.30	577.40	52.83	9.90	17.08	5.34	10.93
10007.30	10017.20	571.63	52.68	9.98	16.91	5.32	10.85
10017.20	RB 10027.10	167.98	26.26	10.99	4.97	2.65	6.40
10027.10	10035.87	0.06	0.08	0.65	0.00	0.14	0.76

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9881.20	9905.30	31.77	11.78	12.95	0.94	0.92	2.70
9905.30	9929.40	237.70	50.57	24.18	7.03	2.10	4.70
9929.40	9953.50	501.64	79.12	24.16	14.84	3.28	6.34
9953.50	9977.60	454.35	74.64	24.22	13.44	3.10	6.09
LB 9977.60	9987.50	267.10	33.34	10.22	7.90	3.37	8.01
9987.50	9997.40	565.83	51.84	9.99	16.74	5.24	10.92
9997.40	10007.30	580.32	52.44	9.90	17.17	5.30	11.07
10007.30	10017.20	574.51	52.29	9.98	17.00	5.28	10.99
10017.20	RB 10027.10	166.73	25.87	10.99	4.93	2.61	6.44
10027.10	10035.87	0.04	0.06	0.56	0.00	0.12	0.70

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.508

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9942.4	1764.9	9946.3	1764.7	9947.5	1764.7	9962.1	1748.8	9967.5	1742.8
9970	1740	9972.7	1737.3	9973.3	1736.8	9982.5	1737	9990	1737.3
9990.9	1737.3	9995.3	1738.3	9995.4	1738.3	10000	1738.1	10006.9	1737.7
10011.6	1738.5	10026.4	1740.8	10026.5	1740.8	10033.7	1741.3	10041.2	1741.8
10043.7	1742	10048.2	1741.9	10053.6	1741.7	10063	1742.2	10073.1	1742.7
10079.4	1743	10087.9	1744.6	10104.1	1748.1	10105.7	1748.3	10117.9	1750

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9942.4	.05	9967.5	.04	10026.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.5	10026.5	259.09	253.93	227.65	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.13	9967.50	0.06	0.08	0.55	0.00	0.21	0.83
LB 9967.50	9979.30	565.83	58.63	14.35	16.74	4.97	9.65
9979.30	9991.10	906.57	71.96	11.81	26.82	6.10	12.60
9991.10	10002.90	689.17	61.26	11.92	20.39	5.19	11.25
10002.90	10014.70	656.25	59.48	11.91	19.42	5.04	11.03
10014.70	RB 10026.50	325.72	39.11	11.94	9.64	3.31	8.33
10026.50	10044.78	135.82	32.64	18.32	4.02	1.79	4.16
10044.78	10063.06	80.94	23.92	18.30	2.39	1.31	3.38

10063.06	10081.34	19.64	10.05	17.51	0.58	0.58	1.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.13	9967.50	0.08	0.09	0.60	0.00	0.25	0.88
LB 9967.50	9979.30	564.07	59.19	14.35	16.69	5.02	9.53
9979.30	9991.10	901.09	72.52	11.81	26.66	6.15	12.42
9991.10	10002.90	686.56	61.82	11.92	20.31	5.24	11.10
10002.90	10014.70	654.06	60.04	11.91	19.35	5.09	10.89
10014.70	RB 10026.50	327.28	39.67	11.94	9.68	3.36	8.25
10026.50	10044.78	140.01	33.52	18.32	4.14	1.83	4.18
10044.78	10063.06	84.77	24.79	18.30	2.51	1.36	3.42
10063.06	10081.34	22.09	10.88	17.56	0.65	0.62	2.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.460

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9928.1	1751.6	9947	1739.5	9950.8	1737.1	9952.8	1736.9	9967.1	1736.2
9970	1736.3	9975.6	1735.6	9981.8	1735	9984.9	1734.4	9991.2	1734.3
10000.5	1734	10004.1	1734	10016.2	1736.3	10028.4	1738.6	10043.1	1739.2
10052.3	1739.5	10059.4	1739.7	10060.2	1739.7	10061.1	1739.7	10063.4	1739.8
10105.2	1741.3	10111.2	1741.5	10113.5	1741.6	10118.4	1742.8	10152.5	1751.1
10156.2	1751.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9928.1	.05	9947	.04	10028.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9947	10028.4	512.09	506.76	474.66	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9940.70	9947.00	0.80	0.61	1.63	0.02	0.44	1.33
LB 9947.00	9963.28	358.85	53.83	17.00	10.62	3.31	6.67
9963.28	9979.56	599.26	72.09	16.35	17.73	4.43	8.31
9979.56	9995.84	965.26	95.96	16.35	28.56	5.89	10.06
9995.84	10012.12	986.55	97.41	16.43	29.19	5.98	10.13
10012.12	RB 10028.40	366.73	53.98	16.57	10.85	3.32	6.79
10028.40	10053.96	87.39	32.66	25.58	2.59	1.28	2.68
10053.96	10079.52	15.15	11.41	25.58	0.45	0.45	1.33

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9940.70	9947.00	0.96	0.67	1.68	0.03	0.49	1.43
LB 9947.00	9963.28	375.65	54.60	17.00	11.11	3.35	6.88
9963.28	9979.56	623.56	72.86	16.35	18.45	4.48	8.56
9979.56	9995.84	999.99	96.74	16.35	29.59	5.94	10.34
9995.84	10012.12	1021.84	98.18	16.43	30.23	6.03	10.41
10012.12	RB 10028.40	358.00	54.75	18.40	10.59	3.36	6.54

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.364

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9913.4	1742.1	9919.1	1741.2	9925.3	1740.9	9931.9	1739.6	9935	1739.3
9944.1	1737.2	9945.9	1736.8	9949.3	1736.2	9952.7	1736	9953.2	1735.8
9958.9	1734.8	9962.8	1734.1	9964.8	1733.7	9973.5	1731.1	9975.8	1730.3
9981	1729.3	10002.5	1729.8	10020.4	1730.1	10027.4	1730.7	10033.3	1731.3
10052.2	1734.3	10052.3	1734.3	10068	1736.7	10090.4	1740.4	10099.8	1742.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9913.4	.05	9962.8	.04	10052.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962.8	10052.3	287.57	314.37	324.32	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.33	9962.80	0.36	0.32	1.93	0.01	0.17	1.13
LB 9962.80	9980.70	418.37	50.05	18.55	12.38	2.80	8.36
9980.70	9998.60	1105.50	88.41	17.91	32.71	4.94	12.50
9998.60	10016.50	967.67	81.61	17.90	28.63	4.56	11.86
10016.50	10034.40	729.81	69.00	17.97	21.59	3.86	10.58
10034.40	RB 10052.30	158.25	27.67	18.12	4.68	1.55	5.72
10052.30	10068.13	0.04	0.07	0.93	0.00	0.07	0.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.33	9962.80	0.42	0.36	1.95	0.01	0.19	1.18
LB 9962.80	9980.70	419.51	50.35	18.55	12.41	2.81	8.33
9980.70	9998.60	1103.69	88.71	17.91	32.65	4.96	12.44
9998.60	10016.50	966.55	81.91	17.90	28.60	4.58	11.80
10016.50	10034.40	729.79	69.31	17.97	21.59	3.87	10.53
10034.40	RB 10052.30	159.97	27.98	18.12	4.73	1.56	5.72
10052.30	10068.13	0.06	0.08	0.95	0.00	0.09	0.71

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.304

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9867.9	1734.5	9869.2	1734.2	9875.2	1733.5	9877.5	1733.4	9880.5	1733.3
9890	1732.5	9891.2	1732.4	9896.4	1731.8	9912.5	1731.1	9914.5	1730.8
9916.5	1730.8	9932.7	1729.6	9935.5	1729.4	9937.6	1729.3	9955	1728
9956.1	1728	9957	1727.8	9963.6	1726.7	9964.5	1726.6	9968	1726.6
9972.4	1726.7	9974.1	1726.7	9974.2	1726.7	9981.6	1725.2	9989.2	1725.2
10000.4	1725.2	10004	1725.3	10004.9	1725.2	10007.1	1725.1	10009.7	1725.1
10010.8	1725	10011.4	1725.1	10012.9	1725.3	10033.5	1729.8	10042.4	1731.8
10050.2	1733.5	10050.4	1733.5	10050.5	1733.5	10067.3	1738.5	10071	1739.6
10084.7	1743.6	10091.9	1746.6	10096.4	1747.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9867.9	.05	9974.1	.04	10042.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.1	10042.4	189.88	199.29	201.39	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9889.14	9910.38	5.80	6.42	15.29	0.17	0.42	0.90
9910.38	9931.62	66.91	31.83	21.31	1.98	1.50	2.10
9931.62	9952.86	213.95	63.92	21.29	6.33	3.01	3.35
9952.86	9974.10	472.80	103.01	21.37	13.99	4.85	4.59
LB 9974.10	9987.76	665.59	86.49	13.81	19.69	6.33	7.70
9987.76	10001.42	745.52	92.17	13.66	22.06	6.75	8.09
10001.42	10015.08	738.27	91.87	13.75	21.84	6.73	8.04
10015.08	10028.74	398.97	63.94	13.98	11.80	4.68	6.24
10028.74	RB 10042.40	72.16	22.93	13.99	2.13	1.68	3.15
10042.40	10060.40	0.02	0.05	0.70	0.00	0.07	0.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.86	9974.10	237.57	51.61	14.72	7.03	5.85	4.60
LB 9974.10	9987.76	787.40	93.96	13.81	23.30	6.88	8.38
9987.76	10001.42	874.76	99.65	13.66	25.88	7.29	8.78
10001.42	10015.08	866.62	99.34	13.75	25.64	7.27	8.72
10015.08	10028.74	494.25	71.41	13.98	14.62	5.23	6.92
10028.74	RB 10042.40	118.99	30.40	13.99	3.52	2.23	3.91
10042.40	10060.40	0.41	0.42	1.24	0.01	0.62	0.97

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.266

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9877.8	1734	9894.2	1733.3	9915.2	1730.8	9917.1	1730.6	9918.4	1730.5
9926.5	1729.6	9936.6	1728.5	9938.4	1728.3	9947.3	1727.1	9949.8	1726.8
9951.2	1726.6	9954	1726.5	9964.9	1725.7	9965	1725.7	9972.4	1724.6
9977.5	1723.8	9990.3	1723.4	10007.4	1722.8	10016.4	1729.1	10019.6	1731.3
10031.9	1739	10044	1746.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9877.8	.05	9964.9	.04	10016.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964.9	10016.4	497.34	496.37	477.49	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9930.06	9947.48	46.38	16.09	16.71	1.37	0.97	2.88
9947.48	9964.90	284.00	48.59	17.48	8.40	2.79	5.85
LB 9964.90	9975.20	446.87	43.00	10.42	13.22	4.18	10.39
9975.20	9985.50	685.10	55.39	10.33	20.27	5.38	12.37
9985.50	9995.80	764.55	59.10	10.31	22.62	5.74	12.94
9995.80	10006.10	845.37	62.78	10.31	25.01	6.09	13.47
10006.10	RB 10016.40	307.73	36.73	12.29	9.10	3.57	8.38

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

LB 9964.90	9975.20	423.76	45.57	14.09	12.54	4.42	9.30
9975.20	9985.50	777.92	57.96	10.33	23.02	5.63	13.42
9985.50	9995.80	864.12	61.67	10.31	25.57	5.99	14.01
9995.80	10006.10	951.59	65.34	10.31	28.15	6.34	14.56
10006.10	RB 10016.40	362.61	39.29	12.29	10.73	3.81	9.23
10016.40	10025.60	0.00	0.01	0.29	0.00	0.26	0.32

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.172

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9937.1	1735.8	9950.4	1730.3	9968.3	1722.9	9970.4	1722.1	9977.9	1719.6
9985.1	1717.1	9991.2	1717.2	9994.5	1717.3	10000.3	1717.4	10002.5	1717.6
10014.7	1718.4	10022.4	1719.2	10027.6	1719.7	10027.8	1719.8	10028.1	1719.8
10036.5	1720.6	10036.6	1720.6	10053.1	1721.3	10069.6	1722	10074	1722.5
10076.6	1722.6	10080.8	1722.8	10085.7	1723.2	10087.2	1723.2	10089	1723.3
10090.3	1723.3	10091.5	1723.4	10097	1724	10100.7	1724	10107	1724.4
10108.9	1724.6	10121.5	1725.2	10125.8	1725.4	10130.1	1725.6	10134.7	1725.7
10152.5	1726.9	10173.1	1727.8	10175.7	1728.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9937.1	.05	9968.3	.04	10036.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.3	10036.6	325.3	308.86	286.18	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.90	9968.30	0.02	0.03	0.40	0.00	0.08	0.57
LB 9968.30	9981.96	242.02	34.58	14.45	7.16	2.53	7.00
9981.96	9995.62	978.25	78.59	13.85	28.94	5.75	12.45
9995.62	10009.28	898.72	74.34	13.68	26.59	5.44	12.09
10009.28	10022.94	645.65	61.02	13.72	19.10	4.47	10.58
10022.94	RB 10036.60	353.37	42.53	13.74	10.45	3.11	8.31
10036.60	10064.42	233.41	51.86	27.85	6.91	1.86	4.50
10064.42	10092.24	28.56	12.76	19.54	0.85	0.65	2.24

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.90	9968.30	0.18	0.16	0.76	0.01	0.44	1.14
LB 9968.30	9981.96	292.08	39.47	14.45	8.64	2.89	7.40
9981.96	9995.62	1047.26	83.48	13.85	30.98	6.11	12.55
9995.62	10009.28	967.49	79.23	13.68	28.62	5.80	12.21
10009.28	10022.94	710.73	65.91	13.72	21.03	4.82	10.78
10022.94	RB 10036.60	362.26	47.42	16.56	10.72	3.47	7.64

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.114

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9959.4	1730.2	9974.3	1720.2	9977.1	1718.3	9978.4	1717.5	9981.9	1716.9
9987.7	1715.7	9996.8	1713.7	10016.1	1714	10021.3	1714.1	10023.1	1714.5
10029.3	1716.1	10037.6	1716.3	10046.8	1716.4	10072.4	1720.3	10081.9	1721.7
10088.6	1722.4	10103.7	1722.7	10130.2	1723.1	10138	1723.2	10141.2	1723.2
10148.7	1723.5	10171	1723.3	10207.8	1723.2	10230.1	1723.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9959.4	.05	9974.3	.04	10029.3	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

9974.3 10029.3 185.55 182.66 169.32 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.33	9974.30	0.00	0.01	0.16	0.00	0.04	0.28
LB 9974.30	9985.30	166.37	29.54	11.93	4.92	2.69	5.63
9985.30	9996.30	532.70	58.00	11.26	15.76	5.27	9.18
9996.30	10007.30	767.57	71.59	11.01	22.71	6.51	10.72
10007.30	10018.30	735.13	69.73	11.00	21.75	6.34	10.54
10018.30	RB 10029.30	569.52	60.36	11.25	16.85	5.49	9.44
10029.30	10069.46	608.15	119.16	40.42	17.99	2.97	5.10
10069.46	10109.62	0.56	0.62	2.90	0.02	0.22	0.89

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.33	9974.30	0.06	0.11	0.99	0.00	0.88	0.56
LB 9974.30	9985.30	240.09	38.68	11.93	7.10	3.52	6.21
9985.30	9996.30	625.93	67.14	11.26	18.52	6.10	9.32
9996.30	10007.30	863.40	80.73	11.01	25.54	7.34	10.69
10007.30	10018.30	831.07	78.87	11.00	24.59	7.17	10.54
10018.30	RB 10029.30	663.28	69.50	11.25	19.62	6.32	9.54
10029.30	10069.46	156.17	33.00	11.54	4.62	4.94	4.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 5.079

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9940.1	1741.2	9943.2	1740.5	9946.4	1740.1	9949.6	1739.8	9950.3	1739.7
9963.3	1728.6	9970.9	1722.5	9976.7	1717.5	9983.1	1711.9	9985.9	1711.8
9990	1711.6	9996.6	1712.3	10004.1	1712.4	10016	1712.3	10022.4	1713.8
10022.5	1713.8	10022.9	1713.8	10023.4	1713.9	10026.5	1714	10037	1714.5
10039.6	1714.6	10048.6	1715.9	10072	1719.3	10074.6	1719.6	10084	1720
10108.5	1721.4	10117.4	1721.3	10140.1	1720.7	10162.4	1720	10169.3	1719.8
10169.4	1719.8	10169.7	1719.8	10181	1721.1	10184.3	1721.5	10187.1	1721.8
10200.5	1722.4	10212.5	1723	10220.4	1723.3	10250.9	1724.2	10277.6	1726
10279.7	1726.7	10285.2	1727.7	10291.8	1728.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9940.1	.05	9976.7	.04	10022.4	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9976.7 10022.4 552.82 556.08 568.26 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.50	9976.70	0.02	0.03	0.32	0.00	0.10	0.62
LB 9976.70	9985.84	313.21	35.30	11.25	9.27	3.86	8.87
9985.84	9994.98	730.80	54.09	9.17	21.62	5.92	13.51
9994.98	10004.12	624.83	49.19	9.15	18.49	5.38	12.70
10004.12	10013.26	618.48	48.87	9.14	18.30	5.35	12.66
10013.26	RB 10022.40	524.39	44.59	9.31	15.51	4.88	11.76
10022.40	10076.28	568.26	93.41	38.89	16.81	2.42	6.08

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.50	9976.70	0.11	0.11	0.66	0.00	0.45	1.06

LB 9976.70	9985.84	379.24	38.43	11.25	11.22	4.20	9.87
9985.84	9994.98	843.51	57.22	9.17	24.96	6.26	14.74
9994.98	10004.12	727.76	52.32	9.15	21.53	5.72	13.91
10004.12	10013.26	720.84	52.00	9.14	21.33	5.69	13.86
10013.26	RB 10022.40	617.06	47.72	9.31	18.26	5.22	12.93
10022.40	10076.28	91.47	16.08	7.96	2.71	4.13	5.69

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.974

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9913.3	1721.4	9934.2	1721.3	9936.9	1721.3	9938.3	1721.2	9950.8	1721.3
9952	1721.2	9964.6	1714.4	9970.9	1711.2	9983.4	1704.8	9998.2	1704.8
10010.2	1704.6	10015.1	1704.7	10023	1705.6	10023.1	1705.6	10030.6	1704.9
10034.9	1705.2	10039.1	1705.2	10045.5	1705.3	10046.3	1705.3	10049.7	1705.3
10051.8	1705.5	10053.6	1705.8	10067	1707.1	10069.3	1707.3	10072.8	1707.6
10075.4	1707.6	10077.2	1707.5	10080.7	1707.7	10092	1706.2	10092.4	1706.2
10092.8	1706.3	10093.1	1706.4	10104.8	1709.2	10107.8	1709.3	10125.3	1710.1
10131.3	1712.2	10140.3	1717.7	10150	1720.6	10152.3	1720.8	10153.5	1720.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9913.3	.06	9970.9	.045	10072.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.9	10072.8	146.38	182.15	213.63	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10072.8	10153.5	1716.4

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.38	9970.90	0.00	0.02	0.32	0.00	0.07	0.23
LB 9970.90	9991.28	452.79	93.37	21.92	13.40	4.58	4.85
9991.28	10011.66	877.05	134.84	20.38	25.95	6.62	6.50
10011.66	10032.04	795.64	127.40	20.47	23.54	6.25	6.25
10032.04	10052.42	763.40	124.13	20.41	22.59	6.09	6.15
10052.42	RB 10072.80	491.11	95.40	20.48	14.53	4.68	5.15
10072.80	10099.70	0.00	112.34	27.22	0.00	4.18	0.00
10099.70	10126.60	0.00	50.42	27.14	0.00	1.87	0.00
10126.60	10153.50	0.00	0.89	2.39	0.00	0.39	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.38	9970.90	0.12	0.29	1.29	0.00	1.05	0.41
LB 9970.90	9991.28	490.45	113.29	21.92	14.51	5.56	4.33
9991.28	10011.66	865.92	154.76	20.38	25.62	7.59	5.60
10011.66	10032.04	795.42	147.32	20.47	23.53	7.23	5.40
10032.04	10052.42	767.73	144.04	20.41	22.71	7.07	5.33
10052.42	RB 10072.80	460.36	115.32	25.20	13.62	5.66	3.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.939

INPUT
Description: 100-year, 24-hour Peak Discharge of 4420 cfs from HEC-1 model at station C206.
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9849.2	1718.7	9855.5	1718.4	9855.7	1718.4	9855.9	1718.4	9862.2	1716.8
9884.8	1710.3	9890.6	1708.7	9921.3	1706.2	9926.9	1705.7	9929.2	1705.8
9931.2	1706.1	9945	1707.1	9959.3	1705.1	9960.5	1704.9	9970.6	1705.2
9971.3	1705.2	9971.4	1705.2	9972.2	1705	9974.7	1704.6	9982	1703.3
9990.7	1702.4	9998.6	1701.9	9999.3	1701.6	10004	1701.6	10009.8	1701.6
10016	1705.1	10019	1707.9	10024.7	1713.2	10029.2	1723.5	10030.5	1725.6
10042	1736	10042.1	1736	10048.8	1740.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9849.2	.05	9971.3	.04	10019	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.3	10019	231.58	293.38	306.05	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9873.62	9898.04	7.46	4.22	8.40	0.17	0.51	1.77
9898.04	9922.46	190.03	45.16	24.50	4.30	1.85	4.21
9922.46	9946.88	331.19	63.04	24.52	7.49	2.58	5.25
9946.88	9971.30	531.18	83.76	24.56	12.02	3.43	6.34
LB 9971.30	9980.84	439.30	43.88	9.69	9.94	4.60	10.01
9980.84	9990.38	691.55	57.40	9.60	15.65	6.02	12.05
9990.38	9999.92	858.45	65.40	9.62	19.42	6.85	13.13
9999.92	10009.46	969.31	70.11	9.54	21.93	7.35	13.83
10009.46	RB 10019.00	400.59	44.56	11.56	9.06	4.67	8.99
10019.00	10028.93	0.94	0.59	1.54	0.02	0.52	1.60

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.88	9971.30	546.79	72.78	22.49	12.37	3.72	7.51
LB 9971.30	9980.84	508.48	44.34	9.69	11.50	4.65	11.47
9980.84	9990.38	797.21	57.86	9.60	18.04	6.07	13.78
9990.38	9999.92	988.01	65.86	9.62	22.35	6.90	15.00
9999.92	10009.46	1114.73	70.57	9.54	25.22	7.40	15.80
10009.46	RB 10019.00	463.56	45.02	11.56	10.49	4.72	10.30
10019.00	10028.93	1.22	0.65	1.59	0.03	0.57	1.88

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.884

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9871.4	1709	9880.3	1708.6	9883.9	1708.5	9884.6	1708.4	9887.6	1708.4
9887.8	1708.4	9892.9	1707.6	9900.2	1705.6	9902	1704.9	9902.3	1704.9
9923.5	1701.8	9924.6	1701.7	9926.5	1701.6	9949.6	1700.8	9960.9	1699
9967.3	1697.8	9972.2	1697.5	9973.5	1697.4	9976.6	1698.4	9983.7	1700.3
9989.4	1697.9	9993.7	1697.1	9997.6	1697.4	10004.4	1697.9	10006.7	1698
10014.8	1703.1	10014.9	1703.1	10038	1718.7	10045.4	1725.7	10046.5	1727

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9871.4	.05	9949.6	.04	10014.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9949.6	10014.8	510.44	528.3	538.68	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9902.68	9918.32	13.59	5.96	9.12	0.31	0.66	2.28
9918.32	9933.96	166.73	33.32	15.71	3.77	2.13	5.00
9933.96	9949.60	264.54	43.89	15.65	5.99	2.81	6.03
LB 9949.60	9962.64	553.22	53.71	13.21	12.52	4.12	10.30
9962.64	9975.68	1039.72	78.51	13.24	23.52	6.02	13.24
9975.68	9988.72	657.94	60.58	13.76	14.89	4.65	10.86

9988.72	10001.76	1156.21	83.55	13.19	26.16	6.41	13.84
10001.76	RB 10014.80	567.20	56.62	14.52	12.83	4.34	10.02
10014.80	10025.37	0.87	0.53	1.49	0.02	0.42	1.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9949.60	9962.64	548.56	55.53	16.43	12.41	4.26	9.88
9962.64	9975.68	1171.71	80.32	13.24	26.51	6.16	14.59
9975.68	9988.72	749.73	62.39	13.76	16.96	4.78	12.02
9988.72	10001.76	1300.03	85.36	13.19	29.41	6.55	15.23
10001.76	RB 10014.80	648.52	58.43	14.52	14.67	4.48	11.10
10014.80	10025.37	1.44	0.70	1.63	0.03	0.56	2.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.784

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9905.3	1704.1	9931.5	1700.8	9963.5	1693.8	9971.6	1691.9	9976.6	1691.7
9987.8	1691.1	9998.4	1689.6	9998.7	1689.5	9999.2	1689.5	10007.8	1688.6
10009.7	1688.8	10017.3	1689.6	10018.5	1689.6	10029.1	1690	10042.7	1695
10049.1	1697.3	10057.6	1700.4	10059.6	1702	10069.7	1710.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9905.3	.05	9987.8	.04	10042.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.8	10042.7	476.4	484.84	494.36	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.80	9971.30	133.93	29.36	16.66	3.03	1.81	4.56
9971.30	9987.80	545.05	67.94	16.53	12.33	4.12	8.02
LB 9987.80	9998.78	720.71	58.49	11.10	16.31	5.33	12.32
9998.78	10009.76	1045.41	72.94	11.04	23.65	6.64	14.33
10009.76	10020.74	961.02	69.31	11.02	21.74	6.31	13.87
10020.74	10031.72	793.26	62.07	11.16	17.95	5.65	12.78
10031.72	RB 10042.70	219.71	29.28	11.70	4.97	2.67	7.50
10042.70	10051.70	0.90	0.58	1.92	0.02	0.32	1.54

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.30	9987.80	88.36	16.23	8.13	2.00	4.92	5.45
LB 9987.80	9998.78	839.26	63.51	11.10	18.99	5.78	13.21
9998.78	10009.76	1185.74	77.96	11.04	26.83	7.10	15.21
10009.76	10020.74	1096.16	74.33	11.02	24.80	6.77	14.75
10020.74	10031.72	916.71	67.09	11.16	20.74	6.11	13.66
10031.72	RB 10042.70	290.35	34.30	11.70	6.57	3.12	8.46
10042.70	10051.70	3.42	1.41	2.37	0.08	0.78	2.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.692

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9841.3	1693.9	9852.4	1693.5	9856.8	1693.2	9864.1	1692.8	9870.9	1692.4
9880.7	1691.7	9891.8	1690.8	9896.5	1690.6	9906.5	1689.9	9940	1688.9
9970.3	1687.5	9970.4	1687.5	9989.5	1682.7	9991.4	1682.2	9993.4	1682.2
10010.2	1681.9	10022.7	1683	10024.9	1683.2	10028.3	1684.1	10039.7	1686.5
10042.6	1688	10058.3	1696.3	10063.4	1698.8	10069.4	1702.2	10069.9	1702.5
10082.1	1710								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9841.3	.05	9970.4	.04	10042.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.4	10042.6	277.86	276.69	275.16	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9918.76	9944.58	0.03	0.07	1.71	0.00	0.04	0.38
9944.58	9970.40	43.49	17.44	25.85	0.98	0.68	2.49
LB 9970.40	9984.84	365.59	44.50	14.89	8.27	3.08	8.22
9984.84	9999.28	1186.71	89.61	14.65	26.85	6.21	13.24
9999.28	10013.72	1379.44	97.55	14.45	31.21	6.76	14.14
10013.72	10028.16	1079.87	84.55	14.60	24.43	5.86	12.77
10028.16	RB 10042.60	363.96	44.58	15.06	8.23	3.09	8.16
10042.60	10055.77	0.91	0.56	1.64	0.02	0.38	1.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9970.40	9984.84	346.12	43.43	16.08	7.83	3.01	7.97
9984.84	9999.28	1207.34	88.54	14.65	27.32	6.13	13.64
9999.28	10013.72	1405.72	96.48	14.45	31.80	6.68	14.57
10013.72	10028.16	1097.32	83.48	14.60	24.83	5.78	13.14
10028.16	RB 10042.60	362.77	43.51	15.06	8.21	3.01	8.34
10042.60	10055.77	0.73	0.45	1.48	0.02	0.35	1.60

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.640

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9799.6	1690.2	9800.2	1690.1	9806.5	1689.8	9811.3	1689.4	9821.8	1689
9832.4	1688.4	9836.5	1688.3	9852.8	1687.8	9857	1687.7	9862.1	1687.3
9863.5	1687.2	9876.9	1686.4	9882.7	1686	9889.6	1685.7	9891.5	1685.5
9895	1685.3	9901.8	1685.4	9908	1684.9	9914.7	1684.5	9920.4	1684.4
9925.1	1684.3	9928.1	1684.2	9939.9	1684.1	9947.1	1684	9961	1683.2
9974.1	1682.4	9974.2	1682.4	9975.2	1682.4	9982.6	1681	9989.5	1679.6
9993.6	1679.3	10004.3	1678.9	10014.3	1679.5	10021.2	1680	10029.3	1684.4
10029.4	1684.5	10042	1692.4	10044.8	1692.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9799.6	.05	9974.2	.04	10029.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.2	10029.4	238	210.63	162.54	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9869.44	9904.36	22.62	13.22	23.68	0.51	0.56	1.71
9904.36	9939.28	213.90	59.46	34.95	4.84	1.70	3.60
9939.28	9974.20	472.19	95.64	34.97	10.68	2.74	4.94
LB 9974.20	9985.24	482.79	50.84	11.23	10.92	4.61	9.50
9985.24	9996.28	864.27	71.88	11.14	19.55	6.51	12.02
9996.28	10007.32	1004.58	78.42	11.05	22.73	7.10	12.81
10007.32	10018.36	914.12	74.14	11.06	20.68	6.72	12.33
10018.36	RB 10029.40	440.76	49.78	12.21	9.97	4.51	8.85
10029.40	10034.53	4.77	2.14	3.08	0.11	0.82	2.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9869.44	9904.36	27.97	15.24	23.76	0.63	0.64	1.84
9904.36	9939.28	226.87	62.45	34.95	5.13	1.79	3.63
9939.28	9974.20	485.78	98.63	34.97	10.99	2.82	4.93
LB 9974.20	9985.24	482.05	51.79	11.23	10.91	4.69	9.31
9985.24	9996.28	855.27	72.83	11.14	19.35	6.60	11.74
9996.28	10007.32	992.33	79.37	11.05	22.45	7.19	12.50
10007.32	10018.36	904.01	75.08	11.06	20.45	6.80	12.04
10018.36	RB 10029.40	440.37	50.72	12.21	9.96	4.59	8.68
10029.40	10034.53	5.35	2.36	3.17	0.12	0.90	2.27

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.600

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9891	1708.9	9917.4	1705.3	9919.5	1704.9	9922.1	1704.5	9932.9	1702.5
9938.3	1701.7	9939.1	1701.6	9941.1	1701.3	9947.5	1700	9948.1	1699.9
9957.5	1695.7	9959.4	1695.1	9969.4	1693.5	9975.4	1690.3	9977.3	1688.4
9981.2	1685.7	9983	1684.7	9984.3	1681.3	9985.2	1678.8	9987.4	1678.4
9991.5	1677.1	9999.5	1673.5	10007.9	1674.5	10016.3	1675.6	10017.2	1675.6
10019.4	1675.9	10021.1	1676.4	10027.9	1678	10028.7	1678.1	10045.2	1679.9
10064.4	1681.9	10076.3	1682.1	10084.1	1682.2	10094.3	1682.8	10110.4	1683.1
10111.3	1683.2	10111.5	1683.2	10113.3	1683.1	10129.7	1683.9	10137.1	1684.2
10169.2	1686.3	10172.9	1686.5	10201.1	1695.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9891	.05	9984.3	.04	10028.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.3	10028.7	496.61	514.86	537.67	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.20	9984.30	0.47	0.39	1.53	0.01	0.72	1.21
LB 9984.30	9993.18	370.84	42.01	11.04	8.39	4.73	8.83
9993.18	10002.06	1019.00	72.59	9.51	23.05	8.17	14.04
10002.06	10010.94	1108.59	74.52	8.95	25.08	8.39	14.88
10010.94	10019.82	875.33	64.71	8.96	19.80	7.29	13.53
10019.82	RB 10028.70	556.91	49.69	9.13	12.60	5.60	11.21
10028.70	10063.18	461.11	95.60	34.67	10.43	2.77	4.82
10063.18	10097.66	27.74	16.70	29.96	0.63	0.56	1.66

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates

that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.20	9984.30	0.68	0.55	1.81	0.02	0.99	1.24
LB 9984.30	9993.18	374.51	44.52	11.04	8.47	5.01	8.41
9993.18	10002.06	988.71	75.09	9.51	22.37	8.46	13.17
10002.06	10010.94	1074.09	77.02	8.95	24.30	8.67	13.94
10010.94	10019.82	855.07	67.22	8.96	19.35	7.57	12.72
10019.82	RB 10028.70	554.28	52.20	9.13	12.54	5.88	10.62
10028.70	10063.18	520.28	105.33	34.67	11.77	3.05	4.94
10063.18	10097.66	52.37	25.15	30.24	1.18	0.84	2.08

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.502

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9918.4	1678.1	9927.4	1677.4	9941	1676.3	9945.2	1674.9	9959.1	1671.2
9965.9	1669.2	9966.1	1669.2	9973.4	1669.2	9979	1669.5	9979.1	1669.5
9989.3	1668.2	9996.8	1667.1	10013.4	1667.2	10022.8	1667.3	10029	1668.3
10034	1668.8	10036.2	1669.3	10038	1669.8	10039	1670	10043.2	1670.8
10045.7	1671.1	10049.4	1671.9	10053	1672.3	10056.6	1672.7	10063.4	1677.2
10067.2	1678.9	10086.8	1688.7	10087.9	1689.2	10088.1	1689.3	10089.9	1690
10090.9	1690.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9918.4	.065	9979.1	.05	10039	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.1	10039	316	378.26	399.37	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.75	9963.92	102.01	29.48	15.35	2.31	1.99	3.46
9963.92	9979.10	424.54	69.20	15.27	9.60	4.56	6.14
LB 9979.10	9991.08	571.10	61.35	12.08	12.92	5.12	9.31
9991.08	10003.06	861.42	78.41	12.04	19.49	6.55	10.99
10003.06	10015.04	894.51	80.04	11.98	20.24	6.68	11.18
10015.04	10027.02	843.57	77.41	12.03	19.09	6.46	10.90
10027.02	RB 10039.00	549.25	60.12	12.18	12.43	5.02	9.14
10039.00	10051.97	155.00	35.16	13.17	3.51	2.71	4.41
10051.97	10064.95	18.60	7.54	6.75	0.42	1.18	2.47

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9979.10	9991.08	583.53	61.14	16.42	13.20	5.10	9.54
9991.08	10003.06	1081.25	78.19	12.04	24.46	6.53	13.83
10003.06	10015.04	1122.90	79.83	11.98	25.40	6.66	14.07
10015.04	10027.02	1058.79	77.20	12.03	23.95	6.44	13.72
10027.02	RB 10039.00	573.53	59.91	16.01	12.98	5.00	9.57

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.430

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

9776	1680.1	9781.3	1677.7	9796.2	1677	9809	1676.5	9814.4	1676.2
9816.5	1676.2	9822.6	1675.7	9834.4	1673.8	9844.2	1673.4	9860	1672.9
9871.1	1670.6	9879.5	1668.9	9887	1669.2	9901.7	1670	9901.9	1670
9915.5	1669.1	9931.4	1668.3	9948.9	1665.4	9960.4	1663.4	9960.9	1663.3
9961.4	1663.3	9962.2	1663.2	9984.8	1662.7	10011.2	1661.7	10011.9	1661.7
10019.5	1668.1	10029.2	1676.4	10032.9	1679.8	10035	1680.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9776	.065	9931.4	.05	10019.5	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9931.4	10019.5	231.7	210.62	188.99	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9879.60	9931.40	1.56	1.61	8.00	0.04	0.20	0.97
LB 9931.40	9949.02	170.82	32.81	17.86	3.86	1.86	5.21
9949.02	9966.64	811.50	83.46	17.81	18.36	4.74	9.72
9966.64	9984.26	1143.54	102.10	17.62	25.87	5.80	11.20
9984.26	10001.88	1319.37	111.28	17.63	29.85	6.32	11.86
10001.88	RB 10019.50	972.98	97.41	19.96	22.01	5.53	9.99
10019.50	10024.67	0.22	0.21	0.93	0.01	0.30	1.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9879.60	9931.40	11.22	6.00	8.55	0.25	0.75	1.87
LB 9931.40	9949.02	221.96	42.51	17.86	5.02	2.41	5.22
9949.02	9966.64	822.40	93.16	17.81	18.61	5.29	8.83
9966.64	9984.26	1122.39	111.81	17.62	25.39	6.35	10.04
9984.26	10001.88	1279.59	120.98	17.63	28.95	6.87	10.58
10001.88	RB 10019.50	961.66	107.11	19.96	21.76	6.08	8.98
10019.50	10024.67	0.77	0.60	1.47	0.02	0.85	1.29

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.391

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934	1682.6	9939.5	1678.8	9942.7	1677	9953.6	1671.8	9958.9	1670.8
9965.4	1668.6	9967.9	1667.7	9974	1664.7	9974.4	1664.5	9974.6	1664.4
9975.1	1664.4	9980.3	1664.2	9980.3	1664.1	9984.8	1661.8	9992.7	1657.6
9997.5	1657.5	9997.6	1657.5	9997.8	1657.5	10008.9	1658.4	10011	1658.4
10022.2	1658.6	10039	1660.8	10039.1	1660.8	10053	1662.5	10065	1664.1
10070.5	1664.9	10079.3	1666.5	10096.5	1670.2	10101.7	1670.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934	.065	9980.3	.05	10039	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.3	10039	150.26	132.55	92.06	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.87	9980.30	8.77	4.26	7.04	0.20	0.62	2.06
LB 9980.30	9992.04	383.36	46.25	13.35	8.67	3.94	8.29
9992.04	10003.78	1169.61	86.11	11.85	26.46	7.33	13.58
10003.78	10015.52	1003.15	78.29	11.76	22.70	6.67	12.81
10015.52	10027.26	907.49	73.79	11.78	20.53	6.28	12.30
10027.26	RB 10039.00	610.19	58.26	11.84	13.81	4.96	10.47
10039.00	10051.54	244.54	43.13	12.63	5.53	3.44	5.67
10051.54	10064.08	87.05	23.22	12.65	1.97	1.85	3.75
10064.08	10076.62	5.82	3.62	7.01	0.13	0.52	1.61

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.87	9980.30	14.51	5.58	7.23	0.33	0.81	2.60
LB 9980.30	9992.04	438.53	48.50	13.35	9.92	4.13	9.04
9992.04	10003.78	1290.42	88.36	11.85	29.19	7.53	14.60
10003.78	10015.52	1111.45	80.53	11.76	25.15	6.86	13.80

10015.52	10027.26	1008.32	76.04	11.78	22.81	6.48	13.26
10027.26	RB 10039.00	556.77	60.51	16.23	12.60	5.15	9.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.365

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9959.8	1671.3	9961.6	1670.2	9964.6	1668.2	9964.9	1668.1	9965.5	1667.8
9974.7	1663	9980.3	1660.1	9983.1	1659.3	9989.8	1657.6	9997.1	1656
10011.1	1656.5	10013.9	1656.5	10015.2	1656.5	10028.9	1658.2	10039.2	1659.2
10045.1	1659.6	10053.7	1660.1	10071.7	1662.7	10080.2	1663.8	10099.4	1666.8
10114.5	1669.3	10132.1	1669.6	10134.7	1669.7	10136.4	1669.9	10137.2	1670

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9959.8	.065	9974.7	.05	10053.7	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.7	10053.7	193.53	177.76	145.31	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.73	9974.70	0.09	0.12	0.76	0.00	0.17	0.78
LB 9974.70	9990.50	433.15	57.20	16.85	9.80	3.62	7.57
9990.50	10006.30	1331.90	109.84	15.96	30.13	6.95	12.13
10006.30	10022.10	1254.61	105.69	15.86	28.38	6.69	11.87
10022.10	10037.90	792.48	80.30	15.89	17.93	5.08	9.87
10037.90	RB 10053.70	473.64	58.88	15.83	10.72	3.73	8.04
10053.70	10074.58	133.94	36.43	21.09	3.03	1.74	3.68
10074.58	10095.45	0.20	0.30	2.16	0.00	0.14	0.68

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.73	9974.70	0.04	0.05	0.51	0.00	0.12	0.66
LB 9974.70	9990.50	444.20	55.43	16.85	10.05	3.51	8.01
9990.50	10006.30	1401.02	108.06	15.96	31.70	6.84	12.97
10006.30	10022.10	1318.29	103.91	15.86	29.83	6.58	12.69
10022.10	10037.90	825.22	78.52	15.89	18.67	4.97	10.51
10037.90	RB 10053.70	431.23	57.10	18.97	9.76	3.61	7.55

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.332

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934.8	1668.7	9952	1658.1	9954	1657.2	9963.6	1657	9967.2	1656.9
9977	1656.2	9978.9	1655.8	9980.8	1655.6	9997.2	1652.7	10014.4	1654.5
10015.6	1654.7	10022.9	1656.8	10023.9	1657.2	10026.4	1657.6	10026.5	1657.6
10028.8	1657.7	10034.4	1658.7	10040.2	1660.2	10047.5	1661	10069.8	1664.3
10085.8	1667								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934.8	.05	9977	.04	10026.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977	10026.4	244.69	243.38	239.08	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9943.24	9951.68	9.62	3.42	3.91	0.22	1.03	2.81
9951.68	9960.12	163.62	25.75	8.69	3.70	3.05	6.35
9960.12	9968.56	197.73	28.52	8.45	4.47	3.38	6.93
9968.56	9977.00	245.19	32.48	8.46	5.55	3.85	7.55
LB 9977.00	9986.88	563.10	49.24	10.03	12.74	4.98	11.43
9986.88	9996.76	921.12	66.18	10.03	20.84	6.70	13.92
9996.76	10006.64	1039.87	70.90	9.94	23.53	7.18	14.67
10006.64	10016.52	796.64	60.52	9.98	18.02	6.13	13.16

10016.52	RB 10026.40	379.83	39.22	10.25	8.59	3.97	9.68
10026.40	10046.20	103.28	23.84	15.45	2.34	1.57	4.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9943.24	9951.68	10.42	3.67	3.99	0.24	1.10	2.84
9951.68	9960.12	166.26	26.39	8.69	3.76	3.13	6.30
9960.12	9968.56	200.15	29.16	8.45	4.53	3.45	6.86
9968.56	9977.00	247.10	33.11	8.46	5.59	3.92	7.46
LB 9977.00	9986.88	563.38	49.98	10.03	12.75	5.06	11.27
9986.88	9996.76	915.80	66.92	10.03	20.72	6.77	13.69
9996.76	10006.64	1032.60	71.64	9.94	23.36	7.25	14.41
10006.64	10016.52	793.39	61.26	9.98	17.95	6.20	12.95
10016.52	RB 10026.40	382.42	39.96	10.25	8.65	4.04	9.57
10026.40	10046.20	108.48	24.98	15.53	2.45	1.65	4.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.286

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9907.5	1665.7	9946.3	1655.3	9948.1	1654.8	9949	1654.6	9950.2	1654.5
9965.2	1652.8	9967.5	1652.3	9976.2	1650.9	9983.6	1650.6	10008	1650.8
10015.9	1651	10028.4	1655.8	10031.5	1656.9	10038	1659.1	10046	1659.8
10069.4	1661.5	10084.6	1662.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9907.5	.05	9965.2	.04	10031.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9965.2	10031.5	457.57	458.3	443.95	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9930.58	9942.12	0.84	0.69	2.35	0.02	0.30	1.22
9942.12	9953.66	98.62	22.95	11.80	2.23	1.99	4.30
9953.66	9965.20	264.96	41.26	11.61	5.99	3.58	6.42
LB 9965.20	9978.46	788.97	71.49	13.43	17.85	5.39	11.04
9978.46	9991.72	1049.87	84.45	13.26	23.75	6.37	12.43
9991.72	10004.98	1033.68	83.66	13.26	23.39	6.31	12.36
10004.98	10018.24	958.00	80.33	13.43	21.67	6.06	11.93
10018.24	RB 10031.50	225.05	34.42	14.17	5.09	2.60	6.54
10031.50	10049.20	0.01	0.02	0.40	0.00	0.06	0.47

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9965.20	9978.46	733.55	77.96	18.14	16.60	5.88	9.41
9978.46	9991.72	1167.89	90.91	13.26	26.42	6.86	12.85
9991.72	10004.98	1151.18	90.12	13.26	26.04	6.80	12.77
10004.98	10018.24	1072.19	86.79	13.43	24.26	6.55	12.35
10018.24	RB 10031.50	294.95	40.88	14.17	6.67	3.08	7.21
10031.50	10049.20	0.24	0.21	0.89	0.01	0.55	1.14

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.199

INPUT

Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9971.8	1660.3	9971.9	1660.2	9981.6	1651.6	9988.6	1645.4	10006.5	1645.6
10006.7	1645.6	10007	1645.6	10028	1645.9	10036.2	1647.5	10047.4	1649.7
10047.6	1649.7	10056.5	1650	10078.8	1650.2	10099.8	1653.5	10111.4	1655.2
10122.7	1655	10137.2	1654.9	10166.1	1654.9	10182.7	1652.4	10186.9	1651.7
10188.5	1651.7	10197.2	1651.5	10220.5	1655.2	10229.2	1656.4	10242.2	1656.2
10247.9	1655.9	10258.7	1656.8	10265.1	1657.2	10266.9	1657.4	10272	1657.5
10303.1	1658.6	10310.2	1659	10335.3	1660				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9971.8	.05	9981.6	.04	10047.4	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9981.6 10047.4 516.32 511.36 470.46 .1 .3
Right Levee Station= 10137.2 Elevation= 1656.9

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.33	9981.60	0.04	0.05	0.45	0.00	0.15	0.73
LB 9981.60	9994.76	628.40	63.57	15.51	14.22	4.83	9.89
9994.76	10007.92	1107.13	83.61	13.16	25.05	6.35	13.24
10007.92	10021.08	1059.54	81.44	13.16	23.97	6.19	13.01
10021.08	10034.24	927.27	75.44	13.28	20.98	5.73	12.29
10034.24	RB 10047.40	402.37	45.90	13.41	9.10	3.49	8.77
10047.40	10092.30	295.27	67.82	42.33	6.68	1.61	4.35

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.33	9981.60	0.11	0.10	0.61	0.00	0.31	1.02
LB 9981.60	9994.76	684.79	65.73	15.51	15.49	4.99	10.42
9994.76	10007.92	1190.66	85.77	13.16	26.94	6.52	13.88
10007.92	10021.08	1140.76	83.60	13.16	25.81	6.35	13.65
10021.08	10034.24	1001.77	77.61	13.28	22.66	5.90	12.91
10034.24	RB 10047.40	401.92	48.06	15.77	9.09	3.65	8.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.102

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9958.4	1659	9961.6	1656.2	9972.2	1647.8	9974.9	1645.7	9981.3	1640.4
9989	1640.4	10012	1640.3	10019.1	1641.7	10024.4	1642.8	10025.5	1643
10035.8	1642.6	10054	1644.6	10054.1	1644.6	10060	1644.8	10064.1	1644.9
10082.5	1645.2	10109.7	1645.6	10116.2	1645.6	10122.3	1645.8	10125.6	1645.9
10144.3	1644.6	10146.9	1644.4	10158.2	1645.5	10164.7	1646.1	10176.2	1647.2
10191.8	1647.8	10198.3	1648	10210.3	1648.5	10224	1648.1	10238	1647.1
10241.5	1647.4	10241.6	1647.4	10264.2	1649	10267	1649	10274.4	1649.4
10292	1650.4	10321.8	1653.9	10325.2	1654.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9958.4	.05	9974.9	.04	10054.1	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9974.9 10054.1 149.41 160.74 169.93 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
10210.3	10325.2	1651.7

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.40	9974.90	0.95	0.62	1.60	0.02	0.49	1.54
LB 9974.90	9990.74	800.82	82.57	17.75	18.12	5.21	9.70
9990.74	10006.58	1192.52	100.19	15.84	26.98	6.33	11.90
10006.58	10022.42	993.88	90.28	16.05	22.49	5.70	11.01

10022.42	10038.26	533.55	61.97	15.92	12.07	3.91	8.61
10038.26	RB 10054.10	331.78	46.61	15.93	7.51	2.94	7.12
10054.10	10080.13	183.11	45.71	26.04	4.14	1.76	4.01
10080.13	10106.17	114.80	34.54	26.04	2.60	1.33	3.32
10106.17	10132.20	73.27	26.39	26.05	1.66	1.01	2.78
10132.20	10158.23	180.78	45.42	26.12	4.09	1.74	3.98
10158.23	10184.27	14.53	7.48	12.62	0.33	0.60	1.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.40	9974.90	0.94	0.59	1.56	0.02	0.48	1.61
LB 9974.90	9990.74	845.55	82.14	17.75	19.13	5.19	10.29
9990.74	10006.58	1261.07	99.76	15.84	28.53	6.30	12.64
10006.58	10022.42	1050.19	89.85	16.05	23.76	5.67	11.69
10022.42	10038.26	561.72	61.54	15.92	12.71	3.88	9.13
10038.26	RB 10054.10	347.96	46.18	15.93	7.87	2.92	7.53
10054.10	10080.13	194.73	45.00	26.04	4.41	1.73	4.33
10080.13	10106.17	121.05	33.83	26.04	2.74	1.30	3.58
10106.17	10132.20	36.78	12.44	12.74	0.83	1.06	2.96

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.072

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9842.2	1650	9851.2	1647.8	9855	1647.1	9856.2	1647.1	9867.1	1646.7
9869.1	1646.5	9869.2	1646.5	9876.3	1646.4	9883.1	1646	9889.3	1645
9893.5	1644.6	9897.4	1644.2	9915	1644.2	9928.9	1644.4	9935.4	1644.5
9938.8	1644	9949	1642.5	9965	1640.3	9967.4	1639.7	9980.5	1640
9982.7	1640	9992.6	1639.7	10019.7	1638.7	10029	1640.2	10031	1640.5
10037.6	1642	10042.3	1643	10042.4	1643.1	10043.6	1643.1	10045.1	1643.1
10060.1	1643.2	10072.6	1643.7	10083.6	1644.6	10087	1644.6	10092.4	1643.5
10096.1	1642.6	10097	1642.5	10105.7	1643.3	10109.6	1643.6	10115.4	1643.8
10132.3	1644.2	10136.6	1644.7	10144.8	1645.4	10154.1	1645.2	10163.9	1645
10180.8	1645.3	10202.1	1646	10203.7	1646.1	10204.3	1646.1	10206.8	1646.2
10228.3	1647.2	10233.8	1647.3	10249.1	1648	10262.8	1648.3	10269.3	1648.5
10290.4	1649.3	10301.8	1649.5	10304.4	1651.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9842.2	.05	9938.8	.04	10042.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9938.8	10042.3	198.08	311.7	344.2	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
9842.2	9938.8	1649.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9874.40	9906.60	0.00	8.19	15.84	0.00	0.52	0.00
9906.60	9938.80	0.00	18.01	32.24	0.00	0.56	0.00
LB 9938.80	9959.50	273.78	48.74	20.91	6.19	2.35	5.62
9959.50	9980.20	891.02	98.80	20.83	20.16	4.77	9.02
9980.20	10000.90	1002.68	105.81	20.71	22.69	5.11	9.48
10000.90	10021.60	1247.02	120.66	20.74	28.21	5.83	10.33
10021.60	RB 10042.30	658.27	82.80	21.09	14.89	4.00	7.95
10042.30	10094.72	199.01	64.99	52.69	4.50	1.24	3.06
10094.72	10147.14	148.22	50.61	43.87	3.35	1.16	2.93

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9938.80	9959.50	294.92	53.39	21.99	6.67	2.58	5.52
9959.50	9980.20	920.82	103.45	20.83	20.83	5.00	8.90
9980.20	10000.90	1031.08	110.45	20.71	23.33	5.34	9.33
10000.90	10021.60	1271.28	125.31	20.74	28.76	6.05	10.15
10021.60	RB 10042.30	690.15	87.45	21.09	15.61	4.22	7.89
10042.30	10094.72	211.75	58.04	33.95	4.79	1.77	3.65

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 4.013

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9697	1649.4	9700.3	1648.2	9711.7	1644	9719.6	1643.3	9729	1642.5
9731.4	1642.5	9743.7	1642.1	9757.3	1641.8	9772.4	1642	9783.2	1642.1
9795.5	1642.2	9827.7	1642.1	9838.7	1641.6	9843	1641.4	9861.9	1640.8
9870.8	1640	9879.8	1639.3	9892.7	1640	9903.4	1640.6	9909	1640.4
9924.3	1640.5	9930.2	1640.6	9930.3	1640.6	9934.2	1639.8	9947.4	1636.9
9954	1636.9	9964.7	1636.1	9974.4	1637.9	9976.7	1638.3	9977.5	1638.2
9980	1637.3	9986.6	1635	9989.7	1634.9	9992.9	1634.8	10007.3	1634.3
10017.3	1641.1	10020.9	1643.5	10042.9	1658.3	10044.1	1660.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9697	.05	9930.2	.04	10017.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9930.2	10017.3	240.45	270.83	270.31	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9836.92	9883.56	106.12	35.96	39.15	2.40	0.92	2.95
9883.56	9930.20	159.32	49.22	46.67	3.60	1.06	3.24
LB 9930.20	9947.62	315.95	45.19	17.82	7.15	2.59	6.99
9947.62	9965.04	866.60	82.11	17.46	19.61	4.71	10.55
9965.04	9982.46	659.55	70.44	17.92	14.92	4.04	9.36
9982.46	9999.88	1411.15	110.56	17.67	31.93	6.35	12.76
9999.88	RB 10017.30	901.27	87.90	19.52	20.39	5.05	10.25
10017.30	10026.23	0.03	0.05	0.46	0.00	0.13	0.70

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9883.56	9930.20	123.27	39.91	43.81	2.79	0.95	3.09
LB 9930.20	9947.62	322.98	44.51	17.82	7.31	2.55	7.26
9947.62	9965.04	896.09	81.43	17.46	20.27	4.67	11.00
9965.04	9982.46	680.42	69.76	17.92	15.39	4.00	9.75
9982.46	9999.88	1464.42	109.87	17.67	33.13	6.31	13.33
9999.88	RB 10017.30	932.79	87.22	19.52	21.10	5.01	10.69
10017.30	10026.23	0.02	0.03	0.38	0.00	0.11	0.66

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.961

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9728.4	1649.8	9747.1	1642.1	9751.6	1640.3	9752.1	1640.3	9797.8	1638.5
9819.7	1638.4	9837.3	1638.5	9845.8	1638.3	9928	1635.7	9928.1	1635.7

9929.1	1635.6	9930.1	1635.6	9932.2	1635.5	9936.8	1635	9959.1	1633
9968.7	1632.3	9978.1	1631.7	9986.5	1631.7	9989.4	1631.8	10001.7	1631.7
10001.8	1631.7	10002.4	1631.8	10025.2	1637.5	10034.8	1639.9	10037	1639.9
10049.2	1642.1	10053.4	1642.9	10059.7	1643.4	10074.4	1644.3	10099.2	1646.2
10113.1	1648.8	10116.1	1649.6	10119.9	1650.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9728.4	.05	9928.1	.04	10025.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9928.1	10025.2	211.31	203.9	177.64	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9848.22	9888.16	12.77	9.12	24.02	0.29	0.38	1.40
9888.16	9928.10	185.01	55.56	39.96	4.19	1.39	3.33
LB 9928.10	9947.52	385.80	54.41	19.50	8.73	2.80	7.09
9947.52	9966.94	858.07	87.88	19.49	19.41	4.53	9.76
9966.94	9986.36	1304.97	112.91	19.44	29.52	5.81	11.56
9986.36	10005.78	1328.49	114.34	19.53	30.06	5.89	11.62
10005.78	RB 10025.20	344.83	51.40	20.02	7.80	2.65	6.71
10025.20	10056.77	0.07	0.10	0.90	0.00	0.11	0.68

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9928.10	9947.52	378.36	53.91	21.49	8.56	2.78	7.02
9947.52	9966.94	903.19	87.38	19.49	20.43	4.50	10.34
9966.94	9986.36	1376.47	112.42	19.44	31.14	5.79	12.24
9986.36	10005.78	1401.41	113.85	19.53	31.71	5.86	12.31
10005.78	RB 10025.20	360.53	50.91	20.02	8.16	2.62	7.08
10025.20	10056.77	0.05	0.08	0.80	0.00	0.10	0.67

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.923

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9914.4	1641.5	9929.8	1635.3	9935.5	1635	9939.9	1634.9	9961.3	1635.6
9967.6	1635.8	9968.8	1635.5	9968.9	1635.4	9993.6	1629.3	10000.5	1629.1
10009	1629	10025.9	1629.7	10029	1629.9	10030.7	1630.1	10032	1630.3
10036.6	1631	10047.1	1632.4	10052.1	1632.3	10054.7	1632.2	10060.6	1633.5
10067.7	1635.2	10072.5	1636.3	10077.3	1636.7	10124.7	1636.5	10127.6	1636.5
10135.6	1637.9	10155.6	1641.5	10157.6	1641.8	10158.1	1641.8	10167.6	1645.2
10171.1	1646.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9914.4	.05	9968.9	.04	10067.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.9	10067.7	252.21	254.81	248.59	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9925.30	9936.20	8.76	4.85	7.84	0.20	0.63	1.81
9936.20	9947.10	20.40	9.19	10.91	0.46	0.84	2.22
9947.10	9958.00	9.15	5.68	10.91	0.21	0.52	1.61
9958.00	9968.90	1.69	2.06	10.98	0.04	0.19	0.82
LB 9968.90	9988.66	363.99	56.81	20.35	8.24	2.88	6.41
9988.66	10008.42	1444.46	128.76	19.91	32.68	6.52	11.22
10008.42	10028.18	1425.11	127.38	19.78	32.24	6.45	11.19
10028.18	10047.94	828.58	92.29	19.93	18.75	4.67	8.98
10047.94	RB 10067.70	316.74	52.01	20.10	7.17	2.63	6.09
10067.70	10102.17	1.12	0.88	2.84	0.03	0.32	1.27

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9968.90	9988.66	386.28	63.10	21.11	8.74	3.19	6.12
9988.66	10008.42	1427.43	135.05	19.91	32.29	6.83	10.57
10008.42	10028.18	1409.50	133.67	19.78	31.89	6.76	10.54

10028.18	10047.94	844.08	98.58	19.93	19.10	4.99	8.56
10047.94	RB 10067.70	349.69	58.30	20.10	7.91	2.95	6.00
10067.70	10102.17	3.01	1.76	3.16	0.07	0.64	1.71

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.874

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9932	1644	9932.6	1643.9	9950	1642.5	9957.7	1639.1	9970.4	1633.8
9987.7	1626.7	9998.9	1626.8	10001.4	1626.8	10002.6	1626.9	10019.1	1627.8
10031.5	1629.9	10036.2	1630.7	10040.6	1630.7	10042.4	1630.7	10045.1	1630.9
10064.4	1632.2	10066.3	1632.3	10099.3	1633	10100.2	1633	10102.7	1633.1
10110.2	1633	10132	1632.7	10139.7	1632.2	10142	1632.2	10155.7	1632.3
10156.9	1632.3	10157.2	1632.2	10162.4	1631.6	10168	1630.8	10168.5	1630.8
10168.9	1630.8	10171.2	1631.7	10210.2	1645.8	10214.8	1647.5	10216.6	1648.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9932	.05	9970.4	.04	10099.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.4	10099.3	238.62	262.62	242.22	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.60	9970.40	0.49	0.50	1.67	0.01	0.32	0.98
LB 9970.40	9996.18	1003.20	137.89	27.18	22.70	5.35	7.28
9996.18	10021.96	1683.64	184.39	25.85	38.09	7.15	9.13
10021.96	10047.74	738.26	112.69	26.00	16.70	4.37	6.55
10047.74	10073.52	302.59	65.81	25.82	6.85	2.55	4.60
10073.52	RB 10099.30	156.36	44.26	25.79	3.54	1.72	3.53
10099.30	10122.76	95.00	34.45	23.46	2.15	1.47	2.76
10122.76	10146.22	150.62	45.44	23.48	3.41	1.94	3.32
10146.22	10169.68	246.88	61.27	23.63	5.59	2.61	4.03
10169.68	10193.14	42.97	15.03	9.70	0.97	1.65	2.86

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.60	9970.40	0.28	0.29	1.27	0.01	0.24	0.99
LB 9970.40	9996.18	1148.61	133.91	27.18	25.99	5.19	8.58
9996.18	10021.96	1951.84	180.40	25.85	44.16	7.00	10.82
10021.96	10047.74	835.91	108.71	26.00	18.91	4.22	7.69
10047.74	10073.52	327.84	61.83	25.82	7.42	2.40	5.30
10073.52	RB 10099.30	155.50	40.28	27.08	3.52	1.56	3.86

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.825

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9914.1	1637.2	9920.9	1636.2	9927.1	1635.7	9937.1	1634.2	9947.7	1630
9956.5	1627.4	9957.8	1626.9	9968	1624.5	9970.6	1623.9	9972.6	1623.8
9984.1	1623.8	9988.4	1622.7	9991.9	1621.5	10001	1622.2	10006.9	1622.6
10007.5	1622.6	10013.2	1627.1	10017.1	1630	10025.1	1636.1	10033.2	1638.3
10033.4	1638.4	10033.6	1638.4	10034.1	1638.6	10049.8	1644.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9914.1	.05	9984.1	.04	10017.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.1	10017.1	304.35	286.56	267.43	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.10	9956.10	57.14	16.58	10.57	1.29	1.64	3.45
9956.10	9970.10	511.36	69.96	14.44	11.57	5.00	7.31
9970.10	9984.10	883.12	95.95	14.02	19.98	6.85	9.20

LB 9984.10	9990.70	644.23	51.11	6.87	14.58	7.74	12.60
9990.70	9997.30	836.37	59.13	6.69	18.92	8.96	14.14
9997.30	10003.90	771.68	56.12	6.62	17.46	8.50	13.75
10003.90	10010.50	589.26	49.99	7.43	13.33	7.57	11.79
10010.50	RB 10017.10	126.49	20.76	8.30	2.86	3.15	6.09
10017.10	10028.00	0.34	0.29	1.10	0.01	0.33	1.17

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.10	9956.10	56.02	16.24	10.48	1.27	1.62	3.45
9956.10	9970.10	509.97	69.50	14.44	11.54	4.96	7.34
9970.10	9984.10	883.38	95.48	14.02	19.99	6.82	9.25
LB 9984.10	9990.70	644.75	50.89	6.87	14.59	7.71	12.67
9990.70	9997.30	837.87	58.91	6.69	18.96	8.93	14.22
9997.30	10003.90	772.81	55.90	6.62	17.48	8.47	13.83
10003.90	10010.50	589.65	49.77	7.43	13.34	7.54	11.85
10010.50	RB 10017.10	125.26	20.54	8.30	2.83	3.11	6.10
10017.10	10028.00	0.30	0.26	1.04	0.01	0.32	1.14

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.770

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9961	1635.4	9961.3	1635.4	9967.7	1634.7	9970.8	1634.4	9973.2	1632
9978.3	1625.4	9984.1	1618.1	10012.9	1618.9	10017.1	1618.9	10026.8	1625.3
10037.3	1632.2	10052.5	1641.4	10057.1	1643				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9961	.05	9978.3	.04	10026.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.3	10026.8	222.13	242.29	234.28	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9972.53	9978.30	0.16	0.14	0.75	0.00	0.30	1.15
LB 9978.30	9988.00	606.69	55.17	13.23	13.73	5.69	11.00
9988.00	9997.70	1221.93	74.19	9.70	27.65	7.65	16.47
9997.70	10007.40	1150.92	71.57	9.70	26.04	7.38	16.08
10007.40	10017.10	1088.38	69.21	9.70	24.62	7.13	15.73
10017.10	RB 10026.80	351.35	37.75	11.62	7.95	3.89	9.31
10026.80	10036.90	0.57	0.36	1.26	0.01	0.35	1.57

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9972.53	9978.30	0.19	0.16	0.79	0.00	0.34	1.20
LB 9978.30	9988.00	607.84	55.62	13.23	13.75	5.73	10.93
9988.00	9997.70	1220.04	74.64	9.70	27.60	7.69	16.35
9997.70	10007.40	1149.57	72.02	9.70	26.01	7.43	15.96
10007.40	10017.10	1087.48	69.66	9.70	24.60	7.18	15.61
10017.10	RB 10026.80	354.20	38.20	11.62	8.01	3.94	9.27
10026.80	10036.90	0.68	0.41	1.30	0.02	0.39	1.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.725

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9871.9	1627	9891.9	1627.1	9898.3	1626.6	9904.4	1626.2	9910.1	1625.5
9917.5	1623.4	9940.5	1617.4	9949	1617.3	9953.8	1617	9958.7	1617.7
9966.2	1618.5	9967.3	1618.5	9969.7	1618.4	9992.7	1617.6	10000	1617.1
10013.8	1616.2	10015.1	1616.1	10016	1616.9	10017	1617.3	10022.8	1621.5
10041	1634.5	10043.6	1635.8	10044.3	1636.5	10049.4	1639.7	10050.3	1640.3
10054.2	1640.6	10056.4	1640.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9871.9	.065	9969.7	.05	10022.8	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.7	10022.8	96.81	141.11	161.48	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9911.02	9930.58	31.95	9.39	8.77	0.72	1.11	3.40
9930.58	9950.14	680.61	81.65	19.90	15.40	4.17	8.34
9950.14	9969.70	751.07	86.21	19.66	16.99	4.41	8.71
LB 9969.70	9980.32	473.57	42.33	10.63	10.71	3.99	11.19
9980.32	9990.94	548.97	46.25	10.63	12.42	4.35	11.87
9990.94	10001.56	655.87	51.49	10.64	14.84	4.85	12.74
10001.56	10012.18	821.26	58.93	10.64	18.58	5.55	13.94
10012.18	RB 10022.80	456.18	43.98	12.37	10.32	4.14	10.37
10022.80	10034.00	0.52	0.34	1.21	0.01	0.35	1.50

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9911.02	9930.58	32.01	9.40	8.77	0.72	1.11	3.40
9930.58	9950.14	680.66	81.68	19.90	15.40	4.18	8.33
9950.14	9969.70	751.10	86.25	19.66	16.99	4.41	8.71
LB 9969.70	9980.32	473.59	42.34	10.63	10.71	3.99	11.18
9980.32	9990.94	548.97	46.27	10.63	12.42	4.36	11.86
9990.94	10001.56	655.82	51.51	10.64	14.84	4.85	12.73
10001.56	10012.18	821.14	58.95	10.64	18.58	5.55	13.93
10012.18	RB 10022.80	456.19	44.00	12.37	10.32	4.14	10.37
10022.80	10034.00	0.52	0.35	1.21	0.01	0.35	1.51

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.698

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9802.9	1626.5	9812.7	1626.1	9816.4	1626	9817.9	1625.9	9850.7	1623.2
9854.7	1622.8	9864.8	1622	9875.8	1617.5	9885.5	1613.7	9895	1614.2
9918.4	1616.6	9920.2	1616.9	9921.6	1617	9924.5	1616.9	9931.8	1616.9
9953.3	1618.6	9954.6	1618.7	9955.4	1618.8	9962	1618.6	9962.1	1618.6
9976.9	1617.4	9985.5	1616.7	9994.1	1615.7	10004.4	1614	10005.5	1613.9
10006.8	1613.7	10007.8	1613.7	10010.6	1619.9	10018.5	1637	10029.9	1659.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9802.9	.065	9962	.05	10010.6	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962	10010.6	66.46	199.98	211.64	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9834.72	9866.54	0.10	0.17	0.99	0.00	0.19	0.59
9866.54	9898.36	1028.11	177.54	33.31	23.26	5.58	5.79
9898.36	9930.18	1063.25	178.17	31.95	24.06	5.60	5.97
9930.18	9962.00	532.62	117.60	31.90	12.05	3.70	4.53
LB 9962.00	9971.72	188.87	33.51	9.75	4.27	3.45	5.64
9971.72	9981.44	266.21	41.17	9.75	6.02	4.24	6.47
9981.44	9991.16	360.43	49.42	9.77	8.15	5.08	7.29
9991.16	10000.88	513.14	61.23	9.83	11.61	6.30	8.38
10000.88	RB 10010.60	466.56	66.22	13.79	10.56	6.81	7.05
10010.60	10017.03	0.72	0.72	1.94	0.02	0.88	1.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9834.72	9866.54	0.10	0.17	0.99	0.00	0.19	0.59
9866.54	9898.36	1028.04	177.63	33.31	23.26	5.58	5.79
9898.36	9930.18	1063.17	178.26	31.95	24.05	5.60	5.96
9930.18	9962.00	532.81	117.69	31.90	12.05	3.70	4.53
LB 9962.00	9971.72	188.96	33.53	9.75	4.28	3.45	5.63
9971.72	9981.44	266.26	41.20	9.75	6.02	4.24	6.46
9981.44	9991.16	360.44	49.45	9.77	8.15	5.09	7.29
9991.16	10000.88	513.05	61.26	9.83	11.61	6.30	8.37
10000.88	RB 10010.60	466.45	66.25	13.79	10.55	6.82	7.04
10010.60	10017.03	0.72	0.72	1.94	0.02	0.89	1.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.660

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9910	1624.1	9914.2	1623.7	9920.2	1623.2	9930.3	1622.8	9933.4	1622.2
9934.1	1622.1	9935	1621.9	9941	1620.7	9954.9	1617.7	9960.7	1615.8
9967.1	1613.8	9971.7	1612.3	9972.2	1612.1	9975.8	1610.8	9983.9	1609.8
9984.3	1609.8	9985	1609.8	9999.8	1610.2	10011.2	1610.3	10015.4	1610.3
10016.6	1616.6	10017.1	1618.7	10021.7	1639				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9910	.065	9954.9	.05	10017.1	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954.9	10017.1	80.74	88.02	87.39	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.93	9954.90	8.83	5.28	7.16	0.20	0.76	1.67
LB 9954.90	9967.34	246.10	43.80	13.06	5.57	3.52	5.62
9967.34	9979.78	866.39	92.92	12.96	19.60	7.47	9.32
9979.78	9992.22	1273.66	115.31	12.47	28.82	9.27	11.05
9992.22	10004.66	1229.19	112.76	12.44	27.81	9.06	10.90
10004.66	RB 10017.10	795.82	103.57	19.31	18.00	8.33	7.68
10017.10	10018.63	0.01	0.03	0.52	0.00	0.26	0.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.93	9954.90	8.64	5.19	7.09	0.20	0.75	1.67
LB 9954.90	9967.34	245.20	43.63	13.06	5.55	3.51	5.62
9967.34	9979.78	866.26	92.75	12.96	19.60	7.46	9.34
9979.78	9992.22	1274.25	115.13	12.47	28.83	9.26	11.07
9992.22	10004.66	1229.69	112.59	12.44	27.82	9.05	10.92
10004.66	RB 10017.10	795.96	103.40	19.31	18.01	8.31	7.70
10017.10	10018.63	0.01	0.03	0.51	0.00	0.25	0.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.643

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9927.9	1630.3	9934.4	1626.2	9950.7	1616.7	9952	1615.8	9952.9	1615.4
9958	1614.8	9969.3	1613.4	9970.4	1613.1	9975	1612.1	9985	1609.8
9986.7	1609.5	9991	1609.5	10014.3	1609.4	10019.6	1616.3	10023.3	1621.2
10025	1623	10026.9	1625.3	10028.5	1625.8	10034.3	1627.2	10036.6	1629.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9927.9	.065	9969.3	.05	10019.6	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.3	10019.6	168.31	131.19	100.41	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.70	9955.50	17.64	5.62	5.30	0.40	1.15	3.14
9955.50	9969.30	190.89	34.54	13.90	4.32	2.50	5.53
LB 9969.30	9979.36	487.98	45.46	10.32	11.04	4.52	10.73
9979.36	9989.42	945.93	67.39	10.23	21.40	6.70	14.04
9989.42	9999.48	1096.82	73.15	10.06	24.82	7.27	14.99
9999.48	10009.54	1107.67	73.58	10.06	25.06	7.31	15.05
10009.54	RB 10019.60	572.98	55.67	13.46	12.96	5.53	10.29
10019.60	10025.27	0.07	0.08	0.57	0.00	0.23	0.84

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.70	9955.50	18.31	5.80	5.33	0.41	1.18	3.16
9955.50	9969.30	193.61	35.03	13.90	4.38	2.54	5.53
LB 9969.30	9979.36	489.51	45.82	10.32	11.07	4.56	10.68
9979.36	9989.42	944.82	67.76	10.23	21.38	6.73	13.94
9989.42	9999.48	1094.76	73.51	10.06	24.77	7.31	14.89
9999.48	10009.54	1105.53	73.95	10.06	25.01	7.35	14.95
10009.54	RB 10019.60	573.38	56.03	13.46	12.97	5.57	10.23
10019.60	10025.27	0.08	0.09	0.61	0.00	0.27	0.89

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.618

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9888.6	1630.1	9904.2	1625.6	9912.9	1623.4	9920.2	1621.4	9922.1	1620.8
9923.7	1620	9927.1	1619.2	9931.5	1619.5	9950.4	1617.9	9954.1	1617.8
9955	1617.8	9957.6	1617	9965.5	1614.7	9973.8	1613.1	9987.3	1611.1
9987.3	1611	9988.2	1610.6	9988.9	1610.3	9995.9	1606.7	9998.7	1605.3
10000.5	1605.5	10016.9	1607	10017.5	1607.1	10028.8	1610.2	10028.9	1610.2
10038.3	1612.2	10046.1	1613.9	10048.1	1614.2	10055.6	1615.3	10063.7	1616
10069.4	1617.3	10077	1621	10092.9	1627.8	10095.6	1628.8	10097.4	1630.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9888.6	.05	9987.3	.04	10028.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.3	10028.9	152.72	148.63	121.12	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.40	9987.30	178.16	39.88	21.64	4.03	1.87	4.47
LB 9987.30	9995.62	496.44	46.95	9.40	11.23	5.64	10.57
9995.62	10003.94	1107.99	73.71	8.71	25.07	8.86	15.03
10003.94	10012.26	1046.27	70.04	8.35	23.67	8.42	14.94
10012.26	10020.58	862.52	62.69	8.46	19.51	7.54	13.76
10020.58	RB 10028.90	508.19	45.99	8.62	11.50	5.53	11.05
10028.90	10051.73	220.44	46.00	22.47	4.99	2.09	4.79

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.40	9987.30	195.36	43.50	21.81	4.42	2.04	4.49
LB 9987.30	9995.62	497.84	48.36	9.40	11.26	5.81	10.29
9995.62	10003.94	1091.56	75.12	8.71	24.70	9.03	14.53
10003.94	10012.26	1032.45	71.45	8.35	23.36	8.59	14.45
10012.26	10020.58	854.41	64.11	8.46	19.33	7.70	13.33
10020.58	RB 10028.90	510.14	47.40	8.62	11.54	5.70	10.76
10028.90	10051.73	238.23	49.73	22.64	5.39	2.26	4.79

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.590

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9929.8	1618.2	9932	1618	9945.2	1617.4	9946.7	1617.2	9948.5	1616.6
9961.8	1611.1	9964.2	1610	9981.6	1605.5	9995.5	1602.9	9997.1	1602.9
10001.7	1603.7	10003.8	1604.1	10008.1	1603.8	10012.7	1603.1	10017.3	1603.4
10020.1	1603.6	10023.4	1604.4	10029.5	1605.4	10031.6	1605.7	10032.2	1605.9
10034.3	1606.7	10035.4	1607.2	10041.9	1610.1	10048.2	1613	10048.4	1612.9
10049.5	1611.9	10053.8	1607.3	10059.3	1609.3	10069.1	1612.4	10084	1615.7
10087.3	1616.2	10090.5	1615.7	10097.6	1618.1	10101.9	1619.8		

Mánning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9929.8	.05	9964.2	.04	10041.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964.2	10041.9	358.04	352.63	336.26	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.73	9964.20	3.20	1.97	3.27	0.07	0.66	1.62
LB 9964.20	9979.74	307.28	52.08	16.05	6.95	3.35	5.90
9979.74	9995.28	1042.86	107.84	15.84	23.59	6.94	9.67
9995.28	10010.82	1268.57	120.84	15.69	28.70	7.78	10.50
10010.82	10026.36	1226.12	118.46	15.71	27.74	7.62	10.35
10026.36	RB 10041.90	468.87	67.87	16.51	10.61	4.37	6.91
10041.90	10061.90	99.43	30.28	17.08	2.25	2.08	3.28
10061.90	10081.90	3.67	2.35	4.04	0.08	0.61	1.56

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.73	9964.20	3.19	1.97	3.27	0.07	0.66	1.62
LB 9964.20	9979.74	307.21	52.07	16.05	6.95	3.35	5.90
9979.74	9995.28	1042.89	107.82	15.84	23.59	6.94	9.67
9995.28	10010.82	1268.64	120.83	15.69	28.70	7.78	10.50
10010.82	10026.36	1226.18	118.45	15.71	27.74	7.62	10.35
10026.36	RB 10041.90	468.82	67.85	16.51	10.61	4.37	6.91
10041.90	10061.90	99.40	30.27	17.08	2.25	2.08	3.28
10061.90	10081.90	3.66	2.35	4.04	0.08	0.61	1.56

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.523

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9914	1624.2	9921	1620.4	9927	1617.7	9949.8	1606.8	9950.4	1606.8
9960.2	1607.5	9963.2	1606.4	9971.6	1603.2	9981.1	1600.2	9986.5	1600.1
10002.2	1599.7	10009.8	1599.9	10030.2	1606.4	10059.5	1615.7	10061.9	1616.3
10062.2	1616.5	10071.1	1618.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9914	.05	9963.2	.04	10030.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9963.2	10030.2	527.2	513.31	482.71	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.80	9963.20	0.60	0.54	4.00	0.01	0.14	1.11
LB 9963.20	9976.60	325.67	40.31	14.23	7.37	3.01	8.08
9976.60	9990.00	1222.22	87.57	13.62	27.65	6.54	13.96
9990.00	10003.40	1409.46	94.78	13.40	31.89	7.07	14.87
10003.40	10016.80	1195.54	86.74	13.75	27.05	6.47	13.78
10016.80	RB 10030.20	265.94	35.52	14.06	6.02	2.65	7.49
10030.20	10043.83	0.58	0.42	1.71	0.01	0.26	1.38

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.80	9963.20	0.61	0.55	4.02	0.01	0.14	1.11
LB 9963.20	9976.60	325.80	40.33	14.23	7.37	3.01	8.08
9976.60	9990.00	1222.14	87.59	13.62	27.65	6.54	13.95
9990.00	10003.40	1409.33	94.80	13.40	31.89	7.07	14.87
10003.40	10016.80	1195.47	86.76	13.75	27.05	6.48	13.78
10016.80	RB 10030.20	266.07	35.54	14.06	6.02	2.65	7.49
10030.20	10043.83	0.58	0.42	1.71	0.01	0.26	1.38

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.426

INPUT

Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9862.4	1620	9882.9	1615.5	9883	1615.5	9898	1611.1	9906.6	1609
9915.3	1609.3	9916.9	1609.3	9919.6	1607.9	9938.4	1599.8	9946.5	1596.4
9970.5	1594.7	9972.1	1594.6	9973.5	1594.5	9976	1594.5	9981.3	1594.6
9982.9	1594.2	9985.8	1593.3	9993.4	1593.3	10012.8	1593.3	10020.3	1596.1
10023.2	1597.1	10024	1597.3	10032.9	1598.6	10039.2	1599.5	10039.3	1599.5
10046.6	1601	10049.9	1601.4	10062.1	1601.5	10070.1	1603.9	10078.6	1606.5
10083	1607.9	10089.2	1609.9	10090.7	1610.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9862.4	.05	9938.4	.04	10039.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9938.4	10039.3	569.9	607.44	596.34	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9913.07	9938.40	0.46	0.44	1.56	0.01	0.31	1.04
LB 9938.40	9958.58	466.10	72.48	20.89	10.55	3.59	6.43
9958.58	9978.76	978.55	111.63	20.22	22.14	5.53	8.77
9978.76	9998.94	1375.57	137.34	20.37	31.12	6.81	10.02
9998.94	10019.12	1345.80	136.19	20.61	30.45	6.75	9.88
10019.12	RB 10039.30	250.63	49.68	20.61	5.67	2.46	5.04
10039.30	10056.43	2.89	2.05	4.56	0.07	0.46	1.41

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9913.07	9938.40	0.43	0.42	1.52	0.01	0.30	1.03
LB 9938.40	9958.58	465.03	72.19	20.89	10.52	3.58	6.44
9958.58	9978.76	978.64	111.33	20.22	22.14	5.52	8.79
9978.76	9998.94	1376.84	137.05	20.37	31.15	6.79	10.05
9998.94	10019.12	1347.00	135.89	20.61	30.48	6.73	9.91
10019.12	RB 10039.30	249.27	49.39	20.61	5.64	2.45	5.05
10039.30	10056.43	2.78	1.99	4.49	0.06	0.45	1.40

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.311

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9944.6	1602.5	9945.1	1602.4	9946.5	1602	9946.9	1601.9	9963.1	1595.7
9966.7	1593.2	9968.5	1592.4	9978.5	1587.7	9980.3	1587.3	9984.7	1585.7
9989.9	1585.6	10015	1585.1	10020.6	1590	10022.3	1592.5	10022.9	1593.4
10034.8	1595.4	10039	1596.3	10040.1	1596.4	10041.4	1596.6	10041.7	1596.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9944.6	.05	9968.5	.04	10022.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.5	10022.3	507.25	528.62	503.17	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.53	9968.50	0.17	0.15	0.91	0.00	0.18	1.09
LB 9968.50	9979.26	247.41	31.10	11.83	5.60	2.89	7.96
9979.26	9990.02	1024.27	71.02	11.07	23.17	6.60	14.42
9990.02	10000.78	1228.20	78.31	10.76	27.79	7.28	15.68
10000.78	10011.54	1288.97	80.61	10.76	29.16	7.49	15.99
10011.54	RB 10022.30	630.97	58.21	13.92	14.28	5.41	10.84
10022.30	10028.77	0.02	0.02	0.32	0.00	0.13	0.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.53	9968.50	0.21	0.18	0.94	0.00	0.21	1.16
LB 9968.50	9979.26	249.70	31.42	11.83	5.65	2.92	7.95
9979.26	9990.02	1023.93	71.34	11.07	23.17	6.63	14.35
9990.02	10000.78	1226.95	78.63	10.76	27.76	7.31	15.60
10000.78	10011.54	1287.40	80.93	10.76	29.13	7.52	15.91
10011.54	RB 10022.30	631.80	58.53	13.92	14.29	5.44	10.79
10022.30	10028.77	0.02	0.03	0.35	0.00	0.16	0.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.211

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9911.6	1592.1	9916.1	1591	9926.3	1588.6	9932.2	1587.9	9943.7	1585.2
9952.4	1582.7	9952.5	1582.6	9957.5	1582	9959.5	1581.9	9964.4	1580.6
9972.8	1578.4	9980.4	1578.4	9986.9	1578.4	9990.3	1578.2	9992.8	1578
10002.2	1577.8	10009.4	1577.8	10011.1	1578.1	10026.5	1583	10026.6	1583
10036	1582.8	10050.7	1582.4	10081.4	1593.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9911.6	.05	9959.5	.04	10026.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.5	10026.6	469.7	470.77	468.4	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9943.53	9959.50	102.76	26.11	14.79	2.32	1.81	3.94
LB 9959.50	9972.92	560.91	62.71	13.87	12.69	4.67	8.95
9972.92	9986.34	969.17	85.91	13.42	21.93	6.40	11.28
9986.34	9999.76	1052.30	90.30	13.44	23.81	6.73	11.65
9999.76	10013.18	1085.91	92.33	13.55	24.57	6.88	11.76
10013.18	RB 10026.60	411.88	52.41	14.08	9.32	3.91	7.86
10026.60	10040.30	108.38	26.74	13.70	2.45	1.95	4.05
10040.30	10054.00	125.56	29.39	13.93	2.84	2.15	4.27
10054.00	10067.70	3.14	1.81	3.32	0.07	0.58	1.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9943.53	9959.50	113.05	26.70	14.83	2.56	1.85	4.23
LB 9959.50	9972.92	598.66	63.25	13.87	13.54	4.71	9.46
9972.92	9986.34	1030.36	86.46	13.42	23.31	6.44	11.92
9986.34	9999.76	1118.16	90.85	13.44	25.30	6.77	12.31
9999.76	10013.18	1153.62	92.88	13.55	26.10	6.92	12.42
10013.18	RB 10026.60	406.14	52.96	15.92	9.19	3.95	7.67

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.122

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9905.7	1593.3	9908.7	1593.1	9909.2	1592.8	9913.4	1591	9942.4	1578.3
9957	1577.2	9958.7	1577	9958.8	1577	9961.9	1576.4	9972.2	1574.3
9989	1574.2	10005.3	1574.1	10014.4	1578.6	10018.1	1580.3	10028.9	1580.7
10032	1580.8	10041.8	1581.5	10049	1582.2	10065.2	1583.5	10078.6	1587.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9905.7	.05	9958.8	.04	10018.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9958.8	10018.1	373.92	363.26	323.58	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9923.40	9941.10	41.53	17.07	9.64	0.94	1.93	2.43
9941.10	9958.80	426.16	88.35	17.87	9.64	4.99	4.82
LB 9958.80	9970.66	649.89	82.04	12.10	14.70	6.92	7.92
9970.66	9982.52	916.22	100.12	11.89	20.73	8.44	9.15
9982.52	9994.38	934.41	101.21	11.86	21.14	8.53	9.23
9994.38	10006.24	938.45	101.83	11.97	21.23	8.59	9.22
10006.24	RB 10018.10	388.88	62.38	13.18	8.80	5.26	6.23
10018.10	10033.22	86.96	32.62	15.14	1.97	2.16	2.67
10033.22	10048.35	35.99	19.24	15.18	0.81	1.27	1.87
10048.35	10063.47	1.52	2.16	7.36	0.03	0.29	0.71

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9923.40	9941.10	41.42	16.69	9.53	0.94	1.91	2.48
9941.10	9958.80	431.68	87.59	17.87	9.77	4.95	4.93
LB 9958.80	9970.66	660.60	81.53	12.10	14.95	6.87	8.10
9970.66	9982.52	933.07	99.61	11.89	21.11	8.40	9.37
9982.52	9994.38	951.69	100.70	11.86	21.53	8.49	9.45
9994.38	10006.24	955.85	101.33	11.97	21.63	8.54	9.43
10006.24	RB 10018.10	394.00	61.87	13.18	8.91	5.22	6.37
10018.10	10033.22	51.68	18.82	10.50	1.17	2.24	2.75

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.053

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9913.3	1594.6	9921.9	1594.5	9926.4	1594.2	9934.4	1592.8	9939.8	1591.2
9955.3	1587.5	9959.5	1586.6	9959.9	1586.7	9966.3	1580.6	9966.3	1580.5
9973.6	1571.3	9978.4	1570.9	9990.1	1569.8	9991.3	1569.1	9995.7	1567.6
9996.1	1567.5	9997.1	1567.6	10004.3	1567.6	10007.8	1568	10011.1	1569.3
10016.5	1572	10021.7	1573.9	10026.2	1574.9	10040	1575.9	10047.7	1576.5
10062.9	1577.3	10069.6	1578.1	10078.8	1581.2	10083.9	1583.5	10105.2	1584.3
10110.2	1584.3	10124.3	1586	10141.8	1588.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9913.3	.05	9966.3	.04	10026.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9966.3	10026.2	117.15	108.69	69.01	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.63	9966.30	1.54	2.21	2.98	0.03	1.03	0.70
LB 9966.30	9978.28	355.68	103.35	16.54	8.05	8.63	3.44
9978.28	9990.26	793.72	147.41	12.06	17.96	12.31	5.38
9990.26	10002.24	1038.60	175.24	12.41	23.50	14.63	5.93
10002.24	10014.22	961.53	168.43	12.62	21.75	14.06	5.71
10014.22	RB 10026.20	493.74	113.19	12.70	11.17	9.45	4.36
10026.20	10055.10	562.22	193.87	28.97	12.72	6.71	2.90
10055.10	10084.00	212.96	106.51	27.80	4.82	3.96	2.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.63	9966.30	1.44	2.02	2.85	0.03	0.98	0.71
LB 9966.30	9978.28	368.01	102.27	16.54	8.33	8.54	3.60
9978.28	9990.26	825.56	146.33	12.06	18.68	12.22	5.64
9990.26	10002.24	1082.38	174.16	12.41	24.49	14.54	6.22
10002.24	10014.22	1001.64	167.34	12.62	22.66	13.97	5.99
10014.22	RB 10026.20	511.63	112.11	12.70	11.58	9.36	4.56
10026.20	10055.10	572.90	191.26	28.97	12.96	6.62	3.00
10055.10	10084.00	56.45	32.66	11.29	1.28	5.52	1.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.033

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9957	1582	9960	1581.5	9967.5	1580.1	9969.4	1579.7	9972.6	1579
9976.5	1576.8	9990.6	1568.7	9993.5	1566.8	9995.4	1565.8	9999.2	1565.6
10002.4	1565.5	10004.9	1565.3	10007.1	1567.2	10010.7	1571.3	10016	1576.8
10016.7	1577.5	10018.2	1577.8	10023	1578.9	10027.3	1580.1	10032.7	1580.8
10043.4	1581.5	10050.6	1581.6	10053.3	1581.6	10060.7	1581.7	10061.1	1581.6
10061.6	1581.7	10062.7	1581.8	10066.3	1582				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9957	.05	9976.5	.04	10016	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.5	10016	116.79	133.89	144.85	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.00	9976.50	0.08	0.08	0.62	0.00	0.15	0.96
LB 9976.50	9984.40	138.13	20.33	9.11	3.13	2.57	6.79
9984.40	9992.30	750.33	56.30	9.18	16.98	7.13	13.33
9992.30	10000.20	1655.18	87.28	8.39	37.45	11.05	18.96
10000.20	10008.10	1583.30	87.92	9.13	35.82	11.13	18.01
10008.10	RB 10016.00	292.94	35.13	11.58	6.63	4.45	8.34
10016.00	10032.77	0.04	0.05	0.43	0.00	0.15	0.84

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.00	9976.50	0.13	0.11	0.68	0.00	0.21	1.11
LB 9976.50	9984.40	141.72	20.79	9.11	3.21	2.63	6.82
9984.40	9992.30	751.99	56.75	9.18	17.01	7.18	13.25
9992.30	10000.20	1650.98	87.73	8.39	37.35	11.11	18.82
10000.20	10008.10	1579.18	88.38	9.13	35.73	11.19	17.87
10008.10	RB 10016.00	295.95	35.58	11.58	6.70	4.50	8.32
10016.00	10032.77	0.06	0.06	0.49	0.00	0.21	0.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates

that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 3.007

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9924.9	1585.6	9926.7	1585.2	9933.5	1583.5	9941.9	1580.8	9942.2	1580.8
9942.3	1580.7	9945.1	1578.7	9947.9	1576.7	9954.3	1575.8	9968.5	1573.7
9970.7	1572.8	9976.6	1570.6	9978	1570.2	9982.1	1568.6	9986.6	1567.2
9999.7	1563.5	10001.1	1563.5	10004	1563.5	10016.1	1571.3	10023.8	1576.4
10025	1577.3	10025.9	1577.1	10027.3	1577.4	10029.8	1578.3	10043.2	1579.1
10047.4	1579.4	10051.9	1579.7	10059.8	1580.7	10061.5	1580.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9924.9	.05	9968.5	.04	10023.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.5	10023.8	164.91	166.91	167.88	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.43	9953.97	8.27	5.71	6.97	0.19	0.85	1.45
9953.97	9968.50	103.45	35.07	14.69	2.34	2.41	2.95
LB 9968.50	9979.56	385.64	61.92	11.80	8.72	5.60	6.23
9979.56	9990.62	936.78	104.79	11.62	21.19	9.47	8.94
9990.62	10001.68	1531.31	139.74	11.41	34.64	12.64	10.96
10001.68	10012.74	1211.27	126.77	12.72	27.40	11.46	9.55
10012.74	RB 10023.80	242.93	49.12	13.23	5.50	4.44	4.95
10023.80	10036.37	0.35	0.45	2.14	0.01	0.24	0.78

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9939.43	9953.97	8.13	5.64	6.95	0.18	0.84	1.44
9953.97	9968.50	102.88	34.92	14.69	2.33	2.40	2.95
LB 9968.50	9979.56	385.21	61.80	11.80	8.72	5.59	6.23
9979.56	9990.62	936.91	104.67	11.62	21.20	9.46	8.95
9990.62	10001.68	1532.23	139.62	11.41	34.67	12.62	10.97
10001.68	10012.74	1211.83	126.66	12.72	27.42	11.45	9.57
10012.74	RB 10023.80	242.47	49.00	13.23	5.49	4.43	4.95
10023.80	10036.37	0.34	0.43	2.02	0.01	0.25	0.79

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.976

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9942.4	1579.9	9948.2	1578.3	9951.3	1578.1	9963.3	1577.4	9968.2	1577.1
9968.9	1577	9970	1576.9	9981.1	1575.7	9985.1	1572	9993.6	1564.2
9997.3	1561.1	10003.2	1560.9	10008	1560.6	10015.1	1568.9	10018	1572
10019.8	1574	10040.6	1575.8	10041.5	1575.9	10042.4	1576	10044.4	1576.7
10062.8	1582.9	10084.1	1588.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9942.4	.05	9985.1	.04	10018	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.1	10018	204.42	221.33	236.13	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.87	9985.10	0.73	0.41	1.29	0.02	0.44	1.77
LB 9985.10	9991.68	211.06	25.63	8.93	4.78	3.89	8.24

9991.68	9998.26	1014.37	64.12	8.39	22.95	9.74	15.82
9998.26	10004.84	1669.45	78.47	6.59	37.77	11.93	21.27
10004.84	10011.42	1273.68	73.63	8.43	28.82	11.19	17.30
10011.42	RB 10018.00	250.14	29.58	9.91	5.66	4.50	8.46
10018.00	10040.03	0.57	0.34	1.18	0.01	0.44	1.66

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.87	9985.10	0.82	0.45	1.33	0.02	0.48	1.82
LB 9985.10	9991.68	213.13	25.89	8.93	4.82	3.93	8.23
9991.68	9998.26	1014.12	64.38	8.39	22.94	9.78	15.75
9998.26	10004.84	1666.99	78.73	6.59	37.71	11.96	21.17
10004.84	10011.42	1272.26	73.88	8.43	28.78	11.23	17.22
10011.42	RB 10018.00	252.03	29.84	9.91	5.70	4.53	8.45
10018.00	10040.03	0.64	0.38	1.22	0.01	0.48	1.71

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.934

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9944.5	1584.2	9946.3	1583.8	9947.5	1583.6	9948.4	1583.4	9949	1583.3
9954.4	1580.1	9961.6	1575.9	9974.1	1568.7	9982	1564.1	9984.8	1562.6
9985.3	1562.3	9986	1562	9991.6	1559.5	9999.5	1559.1	10002.6	1558.9
10005.4	1560.3	10018.6	1567.7	10018.7	1567.7	10025.6	1568.7	10025.7	1568.7
10033.1	1572.8	10034.1	1573.3	10047.7	1578.5	10050.3	1579.5	10050.7	1579.7
10050.8	1579.7	10051.3	1579.7	10055.4	1580.1	10059.3	1580.4	10063.8	1580.8
10066.7	1581.1	10067	1581.2	10068.7	1582				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9944.5	.05	9974.1	.04	10018.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.1	10018.6	156.51	162.94	164.58	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.23	9974.10	0.49	0.34	1.25	0.01	0.31	1.43
LB 9974.10	9983.00	217.47	28.61	10.28	4.92	3.21	7.60
9983.00	9991.90	1011.68	70.67	9.82	22.89	7.94	14.32
9991.90	10000.80	1603.29	89.61	8.91	36.27	10.07	17.89
10000.80	10009.70	1228.13	79.52	9.86	27.79	8.94	15.44
10009.70	RB 10018.60	330.58	36.68	10.20	7.48	4.12	9.01
10018.60	10035.30	28.17	8.35	8.46	0.64	1.01	3.37

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.23	9974.10	0.61	0.40	1.31	0.01	0.37	1.53
LB 9974.10	9983.00	221.07	29.12	10.28	5.00	3.27	7.59
9983.00	9991.90	1010.94	71.18	9.82	22.87	8.00	14.20
9991.90	10000.80	1597.80	90.11	8.91	36.15	10.12	17.73
10000.80	10009.70	1225.38	80.03	9.86	27.72	8.99	15.31

10009.70	RB 10018.60	333.91	37.18	10.20	7.55	4.18	8.98
10018.60	10035.30	30.28	8.82	8.52	0.69	1.07	3.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.903

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9946.2	1578.6	9949.7	1577.5	9973.9	1566.4	9988.8	1559.6	9989.9	1559.2
9990.7	1559	9996.7	1556.3	10005.1	1557.8	10021	1562.9	10030.1	1566.4
10033.1	1567.6	10042.8	1568.7	10048.1	1569.2	10052.5	1569.6	10057.6	1569.7
10071.3	1569.7	10073.1	1569.9	10074.8	1570	10084.4	1570.8	10090.3	1571.2
10104.5	1571.8	10109.1	1572.7	10110.5	1572.9	10117	1575.6	10120.4	1576.7
10123.6	1577.1	10129.7	1577.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9946.2	.05	9973.9	.04	10030.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.9	10030.1	57.44	58.26	57.77	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.67	9973.90	0.08	0.08	0.67	0.00	0.14	0.90
LB 9973.90	9985.14	236.11	31.96	12.36	5.34	2.84	7.39
9985.14	9996.38	1279.65	87.78	12.25	28.95	7.81	14.58
9996.38	10007.62	1810.45	105.53	11.53	40.96	9.39	17.16
10007.62	10018.86	908.69	70.44	11.80	20.56	6.27	12.90
10018.86	RB 10030.10	184.94	27.28	12.00	4.18	2.43	6.78
10030.10	10063.30	0.09	0.10	0.75	0.00	0.14	0.91

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.67	9973.90	0.11	0.11	0.71	0.00	0.18	1.02
LB 9973.90	9985.14	239.68	32.46	12.36	5.42	2.89	7.38
9985.14	9996.38	1277.56	88.29	12.25	28.90	7.86	14.47
9996.38	10007.62	1804.60	106.04	11.53	40.83	9.43	17.02
10007.62	10018.86	909.35	70.95	11.80	20.57	6.31	12.82
10018.86	RB 10030.10	188.57	27.78	12.00	4.27	2.47	6.79
10030.10	10063.30	0.13	0.13	0.79	0.00	0.19	1.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.892

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9927.2	1578.7	9927.4	1578.6	9930.1	1577.6	9939.9	1575	9943.7	1573.6
9968	1563.9	9972.4	1562.2	9972.5	1562.2	9978.9	1561.1	9979.1	1561.1
9979.2	1561	9992.2	1557.6	9992.4	1557.1	9993.7	1555.7	9999.6	1548.8
10003.8	1554.1	10006.2	1556.5	10009.1	1557.1	10012.8	1557.9	10013.2	1558.1
10014.1	1558.4	10025.2	1563.7	10025.3	1563.8	10027	1564	10033.1	1565.2
10036.3	1567.2	10038.9	1568	10041.2	1568.5	10044.8	1569.5	10047.2	1569.7
10047.8	1569.6	10048	1569.7	10055.3	1569.8	10058.9	1569.6	10059.2	1569.6

10059.4	1569.6	10076.2	1569.9	10082.5	1570	10083.8	1570

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9927.2	.055	9972.5	.04	10025.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9972.5	10025.2	181.39	191.34	194.08	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.40	9972.50	14.51	4.65	5.24	0.33	0.95	3.12
LB 9972.50	9983.04	252.24	29.98	10.80	5.71	2.84	8.41
9983.04	9993.58	726.98	58.49	11.74	16.45	5.55	12.43
9993.58	10004.12	2105.45	126.75	16.47	47.63	12.03	16.61
10004.12	10014.66	1076.79	73.94	11.70	24.36	7.02	14.56
10014.66	RB 10025.20	243.75	30.30	11.68	5.51	2.87	8.04
10025.20	10044.73	0.29	0.31	2.16	0.01	0.15	0.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.40	9972.50	15.33	4.86	5.29	0.35	0.99	3.15
LB 9972.50	9983.04	255.85	30.42	10.80	5.79	2.89	8.41
9983.04	9993.58	728.67	58.93	11.74	16.49	5.59	12.36
9993.58	10004.12	2096.10	127.20	16.47	47.42	12.07	16.48
10004.12	10014.66	1076.46	74.39	11.70	24.35	7.06	14.47
10014.66	RB 10025.20	247.17	30.74	11.68	5.59	2.92	8.04
10025.20	10044.73	0.42	0.40	2.20	0.01	0.19	1.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.856

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9936.1	1566.2	9936.4	1566.1	9948.6	1561.2	9955.1	1559.3	9960.2	1557.6
9961.8	1556.8	9962.6	1556.7	9967.9	1555.3	9982.1	1550.4	9987.5	1550.3
9989.1	1550.3	9990	1550.2	10001.5	1547.5	10002.9	1547.2	10003.1	1547.2
10010.1	1557.6	10012.9	1561.8	10013.8	1562.8	10015.8	1563	10017.5	1563.1
10022.5	1563	10029.1	1564.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9936.1	.055	9961.8	.04	10010.1	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9961.8	10010.1	212.97	226.57	231.95	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.23	9961.80	3.26	1.55	3.09	0.07	0.55	2.10
LB 9961.80	9971.46	173.78	23.51	10.05	3.93	2.43	7.39
9971.46	9981.12	690.81	54.16	10.22	15.63	5.61	12.75
9981.12	9990.78	1203.64	74.15	9.74	27.23	7.68	16.23
9990.78	10000.44	1587.44	88.18	9.92	35.92	9.13	18.00
10000.44	RB 10010.10	761.02	67.38	15.26	17.22	6.98	11.29
10010.10	10016.43	0.04	0.06	0.49	0.00	0.21	0.78

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates

that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.23	9961.80	3.66	1.68	3.13	0.08	0.60	2.17
LB 9961.80	9971.46	177.37	23.96	10.05	4.01	2.48	7.40
9971.46	9981.12	692.59	54.61	10.22	15.67	5.65	12.68
9981.12	9990.78	1202.28	74.60	9.74	27.20	7.72	16.12
9990.78	10000.44	1583.11	88.63	9.92	35.82	9.18	17.86
10000.44	RB 10010.10	760.93	67.83	15.26	17.22	7.02	11.22
10010.10	10016.43	0.06	0.07	0.54	0.00	0.26	0.83

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.813

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9912.7	1576.7	9914.6	1576.5	9917.2	1576	9918.8	1575.7	9920.2	1575.3
9928.1	1572.5	9943.8	1565.4	9949.3	1563.2	9954	1560.7	9959.5	1558.4
9963.9	1556.2	9972.1	1551.8	9974	1550.6	9974.2	1550.5	9983.2	1549.1
9986.9	1548.4	9987.7	1548.2	9997.3	1545.5	10001.7	1545.6	10002.3	1545.6
10003.6	1545.8	10008.1	1546.2	10015.6	1547	10017.6	1547.7	10019.9	1548.3
10022.3	1548.5	10025.9	1548.7	10029.1	1549	10037.2	1549.1	10039.8	1549.1
10046.8	1549.8	10059.3	1551.6	10073.4	1552.4	10083.1	1552.8	10085.5	1552.6
10091.2	1552.2	10097.7	1552.5	10098.3	1552.5	10098.4	1552.5	10098.6	1552.5
10100.8	1552.7	10140	1556.1	10147.3	1556.6	10158.8	1557.7	10164.5	1558.8
10169.4	1559.8	10173.6	1560.2	10178	1560.7	10183.6	1561.6	10197.7	1563.6
10216.4	1566								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9912.7	.055	9974	.04	10019.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974	10019.9	515.82	501.76	467.93	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.57	9974.00	25.07	8.45	6.39	0.57	1.52	2.97
LB 9974.00	9983.18	294.33	36.19	9.31	6.66	3.94	8.13
9983.18	9992.36	532.59	51.97	9.45	12.05	5.66	10.25
9992.36	10001.54	926.28	72.19	9.37	20.96	7.86	12.83
10001.54	10010.72	911.31	71.05	9.23	20.62	7.74	12.83
10010.72	RB 10019.90	685.23	60.33	9.40	15.50	6.57	11.36
10019.90	10059.20	882.87	165.64	39.49	19.97	4.21	5.33
10059.20	10098.50	148.54	56.78	39.36	3.36	1.44	2.62
10098.50	10137.80	13.78	9.16	14.58	0.31	0.63	1.50

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.57	9974.00	34.14	9.85	6.64	0.77	1.78	3.46
LB 9974.00	9983.18	353.82	38.52	9.31	8.01	4.20	9.19
9983.18	9992.36	620.81	54.30	9.45	14.05	5.91	11.43
9992.36	10001.54	1058.23	74.52	9.37	23.94	8.12	14.20
10001.54	10010.72	1042.00	73.38	9.23	23.57	7.99	14.20
10010.72	RB 10019.90	790.85	62.65	9.40	17.89	6.83	12.62
10019.90	10059.20	520.15	78.46	19.99	11.77	5.22	6.63

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.718

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

9912.3	1568	9919	1567.9	9928.3	1567.6	9930.4	1567.6	9932.2	1567.6
9936.1	1566.3	9965.2	1547.9	9966.9	1546.9	9968.7	1545.8	9969.8	1545.4
9970.9	1544.9	9978.1	1542.4	9984.6	1542.2	10006.1	1541.9	10009.4	1542
10017	1543.9	10021.1	1544.9	10021.2	1544.9	10027.9	1545.1	10034.3	1545.3
10061.3	1549.3	10071.7	1550.9	10076	1551.5	10078.1	1551.5	10087.2	1551.5
10144.9	1551.6	10157.5	1552.3	10160.4	1552.4	10169.1	1552.7	10195.5	1553.4
10201.1	1553.7	10205.8	1553.8	10223.5	1553.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9912.3	.055	9965.2	.04	10021.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9965.2	10021.2	184.79	180.44	186.47	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.57	9965.20	1.53	0.97	2.07	0.03	0.55	1.59
LB 9965.20	9976.40	352.76	43.33	12.28	7.98	3.87	8.14
9976.40	9987.60	926.14	74.80	11.30	20.95	6.68	12.38
9987.60	9998.80	989.93	77.56	11.20	22.40	6.93	12.76
9998.80	10010.00	1018.23	78.94	11.22	23.04	7.05	12.90
10010.00	RB 10021.20	653.25	61.16	11.54	14.78	5.46	10.68
10021.20	10061.66	478.16	97.54	38.39	10.82	2.56	4.90

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.57	9965.20	1.37	0.85	1.94	0.03	0.52	1.62
LB 9965.20	9976.40	364.06	42.56	12.28	8.24	3.80	8.55
9976.40	9987.60	967.97	74.03	11.30	21.90	6.61	13.08
9987.60	9998.80	1035.28	76.79	11.20	23.42	6.86	13.48
9998.80	10010.00	1065.18	78.17	11.22	24.10	6.98	13.63
10010.00	RB 10021.20	680.11	60.39	11.54	15.39	5.39	11.26
10021.20	10061.66	306.02	52.13	17.18	6.92	3.83	5.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.683

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934.2	1562.7	9936.1	1562.8	9937.1	1562.1	9958.2	1548	9958.9	1547.7
9959.6	1547.5	9960.8	1547	9977.8	1541.5	9981.5	1540.5	9983.2	1540.4
9985.5	1540.4	9989.7	1539.7	9995.2	1538.6	10001	1538.4	10007.9	1538.2
10024.7	1542.3	10032.5	1544.2	10033.4	1544.4	10033.4	1544.5	10034.4	1544.5
10036.9	1544.6	10044.5	1544.9	10047.9	1545.1	10049.6	1545.1	10067.8	1545.1
10072	1545.3	10079.1	1545.4	10080.4	1545.4	10081.1	1545.4	10082	1545.4
10088.3	1544.8	10091.5	1544.5	10097.5	1544.3	10100.9	1544.3	10102.8	1544
10105.7	1544.4	10110.4	1545.1	10115.9	1545.9	10116	1545.9	10122.1	1546.5
10124.4	1546.6	10128.1	1547.2	10137.6	1547.9	10138.3	1548	10139.1	1548
10139.6	1548.1	10155.2	1549.2	10167.6	1550.5	10169.4	1550.7	10182.1	1552.1
10182.7	1552.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934.2	.06	9960.8	.045	10033.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.8	10033.4	83.42	144.8	200.68	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10082	10182.7	1552.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.93	9960.80	4.40	3.48	4.05	0.10	0.95	1.26
LB 9960.80	9975.32	255.87	58.84	15.26	5.79	4.05	4.35
9975.32	9989.84	809.19	116.10	14.84	18.31	8.00	6.97
9989.84	10004.36	1186.61	145.25	14.63	26.85	10.00	8.17
10004.36	10018.88	1074.13	137.61	14.84	24.30	9.48	7.81
10018.88	RB 10033.40	504.41	87.90	15.04	11.41	6.05	5.74
10033.40	10057.70	314.79	92.53	24.31	7.12	3.81	3.40

10057.70	10082.00	270.60	84.49	24.31	6.12	3.48	3.20
10082.00	10115.57	0.00	133.42	33.77	0.00	3.97	0.00
10115.57	10149.13	0.00	43.07	32.74	0.00	1.32	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.93	9960.80	4.22	3.26	3.94	0.10	0.92	1.29
LB 9960.80	9975.32	262.07	57.95	15.26	5.93	3.99	4.52
9975.32	9989.84	839.18	115.22	14.84	18.99	7.94	7.28
9989.84	10004.36	1233.75	144.36	14.63	27.91	9.94	8.55
10004.36	10018.88	1116.18	136.73	14.84	25.25	9.42	8.16
10018.88	RB 10033.40	520.97	87.02	15.04	11.79	5.99	5.99
10033.40	10057.70	318.87	91.05	24.31	7.21	3.75	3.50
10057.70	10082.00	124.76	43.63	15.79	2.82	3.53	2.86

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.656

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934.3	1560.2	9946.1	1554.9	9951.8	1552.4	9958.9	1548.6	9959.8	1548.3
9960.7	1548	9970.6	1543.7	9972.9	1543.2	9973.4	1543.1	9979.3	1541.1
9983.3	1540.9	9986.9	1540.1	9990.5	1539.1	9991.7	1538.9	9995.8	1536.6
9995.9	1536.6	9998.3	1535.7	10000.2	1535.8	10009.5	1535.8	10013.6	1537
10017.2	1539.5	10019.5	1541.1	10023.2	1543.1	10025.6	1543.7	10029.4	1543.8
10031.4	1544.2	10032.7	1544.4	10035	1544.7	10039.8	1545.3	10045.5	1545.9
10048.8	1546.4	10050.1	1546.5	10051.8	1546.2	10062.7	1540.4	10064.3	1539.6
10065.4	1539.7	10066.4	1539.9	10068.3	1540.3	10075	1541.8	10080.1	1543.4
10082.5	1544.2	10084.1	1544.7	10085.8	1545.8	10091.2	1548.5	10092.7	1549
10098.3	1551.2	10101	1551.7	10104.4	1552.5	10108.3	1554.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934.3	.055	9972.9	.04	10025.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9972.9	10025.6	178.7	163.1	125.84	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10050.1	10108.3	1549.7

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.03	9972.90	20.49	6.50	6.07	0.46	1.14	3.15
LB 9972.90	9983.44	310.16	36.50	10.89	7.02	3.46	8.50
9983.44	9993.98	691.21	59.52	11.11	15.64	5.65	11.61
9993.98	10004.52	1536.55	95.64	10.97	34.76	9.08	16.07
10004.52	10015.06	1485.21	93.91	11.03	33.60	8.91	15.82
10015.06	RB 10025.60	345.90	40.64	12.09	7.83	3.86	8.51
10025.60	10050.10	30.48	11.30	13.34	0.69	0.85	2.70
10050.10	10064.65	0.00	31.70	12.31	0.00	2.90	0.00
10064.65	10079.20	0.00	58.26	14.98	0.00	4.00	0.00
10079.20	10093.75	0.00	6.39	6.03	0.00	1.13	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9960.03	9972.90	20.68	6.55	6.08	0.47	1.15	3.16
LB 9972.90	9983.44	310.78	36.60	10.89	7.03	3.47	8.49
9983.44	9993.98	691.45	59.62	11.11	15.64	5.66	11.60
9993.98	10004.52	1535.54	95.74	10.97	34.74	9.08	16.04
10004.52	10015.06	1484.28	94.00	11.03	33.58	8.92	15.79
10015.06	RB 10025.60	346.44	40.73	12.09	7.84	3.86	8.51
10025.60	10050.10	30.83	11.42	13.41	0.70	0.86	2.70
10050.10	10064.65	0.00	31.79	12.33	0.00	2.90	0.00
10064.65	10079.20	0.00	58.39	14.98	0.00	4.01	0.00
10079.20	10093.75	0.00	6.44	6.04	0.00	1.14	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.625

INPUT
Description: 100-year, 24-hour Peak Discharge of 4570 cfs from HEC-1 model at station C207R.
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9922.2	1559.2	9927	1555.9	9930.9	1553.2	9934.1	1550.3	9940.5	1546
9949	1541.1	9951.5	1539.6	9952.3	1538.5	9954.3	1537.7	9960.8	1536
9970.4	1537.6	9970.6	1537.7	9971.3	1537.6	9972.2	1537.6	9983.3	1536.9
9983.4	1536.9	9988.4	1535.5	9992.7	1534.2	9998.8	1534.1	10005.1	1533.9
10009.1	1533.9	10014.9	1534	10015.4	1534.1	10016	1534.2	10024.1	1535.9
10030.7	1536.1	10044	1536.5	10049.9	1536.6	10050	1536.6	10053.2	1536.3
10056.8	1536.1	10058.5	1535.9	10061.7	1536	10069.2	1536.2	10070.3	1536.3
10074.6	1537	10076.7	1536.7	10091	1535.6	10097.1	1536.3	10112.9	1538.4
10123.6	1543.5	10143.6	1553.3	10147.3	1553.8	10150.3	1554		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9922.2	.055	9983.3	.04	10049.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.3	10049.9	120.5	119.08	114.06	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.47	9952.75	4.36	2.71	3.55	0.10	1.00	1.61
9952.75	9968.03	246.97	55.37	15.71	5.40	3.63	4.46
9968.03	9983.30	199.19	48.23	15.36	4.36	3.16	4.13
LB 9983.30	9996.62	571.66	70.65	13.71	12.51	5.30	8.09
9996.62	10009.94	815.85	86.48	13.32	17.85	6.49	9.43
10009.94	10023.26	701.06	79.36	13.50	15.34	5.96	8.83
10023.26	10036.58	426.88	58.66	13.34	9.34	4.40	7.28
10036.58	RB 10049.90	366.32	53.49	13.32	8.02	4.02	6.85
10049.90	10075.00	539.74	106.06	25.20	11.81	4.23	5.09
10075.00	10100.10	552.45	107.60	25.23	12.09	4.29	5.13
10100.10	10125.20	145.51	41.97	17.74	3.18	2.45	3.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.47	9952.75	9.16	4.91	4.36	0.20	1.81	1.86
9952.75	9968.03	309.37	67.79	15.71	6.77	4.44	4.56
9968.03	9983.30	260.89	60.65	15.36	5.71	3.97	4.30
LB 9983.30	9996.62	651.91	81.48	13.71	14.26	6.12	8.00
9996.62	10009.94	892.97	97.31	13.32	19.54	7.31	9.18
10009.94	10023.26	780.12	90.19	13.50	17.07	6.77	8.65
10023.26	10036.58	509.03	69.50	13.34	11.14	5.22	7.32
10036.58	RB 10049.90	447.86	64.32	13.32	9.80	4.83	6.96
10049.90	10075.00	636.91	126.47	25.20	13.94	5.04	5.04
10075.00	10100.10	71.79	23.54	9.96	1.57	4.63	3.05

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.603

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9967.3	1549.6	9970.3	1547.6	9971.7	1546.7	9975.7	1544	9976.8	1543.4
9979.8	1541.7	9980.7	1540.9	9982.3	1539.5	9984.1	1537.8	9985.8	1536.3
9986.8	1535.6	9989.6	1534.2	9990.6	1533.8	9992.3	1533.1	9998.3	1533
10007.9	1532.9	10019.6	1532.6	10030.7	1535.9	10030.8	1535.9	10030.9	1535.9
10042.7	1535.6	10049.2	1534.4	10052.1	1534	10054.6	1534	10062.6	1534
10067.5	1534.2	10068	1534.2	10069.6	1534.3	10070.6	1534.4	10075	1534.5
10075.5	1534.5	10076.3	1534.5	10080.4	1534.6	10091.4	1535.3	10092.3	1535.3
10104.5	1539.5	10108.8	1541	10116.1	1544.7	10127.1	1550.5	10127.6	1550.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9967.3	.055	9984.1	.04	10030.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.1	10030.8	435.67	428.3	416.85	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.50	9984.10	0.56	0.41	1.28	0.01	0.44	1.38
LB 9984.10	9993.44	320.72	36.01	10.67	7.02	3.86	8.91
9993.44	10002.78	666.31	52.95	9.34	14.58	5.67	12.58
10002.78	10012.12	689.95	54.07	9.34	15.10	5.79	12.76
10012.12	10021.46	717.46	55.54	9.42	15.70	5.95	12.92
10021.46	RB 10030.80	383.40	38.64	9.74	8.39	4.14	9.92
10030.80	10050.16	392.30	62.92	19.48	8.58	3.25	6.23
10050.16	10069.52	706.22	89.35	19.38	15.45	4.62	7.90
10069.52	10088.88	562.47	77.95	19.39	12.31	4.03	7.22
10088.88	10108.24	130.61	28.34	13.80	2.86	2.14	4.61

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.50	9984.10	0.94	0.54	1.42	0.02	0.58	1.74
LB 9984.10	9993.44	383.33	37.31	10.67	8.39	3.99	10.27
9993.44	10002.78	781.70	54.24	9.34	17.11	5.81	14.41
10002.78	10012.12	808.78	55.36	9.34	17.70	5.93	14.61
10012.12	10021.46	840.15	56.84	9.42	18.38	6.09	14.78
10021.46	RB 10030.80	456.44	39.94	9.74	9.99	4.28	11.43
10030.80	10050.16	462.10	65.61	19.48	10.11	3.39	7.04
10050.16	10069.52	815.15	92.04	19.38	17.84	4.75	8.86
10069.52	10088.88	21.40	6.42	5.85	0.47	4.46	3.33

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.521

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9820.5	1566.8	9863.6	1538.8	9869.2	1535.2	9881.6	1533.8	9883.2	1533.6
9883.6	1533.5	9892.6	1532	9896.1	1531.6	9902.4	1531.3	9919.6	1530
9925	1530.6	9929.7	1531.1	9940.3	1530.2	9961.5	1528.8	9962.6	1528.7
9965.7	1528.6	9975.6	1528.1	9981.5	1528	9982.1	1528	9984.1	1528.1
9986.6	1527.9	9990	1527.6	9993.3	1526.9	10002.8	1526.4	10007.7	1526.2
10021.2	1532	10025.5	1533.8	10026.7	1534.3	10035.7	1536.5	10061.8	1542.6
10064.4	1543.2	10067.3	1543.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9820.5	.055	9986.6	.04	10021.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.6	10021.2	509.45	512.29	508.89	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9853.72	9886.94	0.14	0.20	1.55	0.00	0.13	0.72
9886.94	9920.16	294.57	65.65	33.38	6.45	1.98	4.49
9920.16	9953.38	563.28	96.82	33.34	12.33	2.91	5.82
9953.38	9986.60	1267.21	157.34	33.27	27.73	4.74	8.05
LB 9986.60	9993.52	506.96	39.54	7.01	11.09	5.71	12.82
9993.52	10000.44	631.81	44.93	6.93	13.83	6.49	14.06
10000.44	10007.36	689.26	47.33	6.93	15.08	6.84	14.56
10007.36	10014.28	475.97	39.13	7.50	10.42	5.65	12.16
10014.28	RB 10021.20	137.24	18.58	7.53	3.00	2.69	7.38
10021.20	10036.57	3.57	1.72	3.11	0.08	0.60	2.08

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9853.72	9886.94	0.14	0.20	1.55	0.00	0.13	0.72
9886.94	9920.16	294.62	65.66	33.38	6.45	1.98	4.49
9920.16	9953.38	563.33	96.83	33.34	12.33	2.91	5.82
9953.38	9986.60	1267.21	157.35	33.27	27.73	4.74	8.05
LB 9986.60	9993.52	506.94	39.55	7.01	11.09	5.71	12.82
9993.52	10000.44	631.77	44.93	6.93	13.82	6.49	14.06
10000.44	10007.36	689.21	47.34	6.93	15.08	6.84	14.56
10007.36	10014.28	475.95	39.13	7.50	10.41	5.65	12.16
10014.28	RB 10021.20	137.25	18.59	7.53	3.00	2.69	7.38
10021.20	10036.57	3.58	1.72	3.10	0.08	0.60	2.08

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.424

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9936	1547.7	9967.9	1527.2	9974	1523.2	9979	1522.4	9980.9	1522.2
9986.4	1521.3	9987.3	1521.2	9989.7	1521.2	10005.7	1520.8	10014.4	1521
10020.6	1521.4	10024.2	1522.3	10025.5	1522.5	10029.5	1522.9	10047.1	1525.2
10056.5	1526.6	10060.5	1527.2	10065.8	1528	10070.1	1528.6	10078.3	1531.9
10111.5	1545.6	10111.7	1545.6	10112.8	1545.7	10126	1545.3	10128.4	1545.3
10130.1	1545.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9936	.055	9967.9	.04	10060.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.9	10060.5	119.28	123.29	130.97	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.27	9967.90	0.36	0.33	1.21	0.01	0.33	1.07
LB 9967.90	9986.42	736.98	85.74	19.86	16.13	4.63	8.60
9986.42	10004.94	1468.53	126.12	18.53	32.13	6.81	11.64
10004.94	10023.46	1433.72	124.57	18.62	31.37	6.73	11.51
10023.46	10041.98	735.37	83.56	18.68	16.09	4.51	8.80
10041.98	RB 10060.50	193.34	37.51	18.71	4.23	2.03	5.15
10060.50	10083.70	1.70	1.42	4.39	0.04	0.33	1.20

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.27	9967.90	0.35	0.33	1.21	0.01	0.33	1.07
LB 9967.90	9986.42	736.83	85.67	19.86	16.12	4.63	8.60
9986.42	10004.94	1468.91	126.05	18.53	32.14	6.81	11.65
10004.94	10023.46	1434.08	124.49	18.62	31.38	6.72	11.52
10023.46	10041.98	735.20	83.49	18.68	16.09	4.51	8.81
10041.98	RB 10060.50	192.95	37.44	18.71	4.22	2.02	5.15
10060.50	10083.70	1.68	1.41	4.36	0.04	0.33	1.19

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.401

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

9928.1	1548.2	9930.1	1547.1	9931.4	1546.4	9936.7	1543.6	9968.3	1526
9976.3	1521.6	9977.9	1521.4	9979.7	1521.2	9981.8	1521	9983.1	1520.7
9984.8	1520.3	9987.8	1519.7	9993.9	1519.7	10012.6	1519.5	10015.8	1520
10023.9	1521.1	10025.2	1521.3	10029.8	1521.9	10046.7	1523.9	10051.9	1524.8
10051.9	1524.9	10066.7	1527.8	10075.1	1530.8	10086.6	1535.2	10091.1	1537.1
10097	1538.9	10100.6	1540.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9928.1	.055	9968.3	.04	10051.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.3	10051.9	425.78	431.97	432.64	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.90	9968.30	0.15	0.17	0.89	0.00	0.22	0.89
LB 9968.30	9985.02	580.59	68.08	17.97	12.70	4.07	8.53
9985.02	10001.74	1396.04	112.12	16.78	30.55	6.71	12.45
10001.74	10018.46	1406.85	112.66	16.78	30.78	6.74	12.49
10018.46	10035.18	838.04	82.72	16.86	18.34	4.95	10.13
10035.18	RB 10051.90	335.00	47.85	16.98	7.33	2.86	7.00
10051.90	10068.13	13.32	5.99	7.97	0.29	0.77	2.22

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.90	9968.30	0.16	0.18	0.90	0.00	0.23	0.91
LB 9968.30	9985.02	581.28	68.29	17.97	12.72	4.08	8.51
9985.02	10001.74	1394.88	112.33	16.78	30.52	6.72	12.42
10001.74	10018.46	1405.66	112.87	16.78	30.76	6.75	12.45
10018.46	10035.18	838.27	82.93	16.86	18.34	4.96	10.11
10035.18	RB 10051.90	336.13	48.06	16.98	7.36	2.87	6.99
10051.90	10068.13	13.62	6.09	7.98	0.30	0.78	2.24

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.319

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9927.6	1530.2	9933.9	1526.7	9941.7	1524	9949.8	1521.3	9951.7	1520.7
9953.8	1520.1	9965.9	1518.3	9980.1	1516.4	9985.4	1515.3	9990.9	1514.1
10001.9	1513.5	10002.7	1513.5	10003	1513.5	10003.3	1513.5	10011.9	1513.8
10016.8	1516.7	10020.6	1518.8	10024.9	1521.4	10025.7	1521.9	10027.1	1522.8
10041.1	1530	10053.1	1536.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9927.6	.055	9949.8	.04	10024.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9949.8	10024.9	489.37	498.37	503.44	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.40	9949.80	0.98	0.76	2.25	0.02	0.35	1.30
LB 9949.80	9964.82	209.05	35.38	15.32	4.57	2.36	5.91
9964.82	9979.84	635.27	68.63	15.16	13.90	4.57	9.26
9979.84	9994.86	1305.53	106.06	15.27	28.57	7.06	12.31
9994.86	10009.88	1751.19	125.71	15.03	38.32	8.37	13.93
10009.88	RB 10024.90	667.66	74.18	17.08	14.61	4.94	9.00
10024.90	10034.30	0.32	0.30	1.15	0.01	0.31	1.09

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.40	9949.80	0.89	0.70	2.16	0.02	0.34	1.27
LB 9949.80	9964.82	206.64	34.98	15.32	4.52	2.33	5.91
9964.82	9979.84	633.78	68.23	15.16	13.87	4.54	9.29
9979.84	9994.86	1306.97	105.66	15.27	28.60	7.03	12.37
9994.86	10009.88	1754.86	125.31	15.03	38.40	8.34	14.00
10009.88	RB 10024.90	666.58	73.78	17.08	14.59	4.91	9.03
10024.90	10034.30	0.29	0.27	1.10	0.01	0.29	1.07

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.225

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9906.2	1528.1	9908.4	1527.2	9930.8	1518	9936.9	1516	9945.1	1515.1
9962.7	1513.1	9968.6	1511.8	9974.4	1510.7	9976.3	1510.2	9983.1	1509.2
9989.4	1509.4	9994.3	1509.7	10003.2	1509.6	10011.7	1509.7	10023.8	1514
10025.3	1514.5	10026.4	1515.4	10027.5	1516.4	10031.3	1519.4	10047.4	1532.3
10056.4	1538.6	10056.8	1538.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9906.2	.055	9962.7	.04	10026.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962.7	10026.4	478.71	494.15	476.32	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9934.45	9948.58	22.42	9.92	12.39	0.49	0.81	2.26
9948.58	9962.70	147.64	32.48	14.22	3.23	2.30	4.55
LB 9962.70	9975.44	589.49	56.72	13.02	12.90	4.45	10.39
9975.44	9988.18	1154.49	84.44	12.85	25.26	6.63	13.67
9988.18	10000.92	1154.78	84.20	12.75	25.27	6.61	13.72
10000.92	10013.66	1115.93	82.77	12.86	24.42	6.50	13.48
10013.66	RB 10026.40	384.79	44.90	13.76	8.42	3.52	8.57
10026.40	10036.53	0.46	0.35	1.19	0.01	0.40	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9934.45	9948.58	23.58	10.27	12.42	0.52	0.84	2.30
9948.58	9962.70	149.81	32.88	14.22	3.28	2.33	4.56
LB 9962.70	9975.44	590.46	57.08	13.02	12.92	4.48	10.34
9975.44	9988.18	1152.39	84.80	12.85	25.22	6.66	13.59
9988.18	10000.92	1152.70	84.56	12.75	25.22	6.64	13.63
10000.92	10013.66	1114.06	83.14	12.86	24.38	6.53	13.40
10013.66	RB 10026.40	386.50	45.26	13.76	8.46	3.55	8.54
10026.40	10036.53	0.51	0.38	1.22	0.01	0.43	1.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.131

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9942.1	1517.8	9946.6	1515.8	9950.5	1514.6	9977.7	1505.4	9977.8	1505.4
9982.7	1503.8	9985	1503.3	9996.1	1503.2	10014.9	1503.1	10023.5	1505.1
10023.9	1505.1	10023.9	1505.2	10028.9	1505.5	10048.6	1507	10065.2	1514.3
10072.1	1517.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9942.1	.055	9977.7	.04	10023.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.7	10023.9	497.8	513.49	519.41	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.97	9965.83	0.14	0.17	1.07	0.00	0.17	0.82

9965.83	9977.70	131.28	27.87	12.53	2.87	2.35	4.71
LB 9977.70	9986.94	647.71	52.51	9.55	14.17	5.68	12.33
9986.94	9996.18	831.23	60.20	9.24	18.19	6.51	13.81
9996.18	10005.42	845.23	60.80	9.24	18.50	6.58	13.90
10005.42	10014.66	855.87	61.26	9.24	18.73	6.63	13.97
10014.66	RB 10023.90	638.28	52.10	9.57	13.97	5.64	12.25
10023.90	10033.54	290.64	40.95	9.66	6.36	4.25	7.10
10033.54	10043.18	213.89	34.08	9.67	4.68	3.54	6.28
10043.18	10052.82	114.34	23.77	10.05	2.50	2.47	4.81
10052.82	10062.46	1.38	0.92	2.23	0.03	0.45	1.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9977.70	9986.94	532.61	53.28	13.99	11.65	5.77	10.00
9986.94	9996.18	878.91	60.97	9.24	19.23	6.60	14.42
9996.18	10005.42	893.53	61.57	9.24	19.55	6.66	14.51
10005.42	10014.66	904.63	62.03	9.24	19.80	6.71	14.58
10014.66	RB 10023.90	677.10	52.87	9.57	14.82	5.72	12.81
10023.90	10033.54	317.89	41.76	9.66	6.96	4.33	7.61
10033.54	10043.18	235.46	34.88	9.67	5.15	3.62	6.75
10043.18	10052.82	127.98	24.57	10.05	2.80	2.55	5.21
10052.82	10062.46	1.89	1.09	2.32	0.04	0.53	1.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 2.034

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9916.2	1514	9925.8	1510.8	9929.5	1509.9	9942.8	1505.1	9967.1	1501.7
9968	1501.5	9970.1	1501.1	9984.2	1498.4	9985.3	1498.2	9994.6	1496.8
9996.1	1496.7	10007.1	1496.7	10013.5	1497.1	10019.6	1497.7	10023.1	1498.4
10034.5	1499.7	10038.4	1500.1	10068.3	1518	10078.3	1523.9	10078.5	1523.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9916.2	.055	9970.1	.04	10038.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.1	10038.4	501.4	498.54	496.04	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9934.17	9952.13	0.01	0.02	0.56	0.00	0.04	0.29
9952.13	9970.10	76.16	24.28	18.17	1.67	1.35	3.14
LB 9970.10	9983.76	496.99	55.73	13.91	10.88	4.08	8.92
9983.76	9997.42	1068.58	87.93	13.79	23.38	6.44	12.15
9997.42	10011.08	1276.69	97.47	13.67	27.94	7.14	13.10
10011.08	10024.74	1015.83	85.24	13.77	22.23	6.24	11.92
10024.74	RB 10038.40	592.59	61.64	13.74	12.97	4.51	9.61
10038.40	10051.77	43.16	11.88	7.34	0.94	1.89	3.63

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9970.10	9983.76	456.14	56.72	16.75	9.98	4.15	8.04
9983.76	9997.42	1098.43	88.92	13.79	24.04	6.51	12.35
9997.42	10011.08	1309.95	98.47	13.67	28.66	7.21	13.30
10011.08	10024.74	1044.81	86.24	13.77	22.86	6.31	12.12
10024.74	RB 10038.40	614.00	62.63	13.74	13.44	4.59	9.80
10038.40	10051.77	46.68	12.34	7.42	1.02	1.96	3.78

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.940

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9890.7	1506	9891.8	1505.9	9893.4	1505.7	9901.6	1505.3	9904.1	1505
9905.7	1504.8	9907.7	1504.6	9913	1504	9913.6	1504	9916.7	1503.9
9922.6	1503.3	9926.6	1503	9930.4	1502.6	9940.6	1501.3	9945.3	1500.8
9955.6	1497.5	9962.3	1495.4	9966.6	1493.9	9977.8	1493	9978	1493
9986	1491.7	9986.9	1491.5	9990.9	1491.5	10005.1	1491.6	10013.6	1491.8
10017.5	1492	10023.9	1493.7	10037.4	1497.3	10039	1497.6	10049.6	1499.5
10050.8	1500	10051.6	1500.3	10075.5	1510				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9890.7	.055	9955.6	.04	10037.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9955.6	10037.4	496.97	493.82	489.63	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.97	9955.60	0.21	0.21	1.19	0.00	0.18	1.00
LB 9955.60	9971.96	364.65	45.70	16.95	7.98	2.79	7.98
9971.96	9988.32	1081.37	86.80	16.51	23.66	5.31	12.46
9988.32	10004.68	1457.26	103.44	16.36	31.89	6.32	14.09
10004.68	10021.04	1310.77	97.38	16.49	28.68	5.95	13.46
10021.04	RB 10037.40	354.58	44.91	16.93	7.76	2.75	7.89
10037.40	10050.10	1.16	0.86	3.12	0.03	0.28	1.35

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.97	9955.60	0.22	0.22	1.20	0.00	0.19	1.02
LB 9955.60	9971.96	365.52	45.85	16.95	8.00	2.80	7.97
9971.96	9988.32	1081.16	86.95	16.51	23.66	5.31	12.43
9988.32	10004.68	1456.31	103.59	16.36	31.87	6.33	14.06
10004.68	10021.04	1310.11	97.53	16.49	28.67	5.96	13.43
10021.04	RB 10037.40	355.46	45.06	16.93	7.78	2.75	7.89
10037.40	10050.10	1.22	0.89	3.13	0.03	0.29	1.37

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.846

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934.5	1506.8	9946.4	1500.5	9958	1494.9	9963.9	1492.1	9972.5	1487.9
9977	1486.9	9977.5	1486.8	9978.3	1486.7	9982.6	1486.3	10015.6	1485.7
10015.8	1485.7	10015.9	1485.7	10016.2	1485.8	10037.8	1492	10042	1493.2
10057.1	1493.9	10065.9	1494.3	10067.5	1494.3	10080.1	1495	10115.8	1497.1
10122.3	1497.3	10136.8	1497.4	10148	1497.8	10148.7	1497.9	10148.8	1497.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934.5	.055	9963.9	.04	10037.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9963.9	10037.8	157.05	147.91	138.83	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.10	9963.90	3.15	1.91	3.14	0.07	0.67	1.65
LB 9963.90	9978.68	543.05	68.06	15.88	11.88	4.60	7.98
9978.68	9993.46	1190.32	105.96	14.80	26.05	7.17	11.23
9993.46	10008.24	1277.69	110.51	14.78	27.96	7.48	11.56
10008.24	10023.02	1187.83	106.61	15.07	25.99	7.21	11.14
10023.02	RB 10037.80	362.40	52.71	15.38	7.93	3.57	6.87
10037.80	10074.80	5.55	4.20	9.66	0.12	0.44	1.32

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.10	9963.90	3.07	1.86	3.10	0.07	0.66	1.65
LB 9963.90	9978.68	542.25	67.83	15.88	11.87	4.59	7.99
9978.68	9993.46	1190.96	105.73	14.80	26.06	7.15	11.26
9993.46	10008.24	1278.57	110.28	14.78	27.98	7.46	11.59
10008.24	10023.02	1188.50	106.38	15.07	26.01	7.20	11.17
10023.02	RB 10037.80	361.28	52.48	15.38	7.91	3.55	6.88
10037.80	10074.80	5.38	4.05	9.33	0.12	0.44	1.33

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.818

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9945.8	1500.7	9946.4	1500.3	9951	1497.7	9964	1490.9	9965.4	1490.2
9973.5	1486.1	9979.5	1485.2	9980.5	1485	9998.9	1485.1	10000.6	1485.1
10003.7	1485	10008	1484.9	10011.4	1484.9	10018	1485.1	10027.1	1487.3
10042.2	1491.1	10070.3	1492.3	10097.4	1493.1	10137.7	1494.8	10144.1	1495.2
10157.3	1495.5	10159.6	1495.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9945.8	.055	9964	.04	10042.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9964	10042.2	218.93	194.96	145.84	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.93	9964.00	0.05	0.06	0.56	0.00	0.13	0.77
LB 9964.00	9979.64	568.44	59.13	16.85	12.44	3.78	9.61
9979.64	9995.28	1331.49	95.68	15.66	29.14	6.12	13.92
9995.28	10010.92	1344.39	96.20	15.64	29.42	6.15	13.98
10010.92	10026.56	1118.34	86.68	15.89	24.47	5.54	12.90
10026.56	RB 10042.20	207.27	31.72	16.13	4.54	2.03	6.54
10042.20	10081.33	0.01	0.04	1.41	0.00	0.03	0.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.93	9964.00	0.06	0.08	0.59	0.00	0.15	0.83
LB 9964.00	9979.64	570.09	59.52	16.85	12.47	3.81	9.58
9979.64	9995.28	1329.73	96.07	15.66	29.10	6.14	13.84
9995.28	10010.92	1342.56	96.59	15.64	29.38	6.18	13.90
10010.92	10026.56	1117.66	87.08	15.89	24.46	5.57	12.84
10026.56	RB 10042.20	209.86	32.11	16.13	4.59	2.05	6.54
10042.20	10081.33	0.04	0.08	1.44	0.00	0.06	0.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.781

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9967.7	1500.3	9968.3	1500.4	9973.1	1496.7	9983.4	1488	9988.4	1483.7
9991.3	1483.7	9994.9	1482.3	10005.7	1482.2	10009.7	1482.2	10021.6	1482.1
10031	1482.1	10042.5	1483.9	10054.5	1486	10086.1	1487.7	10089.4	1487.9
10092.2	1488	10097.7	1488.3	10120.6	1489.1	10136.2	1489.3	10141	1489.3
10142.6	1489.4	10143.2	1489.4	10151.3	1489.7	10152.4	1489.7	10155.4	1489.8
10206.2	1494.1	10217.1	1494.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9967.7	.055	9983.4	.04	10054.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.4	10054.5	175.8	204.14	249.95	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.17	9983.40	0.04	0.06	0.48	0.00	0.16	0.72
LB 9983.40	9997.62	591.84	61.17	16.08	12.95	4.30	9.68
9997.62	10011.84	1146.63	86.60	14.22	25.09	6.09	13.24
10011.84	10026.06	1175.64	87.91	14.22	25.73	6.18	13.37
10026.06	10040.28	1032.23	81.57	14.33	22.59	5.74	12.66
10040.28	RB 10054.50	462.11	50.50	14.43	10.11	3.55	9.15
10054.50	10108.70	161.51	49.71	43.55	3.53	1.14	3.25

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.17	9983.40	0.04	0.05	0.46	0.00	0.15	0.74
LB 9983.40	9997.62	618.95	60.97	16.08	13.54	4.29	10.15
9997.62	10011.84	1201.05	86.40	14.22	26.28	6.08	13.90
10011.84	10026.06	1231.51	87.72	14.22	26.95	6.17	14.04
10026.06	10040.28	1080.97	81.37	14.33	23.65	5.72	13.28
10040.28	RB 10054.50	437.47	50.30	16.73	9.57	3.54	8.70

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.742

INPUT
Description:
Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9763.7	1500.8	9765.2	1500.1	9770.4	1497.4	9770.9	1497.2	9772.5	1496.6
9781.5	1492.6	9785.1	1490.9	9793.6	1487.9	9803.2	1485.3	9806.6	1485
9810.3	1484.9	9818.1	1484.8	9833.3	1484.1	9849	1484	9849.6	1484
9851.6	1484	9855.8	1484	9873.9	1484.2	9885.9	1484.4	9891.5	1484.5
9912.7	1484.8	9918.7	1484.5	9940.3	1482.8	9944.1	1482.6	9948.1	1482.1
9953.6	1481.9	9954.1	1481.9	9963	1482.1	9963.6	1482.1	9967.4	1482.1
9978.2	1481.1	9978.3	1481.1	9983.5	1480.7	9983.6	1480.7	10005.2	1479.5
10012.6	1479.6	10025.4	1480	10026.9	1480.2	10034.5	1484.8	10045.7	1491.7
10062.1	1502.5	10068.8	1504.8	10069.2	1504.9	10071.6	1505.5	10076.2	1507
10077.1	1506.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9763.7	.065	9963	.045	10034.5	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9963	10034.5	216.2	344.47	284.25	.6	.8

Ineffective Flow num= 1

Sta L	Sta R	Elev
9763.7	9912.7	1490.6

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9800.95	9838.20	0.00	31.18	35.79	0.00	0.87	0.00
9838.20	9875.45	0.00	53.28	37.25	0.00	1.43	0.00
9875.45	9912.70	0.00	36.22	37.25	0.00	0.97	0.00
9912.70	9963.00	603.45	120.38	50.42	13.20	2.39	5.01
LB 9963.00	9977.30	505.66	53.12	14.34	11.06	3.71	9.52
9977.30	9991.60	780.50	68.91	14.33	17.08	4.82	11.33
9991.60	10005.90	1014.60	80.63	14.32	22.20	5.64	12.58
10005.90	10020.20	1081.45	83.74	14.30	23.66	5.86	12.91
10020.20	RB 10034.50	583.85	59.89	15.60	12.78	4.19	9.75

10034.50	10048.70	0.49	0.40	1.33	0.01	0.35	1.25

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9912.70	9963.00	596.66	112.53	44.17	13.06	2.62	5.30
LB 9963.00	9977.30	504.68	52.66	14.34	11.04	3.68	9.58
9977.30	9991.60	781.62	68.44	14.33	17.10	4.79	11.42
9991.60	10005.90	1017.74	80.16	14.32	22.27	5.61	12.70
10005.90	10020.20	1085.19	83.27	14.30	23.75	5.82	13.03
10020.20	RB 10034.50	583.68	59.42	15.60	12.77	4.16	9.82
10034.50	10048.70	0.44	0.36	1.27	0.01	0.33	1.23

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.677

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9924.6	1490	9935.2	1484.8	9943.1	1481.2	9960.1	1479.2	9963.1	1478.8
9964.1	1478.6	9971.5	1476.7	9974	1477	9978	1477.7	9981.6	1477.4
9989.5	1476.9	9993.5	1476.4	9998.7	1475.5	10010.8	1476.3	10014.5	1476.5
10021.4	1476.7	10024	1476.7	10033.9	1476.8	10034.7	1476.8	10036.2	1476.7
10046.9	1476.4	10062.5	1480.8	10067.5	1484.2	10078	1489.9	10081.2	1490.5
10082.5	1490.7	10083	1490.8	10093	1491.3	10105.3	1491.9	10109.1	1492

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9924.6	.055	9943.1	.04	10062.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9943.1	10062.5	262.96	255.06	211.86	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9936.93	9943.10	0.25	0.26	1.18	0.01	0.24	0.95
LB 9943.10	9966.98	242.24	46.29	24.14	5.30	1.94	5.23
9966.98	9990.86	974.56	106.73	24.14	21.33	4.47	9.13
9990.86	10014.74	1432.78	134.19	24.01	31.35	5.62	10.68
10014.74	10038.62	1179.60	119.17	23.89	25.81	4.99	9.90
10038.62	RB 10062.50	739.80	90.98	24.49	16.19	3.81	8.13
10062.50	10078.03	0.77	0.58	1.58	0.02	0.44	1.33

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9936.93	9943.10	0.38	0.35	1.26	0.01	0.33	1.07
LB 9943.10	9966.98	252.04	48.31	24.14	5.52	2.02	5.22
9966.98	9990.86	974.29	108.75	24.14	21.32	4.55	8.96
9990.86	10014.74	1423.32	136.21	24.01	31.14	5.70	10.45
10014.74	10038.62	1175.46	121.19	23.89	25.72	5.08	9.70
10038.62	RB 10062.50	743.56	93.00	24.49	16.27	3.89	8.00
10062.50	10078.03	0.96	0.69	1.66	0.02	0.53	1.40

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.629

INPUT
Description: 100-year, 24-hour Peak Discharge of 4680 cfs from HEC-1 model at station C105R.
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9940.9	1490.2	9943	1489.3	9945.6	1488.3	9946.1	1488.1	9946.8	1487.8
9965.8	1487	9966.9	1486.8	9967.3	1486.8	9971.8	1483.8	9979.7	1477.9
9982.7	1475.6	9984.9	1475	9991.3	1471.3	9991.5	1471.2	9992	1471.2
10005.6	1471.5	10007	1471.7	10015.8	1472.5	10026.4	1472.9	10032.4	1473.2

10040.8	1473.5	10045.6	1474.3	10051.5	1475.5	10058.7	1476.5	10066	1477
10076	1477	10103.6	1478	10110.1	1479.8	10111	1480	10111.5	1480.1
10119.4	1482	10131.9	1485	10135.7	1485.4	10139.7	1485.7	10141	1485.8
10141.8	1485.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9940.9	.055	9979.7	.04	10066	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.7	10066	473.14	493.83	488.71	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.77	9979.70	0.06	0.08	0.57	0.00	0.17	0.80
LB 9979.70	9996.96	861.41	83.07	19.14	18.41	4.81	10.37
9996.96	10014.22	1542.79	113.19	17.31	32.97	6.56	13.63
10014.22	10031.48	1140.74	94.38	17.28	24.37	5.47	12.09
10031.48	10048.74	825.18	77.92	17.40	17.63	4.51	10.59
10048.74	RB 10066.00	220.78	35.33	17.40	4.72	2.05	6.25
10066.00	10081.16	57.58	18.31	15.16	1.23	1.21	3.14
10081.16	10096.32	27.65	11.79	15.17	0.59	0.78	2.34
10096.32	10111.48	3.82	2.81	8.18	0.08	0.34	1.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.77	9979.70	0.11	0.12	0.65	0.00	0.26	0.95
LB 9979.70	9996.96	881.30	84.57	19.14	18.83	4.90	10.42
9996.96	10014.22	1566.00	114.70	17.31	33.46	6.65	13.65
10014.22	10031.48	1162.95	95.89	17.28	24.85	5.56	12.13
10031.48	10048.74	845.88	79.43	17.40	18.07	4.60	10.65
10048.74	RB 10066.00	223.75	36.84	18.73	4.78	2.13	6.07

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.535

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9897.4	1481.8	9922.2	1473.2	9932.1	1469.6	9936.2	1469.6	9943.4	1469.7
9950.4	1469.2	9959.3	1468.3	9966.3	1467	9971.8	1466.2	9982.1	1465.9
9989.2	1465.6	9991.8	1465.5	9992.6	1465.3	9993.7	1464.8	9999	1464.8
10005.9	1464.9	10013.8	1466.9	10018.3	1467.9	10021	1468.2	10029.4	1469.2
10043.7	1476.7	10055.6	1482.9	10066	1483.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9897.4	.055	9943.4	.04	10018.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9943.4	10018.3	255.19	287.48	245.01	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9912.73	9928.07	0.33	0.31	1.39	0.01	0.24	1.08
9928.07	9943.40	110.18	26.43	15.59	2.35	1.72	4.17
LB 9943.40	9958.38	264.80	36.52	15.04	5.66	2.44	7.25
9958.38	9973.36	700.86	65.70	15.16	14.98	4.39	10.67
9973.36	9988.34	1067.70	84.19	14.99	22.81	5.62	12.68
9988.34	10003.32	1354.04	97.42	15.12	28.93	6.50	13.90
10003.32	RB 10018.30	972.85	80.36	15.34	20.79	5.36	12.11
10018.30	10034.20	209.24	38.50	16.21	4.47	2.47	5.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9912.73	9928.07	0.66	0.47	1.51	0.01	0.36	1.40
9928.07	9943.40	128.19	28.36	15.59	2.74	1.85	4.52
LB 9943.40	9958.38	297.74	38.41	15.04	6.36	2.56	7.75
9958.38	9973.36	759.59	67.59	15.16	16.23	4.51	11.24
9973.36	9988.34	1145.37	86.08	14.99	24.47	5.75	13.31
9988.34	10003.32	1445.35	99.31	15.12	30.88	6.63	14.55
10003.32	RB 10018.30	903.10	82.25	19.10	19.30	5.49	10.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.481

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9958.9	1487.1	9962.9	1485.3	9969.9	1482	9975.2	1479.8	9986.6	1474
9989.6	1465.5	9989.9	1464.8	9992	1459.8	9995.1	1459.8	10000.2	1459.7
10004.4	1459.3	10009.3	1460.1	10010	1460.2	10010.8	1460.2	10025.9	1460.7
10028.5	1460.4	10035.8	1460.1	10039.6	1460.1	10041.9	1460.3	10053.6	1465.6
10059.2	1468.1	10060.7	1468.7	10061.3	1468.9	10068.2	1471.4	10069.2	1472
10070.1	1472.3	10070.6	1472.6	10079.7	1477.6	10080.2	1478.1	10091.6	1484.3
10093.8	1485.4	10096.5	1486.6	10105.3	1490.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9958.9	.055	9989.6	.04	10053.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.6	10053.6	230.21	224.54	206.35	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9979.37	9989.60	0.07	0.09	0.75	0.00	0.35	0.79
LB 9989.60	10002.40	918.38	75.86	16.60	19.62	5.93	12.11
10002.40	10015.20	1204.49	80.67	12.88	25.74	6.30	14.93
10015.20	10028.00	1014.95	72.65	12.82	21.69	5.68	13.97
10028.00	10040.80	1115.03	76.86	12.81	23.83	6.00	14.51
10040.80	RB 10053.60	426.50	44.67	13.95	9.11	3.49	9.55
10053.60	10070.83	0.58	0.41	1.49	0.01	0.30	1.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9979.37	9989.60	0.08	0.10	0.79	0.00	0.39	0.81
LB 9989.60	10002.40	917.82	76.36	16.60	19.61	5.97	12.02
10002.40	10015.20	1202.99	81.16	12.88	25.70	6.34	14.82
10015.20	10028.00	1014.80	73.15	12.82	21.68	5.71	13.87
10028.00	10040.80	1114.20	77.35	12.81	23.81	6.04	14.41
10040.80	RB 10053.60	429.43	45.16	13.95	9.18	3.53	9.51
10053.60	10070.83	0.69	0.47	1.53	0.01	0.34	1.47

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.438

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9944.7	1478.4	9956.2	1475	9960.3	1472.8	9968.4	1463.4	9969.1	1462.6
9970.9	1460.5	9972.4	1460.2	9984.9	1457.9	9988.3	1458.1	9992.5	1458.5
10005.3	1458.2	10028.3	1457.9	10030.5	1458	10035.7	1458	10047.2	1458.8
10050.3	1459.5	10053	1460.4	10059.1	1462.6	10061.5	1463.4	10066.3	1465
10074.5	1467.8	10078.5	1468.4	10080.9	1468.6	10094.3	1474.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9944.7	.055	9969.1	.04	10059.1	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.1	10059.1	105.06	102.65	98.84	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.97	9969.10	0.11	0.11	0.67	0.00	0.25	0.98
LB 9969.10	9987.10	710.06	68.86	19.21	15.17	3.83	10.31
9987.10	10005.10	1074.04	86.05	18.02	22.95	4.78	12.48
10005.10	10023.10	1164.73	90.29	18.00	24.89	5.02	12.90
10023.10	10041.10	1185.12	91.26	18.02	25.32	5.07	12.99
10041.10	RB 10059.10	545.47	58.06	18.62	11.66	3.23	9.40
10059.10	10070.83	0.47	0.38	1.59	0.01	0.25	1.25

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.97	9969.10	0.12	0.12	0.68	0.00	0.26	1.00
LB 9969.10	9987.10	710.64	69.09	19.21	15.18	3.84	10.29
9987.10	10005.10	1073.70	86.28	18.02	22.94	4.79	12.44
10005.10	10023.10	1164.11	90.52	18.00	24.87	5.03	12.86
10023.10	10041.10	1184.43	91.50	18.02	25.31	5.08	12.95
10041.10	RB 10059.10	546.49	58.29	18.62	11.68	3.24	9.38
10059.10	10070.83	0.51	0.40	1.60	0.01	0.26	1.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.419

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9923.9	1479.8	9924.6	1479.8	9930.2	1477.2	9948.8	1468.3	9953.5	1463.6
9958.5	1457.9	9960.1	1457.9	9977.1	1456.7	9982.5	1456.2	9987.9	1451.1
9994.4	1445.6	9996.1	1445.9	9998.5	1446.4	10001	1446.7	10005	1446.9
10005.9	1447	10008.6	1446.8	10009.2	1446.6	10014.2	1454.5	10014.3	1454.7
10014.8	1454.9	10038.1	1459.7	10040.6	1460.2	10041.4	1460.5	10043.4	1461.2
10044.8	1461.7	10056.8	1465.1	10061.7	1467				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9923.9	.055	9982.5	.04	10014.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.5	10014.3	294.48	297.55	301.27	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

9943.43	9962.97	4.29	2.59	5.13	0.09	0.53	1.66
9962.97	9982.50	89.34	27.32	19.59	1.91	1.40	3.27
LB 9982.50	9988.86	276.42	32.99	8.69	5.91	5.19	8.38
9988.86	9995.22	974.68	68.29	8.09	20.83	10.74	14.27
9995.22	10001.58	1379.68	76.81	6.44	29.48	12.08	17.96
10001.58	10007.94	1284.43	73.27	6.37	27.45	11.52	17.53
10007.94	RB 10014.30	545.18	54.24	10.87	11.65	8.53	10.05
10014.30	10030.10	125.77	31.09	16.16	2.69	1.97	4.05
10030.10	10045.90	0.22	0.28	1.68	0.00	0.17	0.79

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9943.43	9962.97	5.94	3.22	5.25	0.13	0.66	1.85
9962.97	9982.50	101.25	29.83	19.59	2.16	1.53	3.39
LB 9982.50	9988.86	280.48	33.81	8.69	5.99	5.32	8.30
9988.86	9995.22	968.49	69.11	8.09	20.69	10.87	14.01
9995.22	10001.58	1367.92	77.63	6.44	29.23	12.21	17.62
10001.58	10007.94	1274.57	74.09	6.37	27.23	11.65	17.20
10007.94	RB 10014.30	544.49	55.05	10.87	11.63	8.66	9.89
10014.30	10030.10	136.33	33.12	16.16	2.91	2.10	4.12
10030.10	10045.90	0.52	0.49	1.80	0.01	0.30	1.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.363

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9928.3	1464.3	9929.4	1463.9	9933.8	1461.9	9938.5	1459.9	9943.2	1457.8
9956.3	1450.9	9958.8	1449.6	9959.5	1449.3	9960.2	1449.1	9965.2	1447.8
9968.8	1447	9972.1	1446.3	9976	1445.2	9983.8	1444.1	9985.7	1444
9986.6	1443.9	9992.2	1443.6	9995.4	1443.1	9999.4	1443	10000.5	1442.9
10004.7	1443.1	10005.9	1443.6	10011.1	1447.5	10015.6	1450.9	10023.4	1456.7
10030.6	1460.2	10031.4	1460.6	10034.3	1461.9	10042.4	1466.3	10051.8	1470.4
10053.1	1470.9	10053.5	1471.1	10056.7	1472.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9928.3	.055	9956.3	.04	10015.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9956.3	10015.6	517.44	534.12	545.05	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.97	9956.30	0.29	0.24	1.09	0.01	0.25	1.18
LB 9956.30	9968.16	247.00	32.24	12.51	5.28	2.72	7.66
9968.16	9980.02	844.64	66.62	12.14	18.05	5.62	12.68
9980.02	9991.88	1352.07	87.68	11.91	28.89	7.39	15.42
9991.88	10003.74	1636.58	98.31	11.91	34.97	8.29	16.65
10003.74	RB 10015.60	599.23	58.05	14.40	12.80	4.89	10.32
10015.60	10029.30	0.19	0.17	0.85	0.00	0.25	1.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9946.97	9956.30	0.32	0.26	1.11	0.01	0.28	1.23

LB 9956.30	9968.16	248.87	32.50	12.51	5.32	2.74	7.66
9968.16	9980.02	845.21	66.88	12.14	18.06	5.64	12.64
9980.02	9991.88	1350.89	87.94	11.91	28.87	7.41	15.36
9991.88	10003.74	1634.28	98.57	11.91	34.92	8.31	16.58
10003.74	RB 10015.60	600.21	58.31	14.40	12.82	4.92	10.29
10015.60	10029.30	0.21	0.19	0.87	0.00	0.28	1.14

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.261

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934	1472.2	9936.3	1469.6	9943.3	1464.6	9950.7	1456.7	9952.7	1455.1
9958.5	1445.8	9960.3	1444.2	9964.9	1439.1	9966.4	1438.5	9967.7	1438.1
9973.5	1435.2	9983.5	1433.6	9986.3	1433.2	9987.8	1433	9998.8	1431.6
10000.5	1431.2	10000.9	1431.1	10001.6	1431.2	10017.2	1433.1	10020.7	1433.5
10025.8	1434.3	10040.3	1435.8	10044.3	1436.5	10046.3	1437	10052	1438.4
10054.8	1439.2	10058.5	1440.6	10063.4	1443	10067.1	1453.1	10068.9	1457.2
10070.3	1458.2	10075.4	1461.1	10082.2	1464.7	10084.9	1465.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934	.055	9966.4	.04	10052	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9966.4	10052	487.72	495.87	493.03	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.60	9966.40	0.31	0.29	1.30	0.01	0.24	1.08
LB 9966.40	9983.52	507.71	60.33	17.99	10.85	3.52	8.42
9983.52	10000.64	1457.51	111.82	17.30	31.14	6.53	13.03
10000.64	10017.76	1582.81	117.36	17.25	33.82	6.86	13.49
10017.76	10034.88	849.13	80.76	17.25	18.14	4.72	10.51
10034.88	RB 10052.00	281.79	41.85	17.44	6.02	2.44	6.73
10052.00	10062.97	0.74	0.59	2.12	0.02	0.29	1.25

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.60	9966.40	0.08	0.10	0.77	0.00	0.14	0.82
LB 9966.40	9983.52	491.95	57.00	17.99	10.51	3.33	8.63
9983.52	10000.64	1476.18	108.48	17.30	31.54	6.34	13.61
10000.64	10017.76	1606.96	114.03	17.25	34.34	6.66	14.09
10017.76	10034.88	843.15	77.43	17.25	18.02	4.52	10.89
10034.88	RB 10052.00	261.40	38.52	17.44	5.59	2.25	6.79
10052.00	10062.97	0.27	0.26	1.41	0.01	0.19	1.02

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.168

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9856	1438	9857.1	1437.9	9858.2	1437.8	9865.3	1437.2	9865.4	1437.2
9866	1437.2	9873.3	1436.6	9878.3	1436	9885.7	1435.2	9885.8	1435.2
9892.2	1434.6	9892.5	1434.6	9897	1434.1	9897.4	1434.1	9899.4	1434
9910.8	1433.5	9912.7	1433.4	9917.2	1433.2	9920.6	1433.1	9926.9	1432.7
9931.7	1432.4	9936	1432.3	9942.6	1431.8	9947.2	1431.7	9957.1	1431.5
9959.4	1431.5	9960.3	1431.5	9961.9	1431.4	9963.4	1431.3	9964.8	1431.1
9972.8	1430.1	9975.7	1429.9	9981.3	1429.2	9981.4	1429.2	9984.9	1427.8
9992	1425.1	10003	1425.3	10009	1425.4	10014.2	1426	10017.1	1426.3
10020.2	1426.6	10023.1	1426.9	10033.5	1432.6	10037.8	1435	10039	1435.6
10048.5	1441.2	10056.3	1445.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

9856 .055 9981.4 .04 10033.5 .055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9981.4 10033.5 404.5 397.21 387.72 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9906.16	9931.24	7.03	5.85	15.63	0.15	0.37	1.20
9931.24	9956.32	98.85	34.55	25.10	2.11	1.38	2.86
9956.32	9981.40	303.26	67.81	25.21	6.48	2.70	4.47
LB 9981.40	9991.82	722.16	63.65	11.17	15.43	6.11	11.35
9991.82	10002.24	1204.20	84.17	10.43	25.73	8.08	14.31
10002.24	10012.66	1143.02	81.61	10.45	24.42	7.83	14.01
10012.66	10023.08	923.68	71.90	10.48	19.74	6.90	12.85
10023.08	RB 10033.50	277.30	36.73	11.88	5.93	3.53	7.55
10033.50	10041.10	0.48	0.40	1.37	0.01	0.33	1.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9906.16	9931.24	13.54	8.89	15.83	0.29	0.57	1.52
9931.24	9956.32	119.23	39.42	25.10	2.55	1.57	3.02
9956.32	9981.40	329.58	72.68	25.21	7.04	2.90	4.53
LB 9981.40	9991.82	716.94	65.67	11.17	15.32	6.30	10.92
9991.82	10002.24	1180.56	86.19	10.43	25.23	8.27	13.70
10002.24	10012.66	1121.95	83.63	10.45	23.97	8.03	13.41
10012.66	10023.08	911.59	73.92	10.48	19.48	7.09	12.33
10023.08	RB 10033.50	285.73	38.76	11.88	6.11	3.72	7.37
10033.50	10041.10	0.89	0.63	1.57	0.02	0.53	1.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.092

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9923.4	1441.8	9943.8	1429.9	9951.4	1425.5	9951.8	1425.3	9952.1	1425.2
9965.2	1422.9	9970.4	1420.7	9970.7	1420.6	9971.8	1420.8	9977.8	1422.1
9983.5	1421.2	9987.2	1420.8	9990.5	1420.8	10017	1420.9	10017.1	1420.9
10017.4	1421	10032.9	1425.6	10034.6	1426.2	10034.7	1426.2	10050.1	1427.5
10061.7	1428.6	10069.1	1429.2	10084.1	1432.8	10086.4	1433.3	10100.3	1436.5
10118	1440.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9923.4	.055	9943.8	.04	10034.7	.055

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9943.8 10034.7 199.37 212.66 221.85 .3 .5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.00	9943.80	7.83	9.10	6.47	0.17	1.63	0.86
LB 9943.80	9961.98	446.21	134.15	19.58	9.53	7.38	3.33
9961.98	9980.16	930.02	205.44	18.88	19.87	11.30	4.53
9980.16	9998.34	1079.53	221.60	18.24	23.07	12.19	4.87
9998.34	10016.52	1097.68	223.52	18.18	23.45	12.29	4.91
10016.52	RB 10034.70	720.63	176.61	18.97	15.40	9.71	4.08
10034.70	10051.36	219.97	104.21	16.72	4.70	6.25	2.11
10051.36	10068.02	139.77	79.39	16.73	2.99	4.77	1.76

10068.02	10084.68	38.35	36.87	17.10	0.82	2.21	1.04
10084.68	10101.34	0.02	0.12	1.09	0.00	0.12	0.15

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.00	9943.80	7.88	9.15	6.48	0.17	1.64	0.86
LB 9943.80	9961.98	446.40	134.31	19.58	9.54	7.39	3.32
9961.98	9980.16	929.82	205.59	18.88	19.87	11.31	4.52
9980.16	9998.34	1079.20	221.75	18.24	23.06	12.20	4.87
9998.34	10016.52	1097.33	223.67	18.18	23.45	12.30	4.91
10016.52	RB 10034.70	720.62	176.76	18.97	15.40	9.72	4.08
10034.70	10051.36	220.18	104.34	16.72	4.70	6.26	2.11
10051.36	10068.02	140.00	79.53	16.73	2.99	4.77	1.76
10068.02	10084.68	38.54	37.01	17.10	0.82	2.22	1.04
10084.68	10101.34	0.02	0.13	1.10	0.00	0.12	0.15

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 1.052

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9885.6	1440.2	9898.1	1436.1	9905.2	1433.7	9915.5	1429.4	9915.8	1429.4
9916.1	1429.4	9916.2	1429.4	9917.1	1429.4	9918.4	1429.4	9921.1	1428.8
9923.9	1428.6	9926.4	1428.1	9930.4	1428.1	9931.4	1428.1	9935.2	1427.7
9936.3	1427.8	9938.6	1427.9	9940.8	1428.2	9941.6	1428.3	9943.7	1428.9
9947.1	1428.9	9949.4	1429.3	9951.6	1429.2	9953.7	1428.6	9955.4	1428.8
9957.7	1428.3	9959.3	1428.4	9967.4	1426.4	9968.8	1426.1	9971.4	1425.2
9971.8	1425	9972	1424.9	9975.7	1426.3	9975.9	1426.3	9976.4	1426.5
9977.6	1426.2	9984.9	1424.6	9984.9	1424.5	9985.5	1423.2	9986.9	1419.7
9988.9	1415.4	9989.3	1412.7	9990.2	1412.6	9992	1412.5	9996	1412.7
9999.2	1412.8	10000.5	1412.9	10007	1425.4	10007.8	1426.8	10008.3	1427.3
10008.3	1427.4	10014.8	1432.6	10018.6	1434.3	10019.9	1435.1	10022.6	1436.4
10024.1	1436.8	10025.7	1438	10025.8	1438				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9885.6	.055	9984.9	.04	10008.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.9	10008.3	303.98	298.99	280.72	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9885.6	9949.4	1434.4

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9906.87	9928.13	0.00	0.23	2.31	0.00	0.10	0.00
9928.13	9949.40	0.00	3.25	12.81	0.00	0.25	0.00
9949.40	9967.15	16.89	6.20	7.30	0.36	0.88	2.72
9967.15	9984.90	251.18	45.47	18.52	5.37	2.56	5.52
LB 9984.90	9989.58	332.37	43.42	13.06	7.10	9.28	7.66
9989.58	9994.26	1571.86	73.23	4.69	33.59	15.65	21.47
9994.26	9998.94	1548.70	72.55	4.68	33.09	15.50	21.35
9998.94	10003.62	820.74	62.39	8.33	17.54	13.33	13.16
10003.62	RB 10008.30	137.64	22.76	9.75	2.94	4.86	6.05
10008.30	10014.13	0.63	0.41	1.30	0.01	0.41	1.52

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9906.87	9928.13	0.00	0.17	2.19	0.00	0.08	0.00
9928.13	9949.40	0.00	2.96	12.63	0.00	0.23	0.00
9949.40	9967.15	16.37	6.04	7.21	0.35	0.86	2.71
9967.15	9984.90	248.47	45.06	18.52	5.31	2.54	5.51
LB 9984.90	9989.58	332.18	43.31	13.06	7.10	9.25	7.67
9989.58	9994.26	1573.63	73.12	4.69	33.62	15.62	21.52
9994.26	9998.94	1550.41	72.44	4.68	33.13	15.48	21.40
9998.94	10003.62	821.31	62.28	8.33	17.55	13.31	13.19
10003.62	RB 10008.30	137.04	22.65	9.75	2.93	4.84	6.05
10008.30	10014.13	0.58	0.39	1.26	0.01	0.39	1.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.995

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9930.6	1459.8	9935.7	1457.5	9951.5	1450.3	9952.1	1448.8	9953.8	1443.7
9962.5	1416.2	9970.8	1414.8	9991.4	1410.8	9993.6	1410	9995	1409.6
10004.6	1409.7	10006.2	1409.6	10014.7	1409.7	10020.7	1411.4	10023.4	1412.9
10027.3	1415.6	10027.3	1415.7	10040	1421.4	10042.4	1422.9	10055.5	1433.5
10057	1434.6	10062.8	1438.9	10063.3	1439.5	10065.8	1439.1	10067.8	1438.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9930.6	.055	9962.5	.04	10027.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962.5	10027.3	210.04	204.67	204.72	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.87	9962.50	0.40	0.38	1.62	0.01	0.77	1.07
LB 9962.50	9975.46	237.77	34.41	13.16	5.08	2.65	6.91
9975.46	9988.42	705.30	66.14	13.20	15.07	5.10	10.66
9988.42	10001.38	1376.19	98.81	13.21	29.41	7.62	13.93
10001.38	10014.34	1536.52	104.76	12.96	32.83	8.08	14.67
10014.34	RB 10027.30	811.32	74.75	14.53	17.34	5.77	10.85
10027.30	10040.80	12.49	4.64	4.98	0.27	1.02	2.69

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.87	9962.50	0.39	0.37	1.60	0.01	0.77	1.07
LB 9962.50	9975.46	236.78	34.26	13.16	5.06	2.64	6.91
9975.46	9988.42	704.82	65.99	13.20	15.06	5.09	10.68
9988.42	10001.38	1376.95	98.66	13.21	29.42	7.61	13.96
10001.38	10014.34	1537.59	104.61	12.96	32.85	8.07	14.70
10014.34	RB 10027.30	811.12	74.60	14.53	17.33	5.76	10.87
10027.30	10040.80	12.35	4.59	4.95	0.26	1.01	2.69

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.957

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9961.8	1428.7	9961.9	1428.6	9962.6	1427.9	9967	1424.3	9968.6	1422.8
9969.7	1421.7	9972.2	1421.3	9973.4	1420.9	9982.1	1413.6	9985.5	1410.7
9993.6	1405.8	10004.9	1405.7	10009.1	1405.6	10011.3	1406.3	10014.3	1406.6
10019.8	1406.8	10032.9	1413.6	10035.8	1415.1	10043.2	1418.8	10044.3	1419.5
10054.1	1424.5	10060.3	1428.9	10061.9	1430.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9961.8	.055	9982.1	.04	10032.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.1	10032.9	221.34	213.57	202.55	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9975.33	9982.10	0.37	0.28	1.07	0.01	0.35	1.31
LB 9982.10	9992.26	434.63	45.37	12.37	9.29	4.47	9.58
9992.26	10002.42	1419.58	86.06	10.39	30.33	8.47	16.50
10002.42	10012.58	1429.64	86.06	10.28	30.55	8.47	16.61
10012.58	10022.74	1114.85	74.90	10.54	23.82	7.37	14.88
10022.74	RB 10032.90	280.26	33.80	11.45	5.99	3.33	8.29
10032.90	10042.57	0.67	0.46	1.50	0.01	0.34	1.45

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9975.33	9982.10	0.40	0.30	1.09	0.01	0.36	1.33
LB 9982.10	9992.26	435.56	45.53	12.37	9.31	4.48	9.57
9992.26	10002.42	1418.62	86.22	10.39	30.31	8.49	16.45
10002.42	10012.58	1428.67	86.22	10.28	30.53	8.49	16.57
10012.58	10022.74	1114.62	75.06	10.54	23.82	7.39	14.85
10022.74	RB 10032.90	281.42	33.96	11.45	6.01	3.34	8.29
10032.90	10042.57	0.71	0.48	1.52	0.02	0.36	1.48

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.916

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9952.9	1451.1	9957.7	1450.5	9963.6	1441.1	9980.1	1410	9982	1406.5
9984.3	1406.2	9987.3	1404.8	9990.2	1403.6	9993.4	1403.5	10007.3	1402.6
10011.1	1402.7	10014.8	1404.3	10022.2	1406.9	10026.8	1407.5	10037.2	1409.1
10037.3	1409.1	10050.7	1416.9	10064	1428.5	10064.7	1429	10064.8	1429

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9952.9	.055	9980.1	.04	10037.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.1	10037.3	280.25	277.42	271.8	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.03	9980.10	0.46	0.35	1.30	0.01	0.57	1.32
LB 9980.10	9991.54	710.87	63.77	14.09	15.19	5.57	11.15
9991.54	10002.98	1459.52	90.39	11.46	31.19	7.90	16.15
10002.98	10014.42	1539.71	94.27	11.75	32.90	8.24	16.33
10014.42	10025.86	684.38	58.35	11.95	14.62	5.10	11.73
10025.86	RB 10037.30	274.55	33.30	11.57	5.87	2.91	8.24
10037.30	10046.47	10.51	3.60	4.07	0.22	1.02	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.03	9980.10	0.49	0.37	1.33	0.01	0.60	1.33
LB 9980.10	9991.54	711.65	64.11	14.09	15.21	5.60	11.10
9991.54	10002.98	1457.24	90.74	11.46	31.14	7.93	16.06
10002.98	10014.42	1536.90	94.62	11.75	32.84	8.27	16.24
10014.42	10025.86	685.71	58.70	11.95	14.65	5.13	11.68
10025.86	RB 10037.30	277.13	33.65	11.57	5.92	2.94	8.24
10037.30	10046.47	10.88	3.71	4.10	0.23	1.05	2.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.864

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9946.1	1418	9951.3	1415.8	9958.1	1413.1	9962.6	1410.2	9969.6	1405.4
9969.7	1405.4	9973.2	1403.3	9981.1	1399.7	9984.2	1398.1	9984.5	1398.1
9998.6	1398.6	10002.7	1398.9	10009.1	1399.6	10011.4	1399.5	10018.1	1399.6
10027.3	1402	10029.4	1402.6	10030	1403.1	10033.5	1404.3	10034.8	1405.2
10034.9	1405.2	10036	1405.6	10045.5	1411.7	10046.3	1412.9	10046.8	1413.1
10057.7	1420.5	10058.8	1421.2	10061.1	1422.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9946.1	.055	9969.7	.04	10034.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.7	10034.9	477.04	497.77	504.59	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.83	9969.70	0.11	0.11	0.69	0.00	0.19	0.96
LB 9969.70	9982.74	450.32	48.84	14.61	9.62	3.75	9.22
9982.74	9995.78	1501.76	96.70	13.23	32.09	7.42	15.53
9995.78	10008.82	1307.98	88.63	13.09	27.95	6.80	14.76
10008.82	10021.86	1065.35	78.56	13.17	22.76	6.02	13.56
10021.86	RB 10034.90	353.98	41.52	13.97	7.56	3.18	8.52
10034.90	10043.63	0.50	0.38	1.41	0.01	0.29	1.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.83	9969.70	0.22	0.19	0.82	0.00	0.33	1.16
LB 9969.70	9982.74	459.49	50.56	14.61	9.82	3.88	9.09
9982.74	9995.78	1489.76	98.41	13.23	31.83	7.55	15.14
9995.78	10008.82	1300.95	90.34	13.09	27.80	6.93	14.40
10008.82	10021.86	1063.93	80.27	13.17	22.73	6.16	13.25
10021.86	RB 10034.90	364.81	43.24	13.97	7.79	3.32	8.44
10034.90	10043.63	0.85	0.55	1.54	0.02	0.42	1.54

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.769

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9953	1419.4	9956.4	1418	9964.1	1412.1	9970.4	1407.4	9978.2	1401.8
9980.4	1400.5	9981.2	1400	9991	1393.4	9994.6	1388.7	9994.9	1387.9
9995.8	1387.9	10002.4	1388.5	10010.9	1391.5	10018.5	1394	10018.6	1394

10025.8	1393.8	10026.4	1393.7	10027.7	1394	10045	1397.5	10058.9	1399.7
10061	1400.1	10072.3	1405.9	10092.5	1417				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9953	.065	9981.2	.045	10018.6	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.2	10018.6	114.28	129.28	157.26	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.80	9981.20	0.26	0.31	1.17	0.01	0.31	0.87
LB 9981.20	9988.68	123.44	23.45	9.02	2.64	3.14	5.26
9988.68	9996.16	661.24	69.09	10.83	14.13	9.24	9.57
9996.16	10003.64	1355.36	92.13	7.58	28.96	12.32	14.71
10003.64	10011.12	985.72	77.49	7.93	21.06	10.36	12.72
10011.12	RB 10018.60	619.29	58.45	7.87	13.23	7.81	10.60
10018.60	10033.38	612.69	95.60	14.94	13.09	6.47	6.41
10033.38	10048.16	272.22	58.94	15.06	5.82	3.99	4.62
10048.16	10062.94	49.79	20.74	14.14	1.06	1.50	2.40

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.80	9981.20	0.13	0.17	0.87	0.00	0.23	0.78
LB 9981.20	9988.68	122.74	22.30	9.02	2.62	2.98	5.50
9988.68	9996.16	695.22	67.94	10.83	14.86	9.08	10.23
9996.16	10003.64	1435.08	90.98	7.58	30.66	12.16	15.77
10003.64	10011.12	1039.55	76.35	7.93	22.21	10.21	13.62
10011.12	RB 10018.60	647.79	57.30	7.87	13.84	7.66	11.30
10018.60	10033.38	668.83	93.33	14.94	14.29	6.31	7.17
10033.38	10048.16	70.66	19.37	8.54	1.51	4.92	3.65

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.745

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9914.7	1414.1	9919.1	1412.5	9950.5	1399.2	9954.2	1397.6	9955.3	1397.4
9957.9	1397	9959.5	1396.3	9962.5	1395.4	9964.9	1394.7	9966.1	1394.5
9966.6	1394.4	9971.2	1392.7	9972.1	1392.4	9975.8	1390.6	9977.5	1389.8
9979.8	1389.2	9982.7	1388.3	9984.6	1388.4	9990.2	1388.7	9995	1388.7
10000.1	1388.7	10000.6	1388.7	10007.2	1388.3	10011.6	1388	10012.3	1388.1
10015.1	1388.5	10020.1	1389.4	10027.5	1391.7	10027.7	1391.7	10036.6	1392.8
10043.3	1393.4	10044.9	1393.9	10046.6	1394.5	10067.6	1403.8	10069.4	1404.5
10083.3	1410.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9914.7	.065	9966.1	.045	10027.5	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9966.1	10027.5	31.81	59.17	88.58	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10027.5	10083.3	1406.2

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9931.83	9948.97	0.90	1.64	3.02	0.02	0.59	0.55
9948.97	9966.10	144.83	70.45	18.04	3.09	4.11	2.06
LB 9966.10	9978.38	563.16	108.95	13.27	12.03	8.87	5.17
9978.38	9990.66	1019.36	151.77	12.47	21.78	12.36	6.72
9990.66	10002.94	1027.29	151.54	12.28	21.95	12.34	6.78
10002.94	10015.22	1081.53	156.55	12.34	23.11	12.75	6.91
10015.22	RB 10027.50	842.92	136.42	12.71	18.01	11.11	6.18
10027.50	10046.10	0.00	153.20	18.84	0.00	8.24	0.00
10046.10	10064.70	0.00	51.41	16.65	0.00	3.37	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9931.83	9948.97	1.08	1.75	3.06	0.02	0.63	0.62
9948.97	9966.10	159.96	71.11	18.04	3.42	4.15	2.25
LB 9966.10	9978.38	596.37	109.43	13.27	12.74	8.91	5.45
9978.38	9990.66	1077.28	152.24	12.47	23.02	12.40	7.08
9990.66	10002.94	1085.66	152.01	12.28	23.20	12.38	7.14
10002.94	10015.22	1142.80	157.03	12.34	24.42	12.79	7.28
10015.22	RB 10027.50	616.84	136.89	22.07	13.18	11.15	4.51

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.734

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9955.3	1406.8	9961.2	1405.5	9965.5	1404.6	9969.7	1403.6	9972.2	1402.8
9975.3	1401.7	9979.3	1401.3	9980.2	1401.2	9981.2	1399.6	9983	1396.4
9988.2	1387	10001.5	1387.2	10010	1387.1	10014.4	1391.5	10018.1	1396.2
10020.8	1399.7	10022.6	1402.2	10031.6	1404.2	10039.4	1405.2	10045.9	1406.2
10053	1406.9	10054.1	1407.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9955.3	.065	9983	.045	10018.1	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983	10018.1	157.59	161.15	167.86	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9973.77	9983.00	0.09	0.10	0.67	0.00	0.29	0.89
LB 9983.00	9990.02	449.06	45.64	12.56	9.60	6.50	9.84
9990.02	9997.04	1335.71	69.55	7.02	28.54	9.91	19.21
9997.04	10004.06	1314.70	68.89	7.02	28.09	9.81	19.09
10004.06	10011.08	1253.43	68.62	7.47	26.78	9.77	18.27
10011.08	RB 10018.10	326.72	35.33	10.68	6.98	5.03	9.25
10018.10	10030.10	0.30	0.24	0.99	0.01	0.39	1.26

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9973.77	9983.00	0.09	0.10	0.69	0.00	0.31	0.91
LB 9983.00	9990.02	449.66	45.78	12.56	9.61	6.52	9.82
9990.02	9997.04	1335.14	69.69	7.02	28.53	9.93	19.16
9997.04	10004.06	1314.18	69.03	7.02	28.08	9.83	19.04
10004.06	10011.08	1252.96	68.76	7.47	26.77	9.79	18.22
10011.08	RB 10018.10	327.64	35.47	10.68	7.00	5.05	9.24
10018.10	10030.10	0.32	0.25	1.01	0.01	0.41	1.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.703

INPUT

Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9916.5	1433.1	9925	1430.9	9927.6	1430	9928.5	1423.5	9932.1	1398.7
9935.1	1396.3	9937	1396.1	9941.2	1394.6	9947	1392.8	9955	1389.8
9956.1	1389.3	9961.7	1388.2	9976.7	1386.4	9988	1384.2	9992.5	1383.4
9992.9	1383.3	9993.4	1383.3	10001.6	1382.9	10004.5	1383.7	10009.7	1384.9
10014	1385.2	10017.2	1385.5	10023	1385.1	10029	1384.5	10030.6	1386.2
10032.8	1391.7	10039.6	1408.8	10044.4	1422	10046.7	1423.3	10055.7	1426.2
10057.2	1426.6	10058.9	1427.2	10061.3	1427.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9916.5	.055	9976.7	.04	10032.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.7	10032.8	290.42	281.33	270.72	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9931.55	9946.60	1.31	1.70	3.47	0.03	0.51	0.77
9946.60	9961.65	157.77	55.34	15.83	3.37	3.68	2.85
9961.65	9976.70	435.82	100.06	15.16	9.31	6.65	4.36
LB 9976.70	9987.92	747.13	96.98	11.43	15.96	8.64	7.70
9987.92	9999.14	1042.88	117.97	11.31	22.28	10.51	8.84
9999.14	10010.36	977.11	114.09	11.47	20.88	10.17	8.56
10010.36	10021.58	761.97	97.52	11.25	16.28	8.69	7.81
10021.58	RB 10032.80	555.25	92.17	15.71	11.86	8.22	6.02
10032.80	10042.30	0.77	1.01	2.42	0.02	1.13	0.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9976.70	9987.92	645.28	95.68	18.87	13.79	8.53	6.74
9987.92	9999.14	1263.04	116.67	11.31	26.99	10.40	10.83
9999.14	10010.36	1182.64	112.78	11.47	25.27	10.05	10.49
10010.36	10021.58	919.23	96.22	11.25	19.64	8.58	9.55
10021.58	RB 10032.80	668.96	90.87	15.71	14.29	8.10	7.36
10032.80	10042.30	0.85	0.91	2.30	0.02	1.07	0.94

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.650

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9962.4	1400.3	9968.8	1397.2	9969.7	1396.8	9976.2	1392.3	9982.9	1389.3
9983.4	1388.9	9984.7	1387.9	9988.9	1383.7	9991.4	1381.2	9994.2	1376.9
9996.2	1375.5	10006.3	1375.2	10006.6	1375.2	10006.8	1375.2	10011.4	1380.9
10017.9	1388.9	10029.6	1403	10030.8	1403.5	10031.2	1403.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9962.4	.055	9983.4	.04	10017.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.4	10017.9	134.48	129.81	124.53	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.40	9983.40	1.18	0.82	2.14	0.03	0.44	1.43
LB 9983.40	9990.30	191.88	28.92	9.56	4.10	4.19	6.64
9990.30	9997.20	1032.86	81.24	10.13	22.07	11.77	12.71
9997.20	10004.10	1896.81	100.36	6.90	40.53	14.54	18.90
10004.10	10011.00	1300.76	90.50	9.39	27.79	13.12	14.37
10011.00	RB 10017.90	255.97	36.28	10.95	5.47	5.26	7.05
10017.90	10022.33	0.54	0.42	1.32	0.01	0.51	1.27

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.40	9983.40	1.16	0.81	2.12	0.02	0.44	1.43
LB 9983.40	9990.30	191.57	28.87	9.56	4.09	4.18	6.64
9990.30	9997.20	1032.90	81.19	10.13	22.07	11.77	12.72
9997.20	10004.10	1897.22	100.31	6.90	40.54	14.54	18.91
10004.10	10011.00	1300.94	90.46	9.39	27.80	13.11	14.38
10011.00	RB 10017.90	255.68	36.24	10.95	5.46	5.25	7.06
10017.90	10022.33	0.53	0.42	1.31	0.01	0.50	1.27

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.625

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9950	1409.9	9968.5	1398.8	9970.7	1397.6	9978	1393.9	9983	1391.6
9985.6	1388.4	9994.6	1377.4	9997.5	1373.6	9999	1373.7	10002.3	1373.8
10012.7	1377.4	10013.2	1377.7	10013.7	1378.3	10020.9	1384.8	10021.1	1385
10025.1	1388.4	10028.4	1391.3	10028.7	1391.6	10029	1391.8	10036.6	1398.4
10036.8	1398.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9950	.055	9985.6	.04	10025.1	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.6	10025.1	88.8	81.02	73.4	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9973.73	9985.60	0.53	0.49	1.42	0.01	0.55	1.06
LB 9985.60	9993.50	291.28	46.85	12.48	6.22	5.93	6.22
9993.50	10001.40	1462.34	114.79	10.42	31.25	14.53	12.74
10001.40	10009.30	1720.48	115.59	8.31	36.76	14.63	14.88
10009.30	10017.20	996.94	88.55	9.68	21.30	11.21	11.26
10017.20	RB 10025.10	207.61	35.71	10.52	4.44	4.52	5.81
10025.10	10029.00	0.83	0.69	1.67	0.02	0.55	1.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9973.73	9985.60	0.51	0.49	1.41	0.01	0.55	1.06
LB 9985.60	9993.50	290.90	46.78	12.48	6.22	5.92	6.22
9993.50	10001.40	1462.74	114.71	10.42	31.26	14.52	12.75
10001.40	10009.30	1720.97	115.51	8.31	36.77	14.62	14.90
10009.30	10017.20	996.89	88.48	9.68	21.30	11.20	11.27
10017.20	RB 10025.10	207.17	35.64	10.52	4.43	4.51	5.81
10025.10	10029.00	0.81	0.68	1.66	0.02	0.55	1.19

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.610

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9961.6	1398.5	9963.9	1397.4	9973.9	1394.7	9975.8	1393.9	9978.4	1392
9979	1391.6	9980.7	1390.7	9985.4	1385.5	9995	1375	9995.6	1374.4
9996.5	1373.2	9997.3	1373.3	9997.4	1373.3	10004.9	1373.4	10018.8	1385.5
10019.2	1386	10032.6	1394.1	10036.8	1394.8	10045.2	1398.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9961.6	.055	9985.4	.04	10018.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.4	10018.8	107	113.28	117.52	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9977.47	9985.40	0.54	0.35	1.19	0.01	0.44	1.53
LB 9985.40	9992.08	260.59	30.31	9.90	5.57	4.54	8.60
9992.08	9998.76	1305.24	76.51	8.94	27.89	11.45	17.06
9998.76	10005.44	1925.11	86.87	6.86	41.13	13.00	22.16
10005.44	10012.12	979.87	64.17	8.86	20.94	9.61	15.27
10012.12	RB 10018.80	208.10	25.33	8.86	4.45	3.79	8.22
10018.80	10027.60	0.54	0.38	1.38	0.01	0.36	1.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9977.47	9985.40	0.59	0.38	1.22	0.01	0.47	1.56
LB 9985.40	9992.08	262.06	30.50	9.90	5.60	4.57	8.59
9992.08	9998.76	1304.31	76.70	8.94	27.87	11.48	17.01
9998.76	10005.44	1922.79	87.06	6.86	41.09	13.03	22.09
10005.44	10012.12	979.95	64.36	8.86	20.94	9.64	15.23
10012.12	RB 10018.80	209.69	25.52	8.86	4.48	3.82	8.22
10018.80	10027.60	0.60	0.41	1.41	0.01	0.39	1.49

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.589

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9935.7	1400	9938.6	1396.3	9953.3	1377.7	9957.2	1377.3	9975.7	1375.2
9982.8	1374.6	9989.7	1373.9	9990.1	1373.7	9994.5	1371	9999.8	1371.1
10003.2	1371	10011.2	1373.2	10012.6	1373.7	10013.1	1373.8	10013.6	1374.1
10014.2	1374.4	10017.2	1375.8	10021.3	1379	10038.8	1392.8	10045.9	1398.5
10049	1399.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9935.7	.055	9953.3	.04	10021.3	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9953.3	10021.3	247.84	272.43	282.52	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.43	9953.30	3.90	1.64	2.60	0.08	1.02	2.37
LB 9953.30	9966.90	305.90	37.72	13.68	6.54	2.77	8.11
9966.90	9980.50	632.34	58.30	13.67	13.51	4.29	10.85
9980.50	9994.10	1055.39	80.90	14.38	22.55	5.95	13.05
9994.10	10007.70	1962.44	115.58	13.84	41.93	8.50	16.98
10007.70	RB 10021.30	719.55	66.05	15.39	15.37	4.86	10.89
10021.30	10030.53	0.49	0.35	1.19	0.01	0.37	1.41

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

9947.43	9953.30	3.97	1.67	2.62	0.08	1.04	2.38
LB 9953.30	9966.90	307.70	37.98	13.68	6.57	2.79	8.10
9966.90	9980.50	633.51	58.56	13.67	13.54	4.31	10.82
9980.50	9994.10	1055.16	81.16	14.38	22.55	5.97	13.00
9994.10	10007.70	1958.89	115.84	13.84	41.86	8.52	16.91
10007.70	RB 10021.30	720.25	66.31	15.39	15.39	4.88	10.86
10021.30	10030.53	0.52	0.36	1.21	0.01	0.39	1.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.537

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9946.7	1398.1	9949.5	1397.3	9955.9	1396.1	9958.1	1395	9959.6	1393.9
9963.4	1384.2	9964.1	1382.4	9975.4	1376.7	9976.8	1376	9976.8	1375.9
9978	1375	9981.3	1370.1	9994.7	1368.8	9995.5	1368.7	9997.6	1368.7
10003.2	1369	10006.1	1369.1	10016.9	1370.9	10018.2	1371.1	10025.3	1371.8
10044.7	1373.8	10047.7	1374.5	10065.8	1389.2	10067.4	1390.4	10068	1390.6
10070.2	1390.8	10078.8	1390.1	10084.6	1390.1	10091.3	1392.4	10093.1	1392.8
10101.1	1395.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9946.7	.055	9976.8	.04	10047.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.8	10047.7	506.51	505.19	499.04	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.77	9976.80	2.51	1.57	2.80	0.05	0.63	1.60
LB 9976.80	9990.98	865.39	91.48	17.23	18.49	6.45	9.46
9990.98	10005.16	1519.36	118.72	14.21	32.46	8.37	12.80
10005.16	10019.34	1155.06	101.10	14.35	24.68	7.13	11.42
10019.34	10033.52	714.90	75.61	14.25	15.28	5.33	9.46
10033.52	RB 10047.70	411.33	54.37	14.32	8.79	3.83	7.57
10047.70	10065.50	11.45	4.67	4.37	0.24	1.38	2.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.77	9976.80	4.50	2.48	3.16	0.10	0.99	1.81
LB 9976.80	9990.98	864.80	96.66	17.23	18.48	6.82	8.95
9990.98	10005.16	1487.34	123.90	14.21	31.78	8.74	12.00
10005.16	10019.34	1144.48	106.28	14.35	24.45	7.50	10.77
10019.34	10033.52	727.86	80.79	14.25	15.55	5.70	9.01
10033.52	RB 10047.70	436.42	59.55	14.32	9.33	4.20	7.33
10047.70	10065.50	14.60	5.91	4.73	0.31	1.74	2.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.441

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9945.2	1400.1	9945.6	1399.9	9952.3	1397	9956.3	1395.2	9956.7	1395.1
9962.6	1392.2	9966.2	1376	9967	1370.3	9968.4	1370.1	9971.5	1369.6
9972.7	1369.4	9973.8	1369.2	9977.4	1368.8	9981.8	1368.2	9988.1	1367.3
9992.7	1365.4	9992.8	1365.4	9993.1	1365.4	10007.7	1365.8	10010.1	1365.9

10015.2	1366.6	10027.4	1368.4	10027.5	1368.4	10044.2	1368.4	10051.1	1368.4
10053.8	1368.3	10065.7	1367.8	10069.7	1368	10073.3	1368.3	10074.8	1369.4
10088.5	1379.1	10110.5	1391.9	10110.8	1392				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9945.2	.055	9968.4	.04	10027.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.4	10027.5	486.53	494.72	495.41	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.67	9968.40	6.85	2.38	2.92	0.15	1.48	2.87
LB 9968.40	9980.22	247.03	30.54	11.94	5.28	2.58	8.09
9980.22	9992.04	588.15	51.87	12.22	12.57	4.39	11.34
9992.04	10003.86	1080.69	73.87	11.88	23.09	6.25	14.63
10003.86	10015.68	946.12	68.20	11.88	20.22	5.77	13.87
10015.68	RB 10027.50	565.88	50.22	11.95	12.09	4.25	11.27
10027.50	10044.16	414.79	56.50	16.66	8.86	3.39	7.34
10044.16	10060.82	437.81	58.38	16.67	9.35	3.50	7.50
10060.82	10077.48	392.50	55.93	17.64	8.39	3.36	7.02
10077.48	10094.14	0.19	0.17	0.86	0.00	0.25	1.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.67	9968.40	10.78	3.64	3.70	0.23	2.26	2.96
LB 9968.40	9980.22	353.29	39.75	11.94	7.55	3.36	8.89
9980.22	9992.04	711.81	61.08	12.22	15.21	5.17	11.65
9992.04	10003.86	1211.46	83.09	11.88	25.89	7.03	14.58
10003.86	10015.68	1076.93	77.42	11.88	23.01	6.55	13.91
10015.68	RB 10027.50	690.52	59.44	11.95	14.75	5.03	11.62
10027.50	10044.16	519.54	69.49	16.66	11.10	4.17	7.48
10044.16	10060.82	105.68	21.10	9.23	2.26	4.17	5.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.348

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9856.9	1380.2	9857.5	1379.9	9874.2	1372.4	9886.9	1366.4	9909	1365.8
9923.1	1365.3	9927.3	1364.6	9933.2	1363.7	9943.4	1364	9952.3	1364.4
9964.5	1364.2	9967.7	1364.2	9967.8	1364.2	9971.7	1363.4	9975.5	1362.6
9987.1	1362.4	10000.4	1362.2	10014.1	1362	10020.1	1362.7	10021.3	1362.8
10031.8	1364.1	10042.3	1365.3	10043.6	1367	10044.3	1367.8	10076.8	1399

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9856.9	.055	9967.7	.04	10043.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.7	10043.6	201.07	204.6	209.37	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9879.06	9901.22	111.49	39.26	19.46	2.38	2.07	2.84
9901.22	9923.38	235.05	64.72	22.17	5.02	2.92	3.63
9923.38	9945.54	473.06	98.68	22.29	10.11	4.45	4.79
9945.54	9967.70	451.85	95.79	22.17	9.65	4.32	4.72
LB 9967.70	9982.88	669.35	85.07	15.35	14.30	5.60	7.87
9982.88	9998.06	806.74	94.75	15.18	17.24	6.24	8.51
9998.06	10013.24	856.33	98.20	15.18	18.30	6.47	8.72
10013.24	10028.42	713.33	88.23	15.28	15.24	5.81	8.08
10028.42	RB 10043.60	361.40	59.93	16.11	7.72	3.95	6.03

10043.60	10054.67	1.41	1.16	2.21	0.03	0.76	1.21

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9945.54	9967.70	308.69	62.79	17.92	6.60	4.72	4.92
LB 9967.70	9982.88	860.09	91.01	15.35	18.38	6.00	9.45
9982.88	9998.06	1025.13	100.69	15.18	21.90	6.63	10.18
9998.06	10013.24	1084.40	104.14	15.18	23.17	6.86	10.41
10013.24	10028.42	913.03	94.17	15.28	19.51	6.20	9.70
10028.42	RB 10043.60	485.77	65.87	16.11	10.38	4.34	7.37
10043.60	10054.67	2.89	1.76	2.60	0.06	1.15	1.64

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.309

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9889.3	1380.3	9904.9	1377	9919.7	1370.3	9940.5	1362.9	9957.3	1362.7
9960.2	1362.7	9960.3	1362.7	9965.5	1361.4	9968.3	1360.7	9970.2	1360.8
9983.6	1361.1	9988.4	1361.3	10000.3	1361.7	10003	1361.5	10012.7	1361.4
10027.7	1361.4	10032.9	1362.2	10038.1	1363.2	10045.7	1365.5	10045.8	1365.6
10062.8	1377.2	10086	1392.1	10086.4	1392.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9889.3	.055	9960.3	.04	10045.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.3	10045.8	330.28	300.2	270.2	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9912.97	9936.63	24.69	10.08	7.99	0.53	1.34	2.45
9936.63	9960.30	504.99	95.57	23.91	10.79	4.04	5.28
LB 9960.30	9977.40	943.75	97.55	17.35	20.17	5.70	9.67
9977.40	9994.50	963.45	98.21	17.11	20.59	5.74	9.81
9994.50	10011.60	876.22	92.78	17.11	18.72	5.43	9.44
10011.60	10028.70	909.70	94.89	17.11	19.44	5.55	9.59
10028.70	RB 10045.80	455.14	63.38	17.63	9.73	3.71	7.18
10045.80	10059.33	2.06	1.34	2.40	0.04	0.68	1.53

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9960.30	9977.40	910.96	113.10	22.51	19.46	6.61	8.05
9977.40	9994.50	1104.65	113.77	17.11	23.60	6.65	9.71
9994.50	10011.60	1018.07	108.33	17.11	21.75	6.34	9.40
10011.60	10028.70	1051.36	110.45	17.11	22.46	6.46	9.52
10028.70	RB 10045.80	588.81	78.93	17.63	12.58	4.62	7.46
10045.80	10059.33	6.15	3.14	3.31	0.13	1.59	1.95

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.252

INPUT
Description: 100-year, 24-hour Peak Discharge of 7300 cfs from HEC-1 model at station C105.
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9751	1378	9751.2	1377.8	9752	1376.9	9754.9	1376.6	9760.1	1376.1
9766.2	1375.5	9787.9	1369.9	9804.8	1365.6	9810.7	1363.9	9827.7	1362.4
9833.4	1362.2	9849.6	1361.9	9849.8	1361.9	9850.2	1361.9	9886.3	1361.8
9890.5	1361.8	9899.1	1361.5	9907.7	1361.4	9918.3	1361.4	9945.2	1360.6
9957.5	1360.3	9957.9	1360.3	9973.7	1358.6	9981.1	1357.8	9985	1357.9
10002.5	1358.4	10018.3	1358.7	10025.2	1358.8	10038.3	1360.7	10039.4	1361
10039.5	1361	10057.8	1361.2	10068	1361.2	10087.9	1361.2	10103.2	1361.3
10111.1	1363.2	10120.9	1365.1	10128	1368.2	10138.4	1373.2	10174.4	1389.2
10179.2	1391.2	10190.8	1395.9	10193	1396.8	10195.8	1397.6	10196.9	1397.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9751	.055	9957.9	.04	10039.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9957.9	10039.5	232.54	247.79	220.18	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9792.38	9813.07	0.25	0.36	2.54	0.00	0.14	0.71
9813.07	9833.76	65.40	23.15	20.75	0.90	1.12	2.83
9833.76	9854.45	163.02	40.00	20.69	2.23	1.93	4.08
9854.45	9875.14	184.87	43.13	20.69	2.53	2.08	4.29
9875.14	9895.83	196.08	44.68	20.69	2.69	2.16	4.39
9895.83	9916.52	250.00	51.70	20.69	3.42	2.50	4.84
9916.52	9937.21	302.41	57.96	20.70	4.14	2.80	5.22
9937.21	9957.90	416.32	70.21	20.70	5.70	3.39	5.93
LB 9957.90	9974.22	761.07	73.80	16.41	10.43	4.52	10.31
9974.22	9990.54	1192.86	96.52	16.36	16.34	5.91	12.36
9990.54	10006.86	1109.73	92.35	16.33	15.20	5.66	12.02
10006.86	10023.18	998.23	86.65	16.32	13.67	5.31	11.52
10023.18	RB 10039.50	679.08	69.06	16.50	9.30	4.23	9.83
10039.50	10070.98	474.34	88.22	31.48	6.50	2.80	5.38
10070.98	10102.46	451.95	85.69	31.48	6.19	2.72	5.27
10102.46	10133.94	54.39	16.77	12.78	0.75	1.34	3.24

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9875.14	9895.83	127.37	27.69	13.81	1.74	2.42	4.60
9895.83	9916.52	319.91	56.57	20.69	4.38	2.73	5.66
9916.52	9937.21	380.98	62.83	20.70	5.22	3.04	6.06
9937.21	9957.90	512.72	75.08	20.70	7.02	3.63	6.83
LB 9957.90	9974.22	879.85	77.65	16.41	12.05	4.76	11.33
9974.22	9990.54	1352.36	100.37	16.36	18.53	6.15	13.47
9990.54	10006.86	1261.75	96.19	16.33	17.28	5.89	13.12
10006.86	10023.18	1139.93	90.50	16.32	15.62	5.55	12.60
10023.18	RB 10039.50	789.51	72.91	16.50	10.82	4.47	10.83
10039.50	10070.98	535.62	92.11	33.28	7.34	3.04	5.81

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 2
REACH: Reach 1 RS: 0.205

INPUT
Description: Confluence with Agua Fria River and downstream study limits.
Starting water surface based on the normal depth option with a slope of 0.0105 ft/ft.
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9707.5	1383.6	9713	1380.2	9728.7	1370.3	9735.5	1365.5	9742.1	1362.9
9747.5	1362.5	9758.3	1361.7	9818.7	1359.9	9822.6	1359.7	9823.3	1359.7
9835.2	1359.9	9858.7	1359	9859.7	1359	9864.1	1358.8	9874.6	1358.5
9887.8	1357.8	9899.7	1357.2	9902.4	1357.1	9903.9	1357	9919.1	1356.9
9927.5	1356.8	9928.2	1356.8	9931.2	1356.8	9946.1	1356.7	9957.8	1356.7
9962.9	1356.7	9969.7	1356.8	9981	1356.7	9991.2	1357.1	9992.3	1357.1
9993.3	1357.1	9995.3	1357	9997.3	1356.9	10002	1356.6	10002.2	1356.6
10023.9	1357	10031.8	1357.1	10034.6	1357	10051.1	1356.7	10052.9	1356.6
10053	1356.6	10053.2	1356.6	10054.2	1356.7	10068	1357.9	10075.7	1357.7
10082.9	1357.5	10097.4	1357.4	10098.5	1357.3	10099	1357.4	10099.2	1357.5
10106.7	1359.4	10108.8	1359.9	10117.3	1362	10117.8	1362.1	10125.3	1361
10128.7	1360.9	10129.8	1360.9	10136.6	1360.8	10137.2	1360.8	10139.3	1360.5
10144.3	1360.2	10158.7	1360.1	10177.2	1359.9	10183.1	1359.9	10190.1	1359.9
10191.7	1359.9	10192.9	1359.9	10193.8	1359.9	10207.1	1359.9	10218.2	1359.7
10232.7	1359.5	10234.9	1359.4	10242.6	1359.4	10251.4	1359	10259.8	1358.7
10262.4	1358.8	10263.8	1358.8	10271.4	1358.9	10279.1	1359.1	10286.4	1359.1
10301.3	1359.1	10301.4	1359.1	10321.8	1358.7	10327.4	1358.4	10331.7	1358.1
10338.6	1357.7	10346.3	1357.9	10350.3	1358.5	10363.8	1358.1	10367.8	1358.1

10368	1358.1	10369.3	1358.3	10370	1358.7	10381.3	1361.6	10383.5	1362.7
10400.8	1372.4	10412.2	1377	10418.7	1380.3	10428.6	1384.6	10432.6	1385.2
10434.5	1385.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9707.5	.055	9835.2	.04	10117.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9835.2	10117.8	0	0	0	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9792.63	9835.20	23.02	14.51	33.64	0.32	0.43	1.59
LB 9835.20	9891.72	446.17	89.57	56.57	6.11	1.58	4.98
9891.72	9948.24	1649.19	196.20	56.54	22.59	3.47	8.41
9948.24	10004.76	1769.91	204.71	56.54	24.25	3.62	8.65
10004.76	10061.28	1689.73	199.12	56.56	23.15	3.52	8.49
10061.28	RB 10117.80	837.57	124.41	50.01	11.47	2.51	6.73
10117.80	10149.47	1.16	1.55	8.68	0.02	0.18	0.75
10149.47	10181.14	15.25	12.17	31.67	0.21	0.38	1.25
10181.14	10212.81	25.22	16.46	31.67	0.35	0.52	1.53
10212.81	10244.48	58.22	27.19	31.68	0.80	0.86	2.14
10244.48	10276.15	145.39	47.09	31.69	1.99	1.49	3.09
10276.15	10307.82	120.27	42.02	31.67	1.65	1.33	2.86
10307.82	10339.49	226.34	61.43	31.70	3.10	1.94	3.68
10339.49	10371.16	285.40	70.76	31.88	3.91	2.23	4.03
10371.16	10402.83	7.16	3.89	5.68	0.10	0.71	1.84

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9835.20	9891.72	568.52	103.88	57.33	7.79	1.84	5.47
9891.72	9948.24	1862.27	210.52	56.54	25.51	3.72	8.85
9948.24	10004.76	1989.18	219.02	56.54	27.25	3.88	9.08
10004.76	10061.28	1904.88	213.44	56.56	26.09	3.78	8.92
10061.28	RB 10117.80	975.15	137.10	51.07	13.36	2.71	7.11

SUMMARY OF MANNING'S N VALUES

River:Unnamed Wash 2

Reach	River Sta.	n1	n2	n3
Reach 1	6.789	.055	.04	.055
Reach 1	6.765	.055	.04	.055
Reach 1	6.714	.055	.04	.055
Reach 1	6.669	.055	.04	.055
Reach 1	6.643	.055	.04	.055
Reach 1	6.595	.055	.04	.055
Reach 1	6.570	.055	.04	.055
Reach 1	6.501	.055	.04	.055
Reach 1	6.451	.055	.04	.055
Reach 1	6.418	.055	.04	.055
Reach 1	6.392	.055	.04	.055
Reach 1	6.318	.055	.04	.055
Reach 1	6.271	.055	.04	.055
Reach 1	6.218	.055	.04	.055
Reach 1	6.161	.055	.04	.055
Reach 1	6.058	.055	.04	.055
Reach 1	5.974	.055	.04	.055
Reach 1	5.927	.055	.04	.055
Reach 1	5.865	.055	.04	.055
Reach 1	5.845	.07	.05	.07
Reach 1	5.759	.055	.04	.055
Reach 1	5.702	.055	.04	.055
Reach 1	5.624	.055	.04	.055
Reach 1	5.551	.05	.04	.05
Reach 1	5.508	.05	.04	.05
Reach 1	5.460	.05	.04	.05
Reach 1	5.364	.05	.04	.05
Reach 1	5.304	.05	.04	.05
Reach 1	5.266	.05	.04	.05
Reach 1	5.172	.05	.04	.05
Reach 1	5.114	.05	.04	.05
Reach 1	5.079	.05	.04	.05
Reach 1	4.974	.06	.045	.06
Reach 1	4.939	.05	.04	.05
Reach 1	4.884	.05	.04	.05
Reach 1	4.784	.05	.04	.05
Reach 1	4.692	.05	.04	.05
Reach 1	4.640	.05	.04	.05
Reach 1	4.600	.05	.04	.05
Reach 1	4.502	.065	.05	.065
Reach 1	4.430	.065	.05	.065
Reach 1	4.391	.065	.05	.065

Reach 1	4.365	.065	.05	.065
Reach 1	4.332	.05	.04	.05
Reach 1	4.286	.05	.04	.05
Reach 1	4.199	.05	.04	.05
Reach 1	4.102	.05	.04	.05
Reach 1	4.072	.05	.04	.05
Reach 1	4.013	.05	.04	.05
Reach 1	3.961	.05	.04	.05
Reach 1	3.923	.05	.04	.05
Reach 1	3.874	.05	.04	.05
Reach 1	3.825	.05	.04	.05
Reach 1	3.770	.05	.04	.05
Reach 1	3.725	.065	.05	.065
Reach 1	3.698	.065	.05	.065
Reach 1	3.660	.065	.05	.065
Reach 1	3.643	.065	.05	.065
Reach 1	3.618	.05	.04	.05
Reach 1	3.590	.05	.04	.05
Reach 1	3.523	.05	.04	.05
Reach 1	3.426	.05	.04	.05
Reach 1	3.311	.05	.04	.05
Reach 1	3.211	.05	.04	.05
Reach 1	3.122	.05	.04	.05
Reach 1	3.053	.05	.04	.05
Reach 1	3.033	.05	.04	.05
Reach 1	3.007	.05	.04	.05
Reach 1	2.976	.05	.04	.05
Reach 1	2.934	.05	.04	.05
Reach 1	2.903	.05	.04	.05
Reach 1	2.892	.055	.04	.055
Reach 1	2.856	.055	.04	.055
Reach 1	2.813	.055	.04	.055
Reach 1	2.718	.055	.04	.055
Reach 1	2.683	.06	.045	.06
Reach 1	2.656	.055	.04	.055
Reach 1	2.625	.055	.04	.055
Reach 1	2.603	.055	.04	.055
Reach 1	2.521	.055	.04	.055
Reach 1	2.424	.055	.04	.055
Reach 1	2.401	.055	.04	.055
Reach 1	2.319	.055	.04	.055
Reach 1	2.225	.055	.04	.055
Reach 1	2.131	.055	.04	.055
Reach 1	2.034	.055	.04	.055
Reach 1	1.940	.055	.04	.055
Reach 1	1.846	.055	.04	.055
Reach 1	1.818	.055	.04	.055
Reach 1	1.781	.055	.04	.055
Reach 1	1.742	.065	.045	.065
Reach 1	1.677	.055	.04	.055
Reach 1	1.629	.055	.04	.055
Reach 1	1.535	.055	.04	.055
Reach 1	1.481	.055	.04	.055
Reach 1	1.438	.055	.04	.055
Reach 1	1.419	.055	.04	.055
Reach 1	1.363	.055	.04	.055
Reach 1	1.261	.055	.04	.055
Reach 1	1.168	.055	.04	.055
Reach 1	1.092	.055	.04	.055
Reach 1	1.052	.055	.04	.055
Reach 1	0.995	.055	.04	.055
Reach 1	0.957	.055	.04	.055
Reach 1	0.916	.055	.04	.055
Reach 1	0.864	.055	.04	.055
Reach 1	0.769	.065	.045	.065
Reach 1	0.745	.065	.045	.065
Reach 1	0.734	.065	.045	.065
Reach 1	0.703	.055	.04	.055
Reach 1	0.650	.055	.04	.055
Reach 1	0.625	.055	.04	.055
Reach 1	0.610	.055	.04	.055
Reach 1	0.589	.055	.04	.055
Reach 1	0.537	.055	.04	.055
Reach 1	0.441	.055	.04	.055
Reach 1	0.348	.055	.04	.055
Reach 1	0.309	.055	.04	.055
Reach 1	0.252	.055	.04	.055
Reach 1	0.205	.055	.04	.055

SUMMARY OF REACH LENGTHS

River: Unnamed Wash 2

Reach	River Sta.	Left	Channel	Right
Reach 1	6.789	107.48	131.27	142.7
Reach 1	6.765	261.34	266.27	266.46
Reach 1	6.714	246.02	238.27	228.03
Reach 1	6.669	121.77	134.95	132.41
Reach 1	6.643	272.7	254.84	247.34
Reach 1	6.595	130.35	133.67	127.33
Reach 1	6.570	347.97	365.33	347.22

Reach 1	6.501	278.64	261.99	244.41
Reach 1	6.451	205.76	176.32	167.91
Reach 1	6.418	102.7	137.59	147.11
Reach 1	6.392	371.19	386.27	389.38
Reach 1	6.318	248.69	252.16	252.02
Reach 1	6.271	270.27	277.64	278.99
Reach 1	6.218	329.03	304.05	296.71
Reach 1	6.161	466.05	543.86	551.8
Reach 1	6.058	442.27	441.89	421.2
Reach 1	5.974	257.05	247.47	187.18
Reach 1	5.927	328.04	325.84	311.12
Reach 1	5.865	100.12	104.62	110.39
Reach 1	5.845	396.36	458.8	281.48
Reach 1	5.759	281.9	300.61	308.52
Reach 1	5.702	387.7	409.45	412.67
Reach 1	5.624	358.06	385.01	390.73
Reach 1	5.551	255.68	229.78	183.88
Reach 1	5.508	259.09	253.93	227.65
Reach 1	5.460	512.09	506.76	474.66
Reach 1	5.364	287.57	314.37	324.32
Reach 1	5.304	189.88	199.29	201.39
Reach 1	5.266	497.34	496.37	477.49
Reach 1	5.172	325.3	308.86	286.18
Reach 1	5.114	185.55	182.66	169.32
Reach 1	5.079	552.82	556.08	568.26
Reach 1	4.974	146.38	182.15	213.63
Reach 1	4.939	231.58	293.38	306.05
Reach 1	4.884	510.44	528.3	538.68
Reach 1	4.784	476.4	484.84	494.36
Reach 1	4.692	277.86	276.69	275.16
Reach 1	4.640	238	210.63	162.54
Reach 1	4.600	496.61	514.86	537.67
Reach 1	4.502	316	378.26	399.37
Reach 1	4.430	231.7	210.62	188.99
Reach 1	4.391	150.26	132.55	92.06
Reach 1	4.365	193.53	177.76	145.31
Reach 1	4.332	244.69	243.38	239.08
Reach 1	4.286	457.57	458.3	443.95
Reach 1	4.199	516.32	511.36	470.46
Reach 1	4.102	149.41	160.74	169.93
Reach 1	4.072	198.08	311.7	344.2
Reach 1	4.013	240.45	270.83	270.31
Reach 1	3.961	211.31	203.9	177.64
Reach 1	3.923	252.21	254.81	248.59
Reach 1	3.874	238.62	262.62	242.22
Reach 1	3.825	304.35	286.56	267.43
Reach 1	3.770	222.13	242.29	234.28
Reach 1	3.725	96.81	141.11	161.48
Reach 1	3.698	66.46	199.98	211.64
Reach 1	3.660	80.74	88.02	87.39
Reach 1	3.643	168.31	131.19	100.41
Reach 1	3.618	152.72	148.63	121.12
Reach 1	3.590	358.04	352.63	336.26
Reach 1	3.523	527.2	513.31	482.71
Reach 1	3.426	569.9	607.44	596.34
Reach 1	3.311	507.25	528.62	503.17
Reach 1	3.211	469.7	470.77	468.4
Reach 1	3.122	373.92	363.26	323.58
Reach 1	3.053	117.15	108.69	69.01
Reach 1	3.033	116.79	133.89	144.85
Reach 1	3.007	164.91	166.91	167.88
Reach 1	2.976	204.42	221.33	236.13
Reach 1	2.934	156.51	162.94	164.58
Reach 1	2.903	57.44	58.26	57.77
Reach 1	2.892	181.39	191.34	194.08
Reach 1	2.856	212.97	226.57	231.95
Reach 1	2.813	515.82	501.76	467.93
Reach 1	2.718	184.79	180.44	186.47
Reach 1	2.683	83.42	144.8	200.68
Reach 1	2.656	178.7	163.1	125.84
Reach 1	2.625	120.5	119.08	114.06
Reach 1	2.603	435.67	428.3	416.85
Reach 1	2.521	509.45	512.29	508.89
Reach 1	2.424	119.28	123.29	130.97
Reach 1	2.401	425.78	431.97	432.64
Reach 1	2.319	489.37	498.37	503.44
Reach 1	2.225	478.71	494.15	476.32
Reach 1	2.131	497.8	513.49	519.41
Reach 1	2.034	501.4	498.54	496.04
Reach 1	1.940	496.97	493.82	489.63
Reach 1	1.846	157.05	147.91	138.83
Reach 1	1.818	218.93	194.96	145.84
Reach 1	1.781	175.8	204.14	249.95
Reach 1	1.742	216.2	344.47	284.25
Reach 1	1.677	262.96	255.06	211.86
Reach 1	1.629	473.14	493.83	488.71
Reach 1	1.535	255.19	287.48	245.01
Reach 1	1.481	230.21	224.54	206.35
Reach 1	1.438	105.06	102.65	98.84
Reach 1	1.419	294.48	297.55	301.27
Reach 1	1.363	517.44	534.12	545.05
Reach 1	1.261	487.72	495.87	493.03
Reach 1	1.168	404.5	397.21	387.72
Reach 1	1.092	199.37	212.66	221.85
Reach 1	1.052	303.98	298.99	280.72

Reach 1	0.995	210.04	204.67	204.72
Reach 1	0.957	221.34	213.57	202.55
Reach 1	0.916	280.25	277.42	271.8
Reach 1	0.864	477.04	497.77	504.59
Reach 1	0.769	114.28	129.28	157.26
Reach 1	0.745	31.81	59.17	88.58
Reach 1	0.734	157.59	161.15	167.86
Reach 1	0.703	290.42	281.33	270.72
Reach 1	0.650	134.48	129.81	124.53
Reach 1	0.625	88.8	81.02	73.4
Reach 1	0.610	107	113.28	117.52
Reach 1	0.589	247.84	272.43	282.52
Reach 1	0.537	506.51	505.19	499.04
Reach 1	0.441	486.53	494.72	495.41
Reach 1	0.348	201.07	204.6	209.37
Reach 1	0.309	330.28	300.2	270.2
Reach 1	0.252	232.54	247.79	220.18
Reach 1	0.205	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Unnamed Wash 2

Reach	River Sta.	Contr.	Expan.
Reach 1	6.789	.1	.3
Reach 1	6.765	.1	.3
Reach 1	6.714	.1	.3
Reach 1	6.669	.3	.5
Reach 1	6.643	.6	.8
Reach 1	6.595	.6	.8
Reach 1	6.570	.3	.5
Reach 1	6.501	.1	.3
Reach 1	6.451	.3	.5
Reach 1	6.418	.1	.3
Reach 1	6.392	.3	.5
Reach 1	6.318	.1	.3
Reach 1	6.271	.3	.5
Reach 1	6.218	.6	.8
Reach 1	6.161	.3	.5
Reach 1	6.058	.1	.3
Reach 1	5.974	.1	.3
Reach 1	5.927	.1	.3
Reach 1	5.865	.1	.3
Reach 1	5.845	.3	.5
Reach 1	5.759	.3	.5
Reach 1	5.702	.1	.3
Reach 1	5.624	.1	.3
Reach 1	5.551	.1	.3
Reach 1	5.508	.1	.3
Reach 1	5.460	.1	.3
Reach 1	5.364	.1	.3
Reach 1	5.304	.1	.3
Reach 1	5.266	.1	.3
Reach 1	5.172	.1	.3
Reach 1	5.114	.1	.3
Reach 1	5.079	.1	.3
Reach 1	4.974	.1	.3
Reach 1	4.939	.1	.3
Reach 1	4.884	.1	.3
Reach 1	4.784	.1	.3
Reach 1	4.692	.1	.3
Reach 1	4.640	.1	.3
Reach 1	4.600	.1	.3
Reach 1	4.502	.1	.3
Reach 1	4.430	.1	.3
Reach 1	4.391	.1	.3
Reach 1	4.365	.1	.3
Reach 1	4.332	.1	.3
Reach 1	4.286	.1	.3
Reach 1	4.199	.1	.3
Reach 1	4.102	.1	.3
Reach 1	4.072	.3	.5
Reach 1	4.013	.1	.3
Reach 1	3.961	.1	.3
Reach 1	3.923	.3	.5
Reach 1	3.874	.6	.8
Reach 1	3.825	.1	.3
Reach 1	3.770	.3	.5
Reach 1	3.725	.1	.3
Reach 1	3.698	.6	.8
Reach 1	3.660	.1	.3
Reach 1	3.643	.1	.3
Reach 1	3.618	.1	.3
Reach 1	3.590	.1	.3
Reach 1	3.523	.1	.3
Reach 1	3.426	.1	.3
Reach 1	3.311	.3	.5
Reach 1	3.211	.1	.3
Reach 1	3.122	.1	.3
Reach 1	3.053	.6	.8
Reach 1	3.033	.1	.3

Reach 1	3.007	.1	.3
Reach 1	2.976	.1	.3
Reach 1	2.934	.1	.3
Reach 1	2.903	.1	.3
Reach 1	2.892	.1	.3
Reach 1	2.856	.6	.8
Reach 1	2.813	.1	.3
Reach 1	2.718	.3	.5
Reach 1	2.683	.3	.5
Reach 1	2.656	.3	.5
Reach 1	2.625	.1	.3
Reach 1	2.603	.1	.3
Reach 1	2.521	.1	.3
Reach 1	2.424	.1	.3
Reach 1	2.401	.1	.3
Reach 1	2.319	.1	.3
Reach 1	2.225	.1	.3
Reach 1	2.131	.1	.3
Reach 1	2.034	.1	.3
Reach 1	1.940	.1	.3
Reach 1	1.846	.1	.3
Reach 1	1.818	.1	.3
Reach 1	1.781	.6	.8
Reach 1	1.742	.6	.8
Reach 1	1.677	.1	.3
Reach 1	1.629	.1	.3
Reach 1	1.535	.1	.3
Reach 1	1.481	.1	.3
Reach 1	1.438	.1	.3
Reach 1	1.419	.3	.5
Reach 1	1.363	.1	.3
Reach 1	1.261	.1	.3
Reach 1	1.168	.1	.3
Reach 1	1.092	.3	.5
Reach 1	1.052	.1	.3
Reach 1	0.995	.1	.3
Reach 1	0.957	.1	.3
Reach 1	0.916	.1	.3
Reach 1	0.864	.1	.3
Reach 1	0.769	.1	.3
Reach 1	0.745	.1	.3
Reach 1	0.734	.6	.8
Reach 1	0.703	.3	.5
Reach 1	0.650	.1	.3
Reach 1	0.625	.1	.3
Reach 1	0.610	.3	.5
Reach 1	0.589	.1	.3
Reach 1	0.537	.1	.3
Reach 1	0.441	.1	.3
Reach 1	0.348	.1	.3
Reach 1	0.309	.6	.8
Reach 1	0.252	.3	.5
Reach 1	0.205	.3	.5

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Unnamed Wash 3
Project File : Un3_FpFw.prj
Run Date and Time: 5/23/01 12:20:44 PM

Project in English units

Project Description:
North Peoria Area Drainage Master Plan, FCD 99-45
Unnamed Wash 3 Floodplain
Delineation Study
Study Contractors: Stantec Consulting, Inc.
P82000146

Geometry Based on Aerial photography, *Flight Date 2-18-00*
Flow by
Cooper Aerial

Peak discharges are from 100-year, 6-hour HEC-1 model
dated
???, prepared by Stantec

PLAN DATA

Plan Title: 100-yr Existing Conditions Fp/Fw
Plan File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash3\Un3_FpFw.p01

Geometry Title: Existing Conditions
Geometry File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash3\Un3_FpFw.g01

Flow Title : 100-yr Existing Conditions
Flow File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash3\Un3_FpFw.f01

Plan Summary Information:
Number of: Cross Sections = 94 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = Unnamed Wash 3 Reach = 1

RS	Profile	Method	Value1	Value2
4.540	Method 1	1	9976.76	10025.52
4.464	Method 1	1	9979.44	10019.7
4.428	Method 1	1	9960	10024.21
4.417	Method 1	1	9945	10014.49
4.399	Method 1	1	9940	10014.87
4.379	Method 1	1	9976.07	10022.86
4.338	Method 1	1	9978.61	10031.46
4.289	Method 1	1	9980.08	10023.62
4.229	Method 1	1	9984.4	10025.2
4.197	Method 1	1	9971.9	10032.6
4.177	Method 1	1	9981.35	10027.5
4.145	Method 1	1	9972.32	10016.79
4.110	Method 1	1	9972.76	10019.71
4.013	Method 1	1	9972.1	10035.9

3.921	Method 1	1	9982.47	10023.35
3.826	Method 1	1	9991.63	10040
3.731	Method 1	1	9982.2	10028
3.649	Method 1	1	9981.1	10032.2
3.561	Method 1	1	9975	10045
3.520	Method 1	1	9970	10065
3.509	Method 1	1	9976.5	10060
3.497	Method 1	1	9987.8	10058
3.487	Method 1	1	9978.5	10025.6
3.460	Method 1	1	9986.57	10035.84
3.426	Method 1	1	9959.02	10040.54
3.412	Method 1	1	9955	10017.8
3.370	Method 1	1	986	10022.33
3.351	Method 1	1	9942.47	10051.96
3.319	Method 1	1	9990.05	10093.71
3.309	Method 1	1	998	10054.49
3.257	Method 1	1	9970	10016.4
3.168	Method 1	1	9973.22	10090
3.144	Method 1	1	9981.76	10125
3.114	Method 1	1	9954.85	10022.7
3.061	Method 1	1	9900	10015.9
3.042	Method 1	1	9870	10027.5
3.015	Method 1	1	9870	10011.2
2.984	Method 1	1	9975.64	10027.54
2.916	Method 1	1	9982.16	10070
2.850	Method 1	1	9950	10015.3
2.779	Method 1	1	9928.66	10046.09
2.677	Method 1	1	9975.5	10030.2
2.581	Method 1	1	9970.2	10019.4
2.522	Method 1	1	9973.96	10053.8
2.471	Method 1	1	988	10012.67
2.421	Method 1	1	995	10039.96
2.315	Method 1	1	9981.51	10022.9
2.233	Method 1	1	9956.5	10019.77
2.118	Method 1	1	9984.09	10029.3
2.050	Method 1	1	9955	10025
2.011	Method 1	1	9937.04	10029.94
1.973	Method 1	1	9980.86	10078.04
1.944	Method 1	1	9979.01	10041.18
1.872	Method 1	1	9962.77	10029.96
1.784	Method 1	1	9960.38	10021.16
1.690	Method 1	1	9954.67	10015.86
1.641	Method 1	1	992	10022.09
1.600	Method 1	1	9925.8	10017.2
1.563	Method 1	1	995	10037.06
1.537	Method 1	1	9977.9	10038.37
1.519	Method 1	1	9984.78	10028.96
1.497	Method 1	1	9977.28	10029.03
1.481	Method 1	1	9962.96	10011.19
1.425	Method 1	1	9977.83	10026.28
1.385	Method 1	1	9988.93	10032.57
1.356	Method 1	1	9973.72	10047.24
1.331	Method 1	1	9941.97	10019.18
1.304	Method 1	1	9982.08	10032.9
1.259	Method 1	1	9978.56	10028.72
1.222	Method 1	1	9975.27	10016.89
1.171	Method 1	1	9966.71	10034.85
1.152	Method 1	1	9971.59	10015.18
1.088	Method 1	1	9985.78	10040.17
1.008	Method 1	1	9983.79	10027.71
0.986	Method 1	1	9973.71	10030.22
0.960	Method 1	1	9950.55	10009.81
0.928	Method 1	1	9983.09	10046.65
0.852	Method 1	1	9972.28	10025.96
0.761	Method 1	1	991	10018.14
0.734	Method 1	1	996	10024.62
0.716	Method 1	1	9957.07	10029.25
0.695	Method 1	1	9977.51	10015.2
0.658	Method 1	1	9952.52	10009.85
0.625	Method 1	1	9941.32	10018.14
0.598	Method 1	1	9967.91	10033.02
0.583	Method 1	1	9974.95	10050.81
0.565	Method 1	1	9980.95	10034.04
0.520	Method 1	1	9971.49	10027.68
0.481	Method 1	1	9973.78	10039.71
0.386	Method 1	1	9978.92	10025.4
0.306	Method 1	1	993	10025.23
0.240	Method 1	1	9860	10060
0.185	Method 1	1	9968.04	10044.19
0.144	Method 1	1	9982.87	10041.5

River = Unnamed Wash 3 Reach = 1

RS	Profile	Method	Value1	Value2
4.540	PF 3	1	9976.76	10025.52
4.464	PF 3	1	9979.44	10019.7
4.428	PF 3	1	996	10024.21
4.417	PF 3	1	994	10014.49
4.399	PF 3	1	994	10014.87
4.379	PF 3	1	9976.07	10022.86
4.338	PF 3	1	9978.61	10031.46
4.289	PF 3	1	9980.08	10023.62
4.229	PF 3	1	9984.4	10025.2
4.197	PF 3	1	9971.9	10032.6
4.177	PF 3	1	9981.35	10027.5
4.145	PF 3	1	9972.32	10016.79

```
4.110   PF 3                    1 9972.7610019.71
4.013   PF 3                    1  9972.1 10035.9
3.921   PF 3                    1 9982.4710023.35
3.826   PF 3                    1 9991.63   10040
3.731   PF 3                    1  9982.2   10028
3.649   PF 3                    1  9981.1 10032.2
3.561   PF 3                    1    9975   10045
3.520   PF 3                    1    9970   10065
3.509   PF 3                    1  9976.5   10060
3.497   PF 3                    1  9987.8   10058
3.487   PF 3                    1  9978.5 10025.6
3.460   PF 3                    1 9986.5710035.84
3.426   PF 3                    1 9959.0210040.54
3.412   PF 3                    1    9955 10017.8
3.370   PF 3                    1    986010022.33
3.351   PF 3                    1 9942.4710051.96
3.319   PF 3                    1 9990.0510093.71
3.309   PF 3                    1    998510054.49
3.257   PF 3                    1    9970 10016.4
3.168   PF 3                    1 9973.22   10090
3.144   PF 3                    1 9981.76   10125
3.114   PF 3                    1 9954.85 10022.7
3.061   PF 3                    1    9900 10015.9
3.042   PF 3                    1    9870 10027.5
3.015   PF 3                    1    9870 10011.2
2.984   PF 3                    1 9975.6410027.54
2.916   PF 3                    1 9982.16   10070
2.850   PF 3                    1    9950 10015.3
2.779   PF 3                    1 9928.6610046.09
2.677   PF 3                    1  9975.5 10030.2
2.581   PF 3                    1  9970.2 10019.4
2.522   PF 3                    1 9973.96 10053.8
2.471   PF 3                    1    988010012.67
2.421   PF 3                    1    995510039.96
2.315   PF 3                    1 9981.51 10022.9
2.233   PF 3                    1  9956.510019.77
2.118   PF 3                    1 9984.09 10029.3
2.050   PF 3                    1    9955   10025
2.011   PF 3                    1 9937.0410029.94
1.973   PF 3                    1 9980.8610078.04
1.944   PF 3                    1 9979.0110041.18
1.872   PF 3                    1 9962.7710029.96
1.784   PF 3                    1 9960.3810021.16
1.690   PF 3                    1 9954.6710015.86
1.641   PF 3                    1    992210022.09
1.600   PF 3                    1  9925.8 10017.2
1.563   PF 3                    1    995010037.06
1.537   PF 3                    1  9977.910038.37
1.519   PF 3                    1 9984.7810028.96
1.497   PF 3                    1 9977.2810029.03
1.481   PF 3                    1 9962.9610011.19
1.425   PF 3                    1 9977.8310026.28
1.385   PF 3                    1 9988.9310032.57
1.356   PF 3                    1 9973.7210047.24
1.331   PF 3                    1 9941.9710019.18
1.304   PF 3                    1 9982.08 10032.9
1.259   PF 3                    1 9978.5610028.72
1.222   PF 3                    1 9975.2710016.89
1.171   PF 3                    1 9966.7110034.85
1.152   PF 3                    1 9971.5910015.18
1.088   PF 3                    1 9985.7810040.17
1.008   PF 3                    1 9983.7910027.71
0.986   PF 3                    1 9973.7110030.22
0.960   PF 3                    1 9950.5510009.81
0.928   PF 3                    1 9983.0910046.65
0.852   PF 3                    1 9972.2810025.96
0.761   PF 3                    1    991810018.14
0.734   PF 3                    1    996010024.62
0.716   PF 3                    1 9957.0710029.25
0.695   PF 3                    1 9977.51 10015.2
0.658   PF 3                    1 9952.5210009.85
0.625   PF 3                    1 9941.3210018.14
0.598   PF 3                    1 9967.9110033.02
0.583   PF 3                    1 9974.9510050.81
0.565   PF 3                    1 9980.9510034.04
0.520   PF 3                    1 9971.4910027.68
0.481   PF 3                    1 9973.7810039.71
0.386   PF 3                    1 9978.92 10025.4
0.306   PF 3                    1    993510025.23
0.240   PF 3                    1    9860   10060
0.185   PF 3                    1 9968.0410044.19
0.144   PF 3                    1 9982.87 10041.5
```

FLOW DATA

Flow Title: 100-yr Existing Conditions
Flow File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash3\Un3_FpFw.f01

Flow Data (cfs)

River	Reach	RS	Floodplain	Method 1
Unnamed Wash 3	1	4.540	1220	1220

Unnamed Wash 3	1	4.197	1990	1990
Unnamed Wash 3	1	3.168	2220	2220
Unnamed Wash 3	1	1.641	2570	2570

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Unnamed Wash 3	1	Floodplain		Normal S = .0134
Unnamed Wash 3	1	Method 1		Normal S = .0134

GEOMETRY DATA

Geometry Title: Existing Conditions
Geometry File : p:\82000146\Calcs\HEC-RAS\FEMA\Unnamed_Wash3\Un3_FpFw.g01

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.540

INPUT
Description: Upstream study limits.
100-year, 6-hour Peak Discharge of 1220
cfs from HEC-1 model at station S301.
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9895.2	1658.8	9902.8	1657.4	9904.7	1657	9905.9	1656.8	9909.2	1656.1
9918.6	1652.9	9919.9	1652.7	9920.4	1652.6	9923.1	1652.4	9955.7	1647.8
9959.2	1647.3	9963.5	1645.9	9968.4	1644	9979.6	1640.1	9981.5	1639.4
9983.3	1638.8	9991.5	1637	9993.1	1637	9997	1636.8	9999.2	1636.8
10002.7	1636.7	10005.2	1636.7	10013.7	1637.5	10020.9	1639.7	10043.5	1646.5
10044	1646.6	10044.1	1646.6	10044.2	1646.6	10053.6	1647.3	10058	1647.8
10079.3	1651.3	10111.1	1658	10118.5	1659.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9895.2	.05	9979.6	.045	10020.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.6	10020.9	408.34	403.08	393.77	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.40	9979.60	2.87	1.41	3.01	0.23	0.49	2.04
LB 9979.60	9987.86	115.35	18.85	8.59	9.45	2.28	6.12
9987.86	9996.12	292.34	32.57	8.35	23.96	3.94	8.98
9996.12	10004.38	344.09	35.76	8.26	28.20	4.33	9.62
10004.38	10012.64	310.32	33.66	8.29	25.44	4.07	9.22
10012.64	RB 10020.90	146.77	21.79	8.59	12.03	2.64	6.74
10020.90	10069.70	8.28	3.21	4.82	0.68	0.69	2.58

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.40	9979.60	4.68	2.09	3.25	0.38	0.74	2.24
LB 9979.60	9987.86	121.80	20.83	8.59	9.98	2.52	5.85
9987.86	9996.12	288.39	34.54	8.35	23.64	4.18	8.35
9996.12	10004.38	336.55	37.74	8.26	27.59	4.57	8.92
10004.38	10012.64	305.19	35.64	8.29	25.02	4.31	8.56
10012.64	RB 10020.90	151.69	23.76	8.59	12.43	2.88	6.38
10020.90	10069.70	11.69	4.32	5.06	0.96	0.93	2.71

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.464

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9924.9	1651.2	9925	1651.2	9928.7	1650.8	9938.6	1649.6	9947.5	1648.3
9957.1	1645.1	9963.2	1644	9968.5	1641.5	9980.3	1636.2	9989.2	1632.2
9989.9	1631.9	9990.7	1631.9	10000.9	1632.3	10005.6	1632.5	10006	1632.5
10006.4	1632.6	10019.6	1634.2	10019.7	1634.2	10061.3	1637	10069.4	1637.6
10069.9	1637.7	10075.7	1639.6	10114.3	1652.2	10116.2	1652.9	10122	1654.4
10134.3	1657	10136.4	1657.5	10137	1657.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9924.9	.05	9980.3	.045	10019.7	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

9980.3 10019.7 177.57 190.3 196.89 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.22	9980.30	0.16	0.17	0.94	0.01	0.19	0.96
LB 9980.30	9988.18	86.68	16.99	8.64	7.10	2.16	5.10
9988.18	9996.06	313.53	35.71	8.04	25.70	4.53	8.78
9996.06	10003.94	293.20	34.03	7.89	24.03	4.32	8.61
10003.94	10011.82	235.47	29.91	7.93	19.30	3.80	7.87
10011.82	RB 10019.70	146.10	22.46	7.94	11.98	2.85	6.50
10019.70	10078.35	144.87	42.27	35.52	11.87	1.19	3.43

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.22	9980.30	0.60	0.39	1.21	0.05	0.46	1.52
LB 9980.30	9988.18	108.98	19.09	8.64	8.93	2.42	5.71
9988.18	9996.06	357.09	37.81	8.04	29.27	4.80	9.44
9996.06	10003.94	335.46	36.13	7.89	27.50	4.58	9.28
10003.94	10011.82	273.01	32.01	7.93	22.38	4.06	8.53
10011.82	RB 10019.70	144.87	24.56	10.59	11.87	3.12	5.90

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.428

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9911.2	1640.3	9914.4	1640	9917.1	1639.3	9942.1	1632.7	9951.8	1633.3
9958.4	1633.8	9966.1	1633.6	9967.9	1633.6	9969.2	1633.3	9984.5	1630.7
9997.6	1630.8	10003.4	1630.8	10013.4	1632.8	10020.8	1634.3	10023.2	1634.8
10027	1636.7	10033.9	1640.1	10063.4	1655.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9911.2	.06	9969.2	.05	10023.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.2	10023.2	53.35	59.8	61.25	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9922.80	9934.40	0.52	0.62	2.24	0.04	0.29	0.84
9934.40	9946.00	65.10	21.92	11.87	5.34	1.89	2.97
9946.00	9957.60	71.62	23.02	11.63	5.87	1.98	3.11
9957.60	9969.20	52.27	19.06	11.64	4.28	1.64	2.74
LB 9969.20	9980.00	147.45	31.56	10.95	12.09	2.92	4.67
9980.00	9990.80	296.76	47.86	10.86	24.32	4.43	6.20
9990.80	10001.60	308.08	48.83	10.80	25.25	4.52	6.31
10001.60	10012.40	223.58	40.55	10.98	18.33	3.75	5.51
10012.40	RB 10023.20	54.43	17.40	11.02	4.46	1.61	3.13
10023.20	10043.30	0.19	0.25	1.13	0.02	0.25	0.75

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.60	9969.20	50.77	18.20	11.09	4.16	1.98	2.79
LB 9969.20	9980.00	172.83	34.85	10.95	14.17	3.23	4.96
9980.00	9990.80	329.40	51.15	10.86	27.00	4.74	6.44
9990.80	10001.60	341.24	52.12	10.80	27.97	4.83	6.55
10001.60	10012.40	252.98	43.84	10.98	20.74	4.06	5.77
10012.40	RB 10023.20	72.17	20.69	11.02	5.92	1.92	3.49
10023.20	10043.30	0.60	0.56	1.43	0.05	0.56	1.07

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.417

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9895.8	1638.8	9902	1638.3	9917.5	1634.4	9926.7	1631.8	9934	1632.6
9947.4	1633.7	9953.7	1633.7	9958.6	1633.5	9974.7	1632.9	9977.6	1632.8
9987.5	1631.2	9995	1629.8	9999.8	1629.6	10006.5	1629.3	10013.1	1633.3
10020.4	1637.7	10042.6	1651	10052.4	1655.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9895.8	.06	9974.7	.05	10013.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.7	10013.1	58.11	95.09	108.36	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9911.58	9927.36	38.56	11.18	9.26	3.16	1.25	3.45
9927.36	9943.14	91.20	23.25	15.85	7.48	1.47	3.92
9943.14	9958.92	16.10	8.20	15.80	1.32	0.52	1.96
9958.92	9974.70	43.49	14.89	15.79	3.57	0.94	2.92
LB 9974.70	9982.38	58.75	11.97	7.74	4.82	1.56	4.91
9982.38	9990.06	149.90	21.05	7.79	12.29	2.74	7.12
9990.06	9997.74	289.23	31.19	7.77	23.71	4.06	9.27
9997.74	10005.42	360.74	35.46	7.69	29.57	4.62	10.17
10005.42	RB 10013.10	171.07	23.92	8.80	14.02	3.12	7.15
10013.10	10032.75	0.96	0.58	1.62	0.08	0.42	1.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9943.14	9958.92	18.88	8.38	14.67	1.55	0.60	2.25
9958.92	9974.70	56.09	16.59	15.79	4.60	1.05	3.38
LB 9974.70	9982.38	69.32	12.80	7.74	5.68	1.67	5.42
9982.38	9990.06	168.71	21.88	7.79	13.83	2.85	7.71
9990.06	9997.74	318.87	32.02	7.77	26.14	4.17	9.96
9997.74	10005.42	395.64	36.29	7.69	32.43	4.73	10.90
10005.42	RB 10013.10	191.07	24.75	8.80	15.66	3.22	7.72
10013.10	10032.75	1.41	0.73	1.73	0.12	0.53	1.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.399

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9900.2	1638.6	9908.8	1637.9	9912.5	1637.6	9931.1	1632.2	9938.1	1630
9956.1	1632.3	9957.1	1632.5	9957.8	1632.4	9958.9	1632.3	9974	1631.1
9979.4	1630.2	9994.3	1627.5	10000.7	1627.1	10007.3	1626.7	10010.9	1629
10014	1631.2	10017.7	1633.9	10025.6	1639.3	10040.9	1650	10046.4	1654.7
10047.6	1655.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9900.2	.06	9974	.05	10014	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974	10014	88.85	100.95	108.28	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9929.72	9944.48	50.56	14.50	12.56	4.14	1.19	3.49
9944.48	9959.24	8.24	4.09	8.06	0.68	0.51	2.02
9959.24	9974.00	5.57	3.42	9.31	0.46	0.37	1.63
LB 9974.00	9982.00	52.80	11.28	8.12	4.33	1.41	4.68
9982.00	9990.00	168.71	22.67	8.13	13.83	2.83	7.44

9990.00	9998.00	324.13	33.45	8.08	26.57	4.18	9.69
9998.00	10006.00	412.22	38.52	8.02	33.79	4.82	10.70
10006.00	RB 10014.00	197.40	26.37	9.38	16.18	3.30	7.49
10014.00	10030.80	0.38	0.28	1.08	0.03	0.32	1.36

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9929.72	9944.48	18.31	5.67	6.07	1.50	1.27	3.23
9944.48	9959.24	7.83	3.75	7.72	0.64	0.49	2.09
9959.24	9974.00	5.06	3.03	8.77	0.41	0.35	1.67
LB 9974.00	9982.00	52.62	10.94	8.12	4.31	1.37	4.81
9982.00	9990.00	172.60	22.32	8.13	14.15	2.79	7.73
9990.00	9998.00	334.36	33.11	8.08	27.41	4.14	10.10
9998.00	10006.00	426.20	38.18	8.02	34.93	4.77	11.16
10006.00	RB 10014.00	202.69	26.03	9.38	16.61	3.25	7.79
10014.00	10030.80	0.33	0.24	1.01	0.03	0.30	1.37

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.379

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9931.3	1638.7	9931.9	1638.7	9940.2	1637.8	9950.8	1636.4	9970.5	1631.1
9977	1629.4	9977	1629.3	9977.8	1629.1	9990.9	1626	9998.5	1625.9
10005.2	1625.7	10014.5	1626.6	10017.5	1626.8	10021.8	1629.1	10033.3	1635
10050.2	1643.7	10056.6	1646.8	10060.6	1648.3	10062.7	1649.5	10063.2	1649.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9931.3	.05	9977	.045	10021.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977	10021.8	227.3	216.77	209.09	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.15	9977.00	0.12	0.11	0.97	0.01	0.12	1.01
LB 9977.00	9985.96	68.63	12.68	9.31	5.63	1.41	5.41
9985.96	9994.92	290.83	29.87	9.10	23.84	3.33	9.74
9994.92	10003.88	362.60	33.90	8.96	29.72	3.78	10.70
10003.88	10012.84	337.05	32.49	9.00	27.63	3.63	10.37
10012.84	RB 10021.80	160.30	21.31	9.55	13.14	2.38	7.52
10021.80	10042.50	0.47	0.29	1.19	0.04	0.27	1.63

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.15	9977.00	0.12	0.12	0.97	0.01	0.13	1.04
LB 9977.00	9985.96	68.89	12.73	9.31	5.65	1.42	5.41
9985.96	9994.92	290.76	29.93	9.10	23.83	3.34	9.72
9994.92	10003.88	362.39	33.95	8.96	29.70	3.79	10.67
10003.88	10012.84	336.89	32.55	9.00	27.61	3.63	10.35
10012.84	RB 10021.80	160.46	21.36	9.55	13.15	2.38	7.51
10021.80	10042.50	0.49	0.30	1.20	0.04	0.28	1.65

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.338

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9955	1638.6	9960.5	1635.9	9979.6	1625.6	9984.3	1623	9988.1	1622.6
9988.3	1622.6	9989.2	1622.4	10000.8	1621.4	10001.3	1621.5	10021.1	1624.6
10021.2	1624.6	10043.3	1627.9	10044.3	1628	10047.5	1628.9	10084.6	1638.6
10088.8	1639.6	10098.3	1642.7	10102.2	1644.3	10106.8	1645.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9955	.05	9979.6	.045	10021.2	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9979.6 10021.2 271.97 262.62 247.96 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.30	9979.60	0.35	0.26	1.12	0.03	0.27	1.36
LB 9979.60	9987.92	136.28	20.63	9.01	11.17	2.48	6.60
9987.92	9996.24	313.38	33.01	8.37	25.69	3.97	9.49
9996.24	10004.56	383.26	37.28	8.39	31.41	4.48	10.28
10004.56	10012.88	249.53	28.87	8.42	20.45	3.47	8.64
10012.88	RB 10021.20	113.89	18.03	8.42	9.34	2.17	6.32
10021.20	10064.00	23.30	7.85	10.37	1.91	0.77	2.97

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.30	9979.60	0.34	0.25	1.10	0.03	0.26	1.35
LB 9979.60	9987.92	136.09	20.56	9.01	11.15	2.47	6.62
9987.92	9996.24	313.59	32.95	8.37	25.70	3.96	9.52
9996.24	10004.56	383.68	37.21	8.39	31.45	4.47	10.31
10004.56	10012.88	249.58	28.80	8.42	20.46	3.46	8.67
10012.88	RB 10021.20	113.64	17.96	8.42	9.31	2.16	6.33
10021.20	10064.00	23.07	7.77	10.31	1.89	0.76	2.97

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.289

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9920.3	1634.4	9942.1	1631	9949.4	1629.8	9964.8	1626.2	9978.9	1623
9981.9	1621.6	9991.8	1617.7	10011.4	1618.5	10013.8	1618.6	10018.4	1620.6
10018.5	1620.6	10042.6	1629.3	10051.2	1633.3	10056.4	1634.4	10072.4	1638.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9920.3	.05	9981.9	.045	10018.4	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9981.9 10018.4 306.45 313.66 311.67 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.10	9981.90	1.39	0.77	2.01	0.11	0.42	1.80
LB 9981.90	9989.20	100.97	16.69	7.85	8.28	2.29	6.05
9989.20	9996.50	322.19	32.88	7.50	26.41	4.50	9.80
9996.50	10003.80	316.21	32.18	7.31	25.92	4.41	9.83
10003.80	10011.10	281.36	30.00	7.31	23.06	4.11	9.38
10011.10	RB 10018.40	182.41	23.64	7.72	14.95	3.24	7.71
10018.40	10045.40	15.47	4.92	5.54	1.27	0.94	3.15

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9951.10	9981.90	1.44	0.79	2.02	0.12	0.43	1.82
LB 9981.90	9989.20	101.27	16.77	7.85	8.30	2.30	6.04
9989.20	9996.50	321.91	32.96	7.50	26.39	4.52	9.77
9996.50	10003.80	315.96	32.26	7.31	25.90	4.42	9.79
10003.80	10011.10	281.22	30.08	7.31	23.05	4.12	9.35
10011.10	RB 10018.40	182.53	23.72	7.72	14.96	3.25	7.69
10018.40	10045.40	15.67	4.97	5.55	1.28	0.95	3.15

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.229

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9934.4	1629.8	9958.3	1628.2	9977.7	1619.1	9984.4	1616.1	9993.5	1613.9
10000.2	1613.2	10001.1	1613.1	10001.8	1613.1	10025.2	1617.1	10025.9	1617.2

10049.4 1618 10056.6 1618.3 10058.4 1618.4 10073.8 1619.4 10076.2 1619.4
10083.3 1619.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9934.4	.06	9984.4	.05	10025.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.4	10025.2	188.63	169.51	127.27	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.73	9984.40	15.21	5.15	5.26	1.25	1.07	2.95
LB 9984.40	9992.56	183.43	25.57	8.40	15.04	3.13	7.17
9992.56	10000.72	361.23	38.10	8.23	29.61	4.67	9.48
10000.72	10008.88	354.07	37.71	8.26	29.02	4.62	9.39
10008.88	10017.04	195.70	26.44	8.28	16.04	3.24	7.40
10017.04	RB 10025.20	76.57	15.06	8.28	6.28	1.85	5.09
10025.20	10039.72	27.92	12.00	14.54	2.29	0.83	2.33
10039.72	10054.25	5.86	4.70	14.54	0.48	0.32	1.25
10054.25	10068.78	0.01	0.02	1.09	0.00	0.02	0.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9984.40	9992.56	170.83	28.79	10.94	14.00	3.53	5.93
9992.56	10000.72	377.03	41.31	8.23	30.90	5.06	9.13
10000.72	10008.88	370.04	40.92	8.26	30.33	5.02	9.04
10008.88	10017.04	216.08	29.65	8.28	17.71	3.63	7.29
10017.04	RB 10025.20	86.03	18.27	9.82	7.05	2.24	4.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.197

INPUT
Description: 100-year, 6-hour Peak Discharge of 1990 cfs from HEC-1 model at station C301.

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9935.2	1621.1	9948.7	1619.2	9962.5	1617.3	9971.7	1615.3	9971.9	1615.3
9986.4	1611.7	9987	1611.5	9988.7	1611.5	10013.7	1611.3	10017.3	1612
10030.1	1614.3	10032.6	1614.8	10047.6	1615.4	10054.8	1615.7	10063.9	1615.9
10078.6	1616.6	10085.8	1617.1	10096.6	1617.7	10125.7	1618.7	10125.9	1618.7
10127	1618.8	10133.6	1620.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9935.2	.06	9971.9	.05	10032.6	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.9	10032.6	110.53	106.77	95.7	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9959.67	9971.90	9.55	5.24	7.11	0.48	0.75	1.82
LB 9971.90	9984.04	188.99	36.10	12.51	9.50	2.97	5.23
9984.04	9996.18	484.09	62.94	12.24	24.33	5.18	7.69
9996.18	10008.32	517.11	65.26	12.14	25.99	5.38	7.92
10008.32	10020.46	470.25	61.88	12.26	23.63	5.10	7.60
10020.46	RB 10032.60	204.68	37.67	12.34	10.29	3.10	5.43
10032.60	10057.85	96.36	36.92	25.27	4.84	1.46	2.61
10057.85	10083.10	18.97	13.45	23.18	0.95	0.58	1.41

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9971.90	9984.04	209.17	45.10	14.72	10.51	3.72	4.64
9984.04	9996.18	514.86	71.94	12.24	25.87	5.93	7.16
9996.18	10008.32	545.91	74.26	12.14	27.43	6.12	7.35
10008.32	10020.46	501.93	70.88	12.26	25.22	5.84	7.08
10020.46	RB 10032.60	218.13	46.67	15.05	10.96	3.84	4.67

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.177

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9963	1621.7	9967.1	1621.5	9978.8	1616.8	9985.6	1614	9996.5	1609.5
10002.1	1609.3	10005.1	1609.3	10008.1	1609.8	10011	1610.3	10026	1611.9
10027.5	1612	10028.4	1612.1	10034.2	1612.4	10047.2	1613.5	10050.8	1613.8
10053.9	1613.9	10062.2	1616.5	10082.7	1623.3	10083.1	1623.1	10096.4	1618.8
10100.6	1617.2	10103.7	1616.7	10107.3	1616.5	10124.8	1615.7	10129.9	1615.4
10140.8	1614.8	10151.4	1618.9	10155	1620.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9963	.06	9985.6	.05	10027.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.6	10027.5		164.5	170.2	145.4	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10082.7	10155	1623.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.07	9985.60	7.42	3.72	4.60	0.37	0.88	2.00
LB 9985.60	9993.98	170.23	29.16	9.07	8.55	3.48	5.84
9993.98	10002.36	457.95	51.67	8.59	23.01	6.17	8.86
10002.36	10010.74	458.26	51.38	8.46	23.03	6.13	8.92
10010.74	10019.12	330.34	42.16	8.43	16.60	5.03	7.84
10019.12	RB 10027.50	239.07	34.71	8.42	12.01	4.14	6.89
10027.50	10041.30	212.85	45.28	13.84	10.70	3.28	4.70
10041.30	10055.10	108.03	30.19	13.89	5.43	2.19	3.58
10055.10	10068.90	5.85	3.47	4.93	0.29	0.74	1.69
10068.90	10118.85						
10118.85	10130.90	0.00	1.42	7.20	0.00	0.20	0.00
10130.90	10142.95	0.00	7.85	12.22	0.00	0.65	0.00
10142.95	10155.00	0.00	0.02	0.33	0.00	0.06	0.00

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.07	9985.60	10.06	3.93	4.65	0.51	0.92	2.56
LB 9985.60	9993.98	211.87	29.58	9.07	10.65	3.53	7.16
9993.98	10002.36	564.12	52.09	8.59	28.35	6.22	10.83
10002.36	10010.74	564.55	51.80	8.46	28.37	6.18	10.90
10010.74	10019.12	408.15	42.58	8.43	20.51	5.08	9.59
10019.12	RB 10027.50	231.26	35.13	12.22	11.62	4.19	6.58

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.145

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9951.3	1619.7	9954.1	1619.5	9957.9	1618.8	9973.8	1611.7	9973.8	1611.6
9983.6	1607.4	10000.6	1606.3	10001.5	1606.3	10015.4	1611.8	10032	1618.5
10046.7	1623.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9951.3	.05	9973.8	.045	10015.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.8	10015.4		179.55	182.46	183.66	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.55	9973.80	0.91	0.49	1.62	0.05	0.33	1.86
LB 9973.80	9982.12	156.55	21.17	9.15	7.87	2.54	7.39
9982.12	9990.44	523.19	42.33	8.46	26.29	5.09	12.36
9990.44	9998.76	633.76	47.20	8.34	31.85	5.67	13.43
9998.76	10007.08	549.52	44.17	8.75	27.61	5.31	12.44
10007.08	RB 10015.40	125.42	18.37	8.95	6.30	2.21	6.83
10015.40	10031.05	0.66	0.39	1.50	0.03	0.28	1.68

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.55	9973.80	0.98	0.52	1.64	0.05	0.35	1.89
LB 9973.80	9982.12	157.31	21.32	9.15	7.90	2.56	7.38
9982.12	9990.44	522.81	42.47	8.46	26.27	5.10	12.31
9990.44	9998.76	632.94	47.34	8.34	31.81	5.69	13.37
9998.76	10007.08	549.00	44.31	8.75	27.59	5.33	12.39
10007.08	RB 10015.40	126.24	18.51	8.95	6.34	2.22	6.82
10015.40	10031.05	0.71	0.41	1.52	0.04	0.30	1.72

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 4.110

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9963.5	1615.8	9968.3	1611.6	9974.1	1607.1	9979.1	1603.3	9996.3	1602.6
9998.6	1602.6	10001.6	1602.4	10007.1	1604.3	10016	1607	10051.8	1618
10069.3	1619.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9963.5	.05	9974.1	.045	10016	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.1	10016	512.17	510.52	514.71	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.80	9974.10	1.47	0.70	1.70	0.07	0.52	2.10
LB 9974.10	9982.48	275.72	31.30	9.66	13.86	3.73	8.81
9982.48	9990.86	517.44	43.15	8.39	26.00	5.15	11.99
9990.86	9999.24	572.56	45.85	8.39	28.77	5.47	12.49
9999.24	10007.62	475.41	41.67	8.73	23.89	4.97	11.41
10007.62	RB 10016.00	142.05	20.21	8.76	7.14	2.41	7.03
10016.00	10042.65	5.37	2.12	3.88	0.27	0.57	2.53

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.80	9974.10	1.42	0.68	1.67	0.07	0.51	2.09
LB 9974.10	9982.48	275.42	31.18	9.66	13.84	3.72	8.83
9982.48	9990.86	517.80	43.03	8.39	26.02	5.13	12.03
9990.86	9999.24	573.11	45.73	8.39	28.80	5.46	12.53
9999.24	10007.62	475.65	41.55	8.73	23.90	4.96	11.45
10007.62	RB 10016.00	141.39	20.09	8.76	7.11	2.40	7.04
10016.00	10042.65	5.22	2.06	3.84	0.26	0.56	2.53

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3

REACH: 1 RS: 4.013

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9932.4	1610.4	9939.3	1608.8	9945.3	1607.2	9957.6	1603.5	9975	1598.4
9975	1598.3	9991.8	1596.2	9996.3	1595.6	9996.7	1595.6	9999.9	1594.8
10009.2	1594.8	10023.4	1595	10032.1	1597.4	10032.5	1597.6	10032.6	1597.6
10036.4	1599.5	10053.4	1608.8	10056	1609.4	10057.4	1609.8	10068.4	1613.7
10073.1	1614								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9932.4	.05	9975	.045	10032.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10032.5	481.7	486.09	518.09	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.70	9975.00	2.81	1.24	3.03	0.14	0.43	2.27
LB 9975.00	9986.50	116.53	19.21	11.69	5.86	1.67	6.07
9986.50	9998.00	332.05	35.92	11.62	16.69	3.12	9.24
9998.00	10009.50	592.67	50.74	11.56	29.78	4.41	11.68
10009.50	10021.00	584.37	50.21	11.50	29.37	4.37	11.64
10021.00	RB 10032.50	351.60	37.49	11.87	17.67	3.26	9.38
10032.50	10052.80	9.97	2.89	3.79	0.50	0.85	3.45

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.70	9975.00	2.95	1.28	3.04	0.15	0.44	2.30
LB 9975.00	9986.50	117.43	19.38	11.69	5.90	1.69	6.06
9986.50	9998.00	332.33	36.09	11.62	16.70	3.14	9.21
9998.00	10009.50	591.81	50.91	11.56	29.74	4.43	11.62
10009.50	10021.00	583.55	50.38	11.50	29.32	4.38	11.58
10021.00	RB 10032.50	351.78	37.66	11.87	17.68	3.28	9.34
10032.50	10052.80	10.16	2.94	3.81	0.51	0.87	3.45

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.921

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9921.8	1607	9941.1	1605.6	9946.1	1603.4	9952.2	1601.5	9955.9	1600.4
9958.8	1599.1	9969.1	1596.1	9971.7	1595	9980.2	1593	9983.8	1590
9987.9	1586.5	9990	1585.2	9993.7	1585.2	10011.1	1585.1	10020.5	1589.7
10027.4	1593.1	10035.1	1596.7	10035.7	1597.1	10037.2	1598	10040.5	1599.6
10048.6	1603.5	10059.1	1608.2	10059.2	1608.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9921.8	.05	9983.8	.045	10020.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.8	10020.5	494.14	502.61	500.07	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.80	9983.80	1.45	0.73	1.73	0.07	0.55	1.98
LB 9983.80	9991.14	241.08	29.47	9.00	12.11	4.02	8.18
9991.14	9998.48	526.63	43.41	7.34	26.46	5.91	12.13
9998.48	10005.82	532.59	43.71	7.34	26.76	5.95	12.19
10005.82	10013.16	506.86	42.96	7.57	25.47	5.85	11.80
10013.16	RB 10020.50	176.23	23.49	8.17	8.86	3.20	7.50
10020.50	10039.85	5.16	2.00	3.18	0.26	0.70	2.58

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.80	9983.80	2.28	1.07	1.98	0.11	0.80	2.14
LB 9983.80	9991.14	246.22	31.32	9.00	12.37	4.27	7.86
9991.14	9998.48	521.01	45.25	7.34	26.18	6.17	11.51
9998.48	10005.82	526.67	45.55	7.34	26.47	6.21	11.56
10005.82	10013.16	501.80	44.80	7.57	25.22	6.10	11.20
10013.16	RB 10020.50	184.51	25.34	8.17	9.27	3.45	7.28
10020.50	10039.85	7.51	2.72	3.43	0.38	0.95	2.76

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.826

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9953.7	1602.3	9958.3	1602	9966.4	1598.3	9980.1	1591.2	9985.5	1588.6
9992.3	1584.9	10002.2	1579.5	10013.6	1580.8	10014.2	1580.9	10014.4	1580.9
10023	1581.4	10028.1	1581.5	10040	1582.134	10060	1583.2	10062.2	1583.5
10069.4	1584.1	10079.8	1585.1	10084.7	1586.8	10088.1	1588	10114.5	1595.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9953.7	.05	9992.3	.045	10040	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.3	10040	508.81	500.95	474.83	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9979.43	9992.30	0.11	0.12	0.76	0.01	0.18	0.94
LB 9992.30	10001.84	185.31	28.28	10.87	9.31	2.96	6.55
10001.84	10011.38	520.90	50.13	9.65	26.18	5.26	10.39
10011.38	10020.92	373.22	40.92	9.57	18.75	4.29	9.12
10020.92	10030.46	306.76	36.33	9.55	15.42	3.81	8.44
10030.46	RB 10040.00	251.63	32.27	9.55	12.64	3.38	7.80
10040.00	10049.31	154.32	26.82	9.33	7.75	2.88	5.75
10049.31	10058.63	112.59	22.20	9.33	5.66	2.38	5.07
10058.63	10067.94	63.98	15.83	9.35	3.21	1.70	4.04
10067.94	10077.25	20.30	7.95	9.35	1.02	0.85	2.55
10077.25	10086.56	0.86	0.76	3.06	0.04	0.25	1.13

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9979.43	9992.30	1.06	0.62	1.51	0.05	0.93	1.70
LB 9992.30	10001.84	255.19	35.40	10.87	12.82	3.71	7.21
10001.84	10011.38	615.58	57.25	9.65	30.93	6.00	10.75
10011.38	10020.92	461.85	48.04	9.57	23.21	5.04	9.61
10020.92	10030.46	391.51	43.46	9.55	19.67	4.56	9.01
10030.46	RB 10040.00	264.80	39.39	13.43	13.31	4.13	6.72

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.731

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9918.7	1594.8	9939.9	1588	9964.5	1578.9	9974.1	1577.8	9982.2	1576.7
9988.9	1574.8	9991.3	1574.1	9998.7	1574	10009.9	1573.7	10017	1575.7
10021.9	1577	10023.9	1577.4	10024	1577.5	10033.8	1578	10036.2	1578.1
10039.3	1577.8	10046	1576.8	10054	1577.7	10057.8	1578	10076.2	1578.2
10079.4	1578.2	10079.6	1578.2	10080	1578.2	10099.7	1578.6	10104.9	1578.7
10123.2	1579.2	10159.2	1579.2	10159.4	1579.2	10159.5	1579.2	10159.8	1579.2
10167.7	1580.8	10168.8	1581.2	10172	1581.6	10175.2	1581.9	10186.4	1582.7
10187.7	1582.9	10197.4	1585.5	10201.1	1586.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9918.7	.05	9982.2	.045	10024	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.2	10024	432.61	436.4	445.33	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.03	9982.20	74.01	20.37	18.12	3.72	1.13	3.63
LB 9982.20	9990.56	235.22	29.12	8.69	11.82	3.48	8.08
9990.56	9998.92	430.20	41.24	8.39	21.62	4.93	10.43
9998.92	10007.28	457.83	42.76	8.36	23.01	5.11	10.71
10007.28	10015.64	395.02	39.54	8.58	19.85	4.73	9.99
10015.64	RB 10024.00	141.75	21.46	8.66	7.12	2.57	6.61
10024.00	10046.14	105.57	29.40	22.24	5.31	1.33	3.59
10046.14	10068.28	96.70	27.87	22.20	4.86	1.26	3.47
10068.28	10090.41	41.97	16.87	22.14	2.11	0.76	2.49
10090.41	10112.55	11.67	7.83	22.14	0.59	0.35	1.49
10112.55	10134.69	0.05	0.14	3.20	0.00	0.04	0.37

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9982.20	9990.56	245.80	32.29	11.37	12.35	3.86	7.61
9990.56	9998.92	512.01	44.41	8.39	25.73	5.31	11.53
9998.92	10007.28	542.61	45.93	8.36	27.27	5.49	11.81
10007.28	10015.64	472.54	42.71	8.58	23.75	5.11	11.06
10015.64	RB 10024.00	187.61	24.63	8.66	9.43	2.95	7.62
10024.00	10046.14	29.43	7.09	5.68	1.48	1.77	4.15

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.649

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9913.3	1587.3	9934.6	1581	9954	1574.9	9977.7	1572.3	9980.6	1572
9981.1	1571.9	9987.8	1570.6	9992.3	1569.7	10010.1	1569.5	10011.6	1569.5
10011.8	1569.5	10012.5	1569.6	10021.2	1570.8	10023.5	1571.3	10032.2	1572.3
10038.6	1572.6	10049.6	1572.6	10061.3	1572.7	10071.1	1575	10075.6	1576.4
10094.4	1581.3	10105.2	1583.7	10114.2	1587.6	10115.9	1588.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9913.3	.05	9981.1	.045	10032.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.1	10032.2	465.68	461.55	451.4	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.20	9964.15	6.18	4.61	9.22	0.31	0.50	1.34
9964.15	9981.10	107.86	32.78	17.06	5.42	1.93	3.29
LB 9981.10	9991.32	254.72	39.73	10.41	12.80	3.89	6.41
9991.32	10001.54	409.02	52.43	10.24	20.55	5.13	7.80
10001.54	10011.76	425.88	53.67	10.22	21.40	5.25	7.93
10011.76	10021.98	337.57	46.88	10.33	16.96	4.59	7.20
10021.98	RB 10032.20	174.99	31.59	10.31	8.79	3.09	5.54
10032.20	10048.94	148.79	37.66	16.75	7.48	2.25	3.95
10048.94	10065.68	121.42	33.42	16.86	6.10	2.00	3.63
10065.68	10082.42	3.58	2.41	4.66	0.18	0.53	1.48

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9981.10	9991.32	282.57	46.54	13.97	14.20	4.55	6.07
9991.32	10001.54	519.75	59.24	10.24	26.12	5.80	8.77
10001.54	10011.76	538.77	60.49	10.22	27.07	5.92	8.91
10011.76	10021.98	438.72	53.70	10.33	22.05	5.25	8.17
10021.98	RB 10032.20	210.19	38.40	13.47	10.56	3.76	5.47

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.561

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9896.3	1582.1	9898.3	1581.5	9903.6	1579.7	9918.9	1575.1	9932.3	1570.8
9932.7	1570.7	9951.5	1569.3	9952.6	1569.4	9953.2	1569.3	9955.6	1569.3
9966.3	1569.3	9971.8	1569.3	9975.1	1569.1	9975.7	1569.3	9980.6	1569.1
9980.9	1569	9985.7	1568.6	9985.8	1568.6	9990.3	1567.2	9996.6	1565.2
10001.3	1565.3	10010.5	1565.3	10024.2	1568.6	10025.1	1568.8	10025.2	1568.8
10027.8	1568.8	10067.1	1568.5	10074.9	1570.6	10097.8	1578.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9896.3	.05	9985.8	.045	10025.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.8	10025.1	221.16	216.34	209.79	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9926.13	9941.05	0.93	0.93	5.02	0.05	0.19	0.99
9941.05	9955.97	36.14	13.02	14.96	1.82	0.87	2.78
9955.97	9970.88	57.42	17.17	14.92	2.89	1.15	3.34
9970.88	9985.80	77.49	20.60	14.99	3.89	1.38	3.76
LB 9985.80	9993.66	172.01	24.20	8.24	8.64	3.08	7.11
9993.66	10001.52	399.18	39.64	8.01	20.06	5.04	10.07
10001.52	10009.38	418.55	40.49	7.86	21.03	5.15	10.34
10009.38	10017.24	323.31	35.01	8.05	16.25	4.46	9.23
10017.24	RB 10025.10	129.97	20.30	8.08	6.53	2.58	6.40
10025.10	10039.64	110.09	24.54	14.54	5.53	1.69	4.49
10039.64	10054.18	122.21	26.13	14.54	6.14	1.80	4.68
10054.18	10068.72	131.76	27.38	14.60	6.62	1.88	4.81
10068.72	10083.26	10.95	4.26	5.83	0.55	0.76	2.57

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.88	9985.80	90.06	20.61	12.68	4.53	1.91	4.37
LB 9985.80	9993.66	213.73	27.89	8.24	10.74	3.55	7.66
9993.66	10001.52	454.14	43.33	8.01	22.82	5.51	10.48
10001.52	10009.38	474.78	44.18	7.86	23.86	5.62	10.75
10009.38	10017.24	374.75	38.70	8.05	18.83	4.92	9.68
10017.24	RB 10025.10	168.40	23.98	8.08	8.46	3.05	7.02
10025.10	10039.64	163.63	31.36	14.54	8.22	2.16	5.22
10039.64	10054.18	50.51	11.96	7.61	2.54	2.23	4.22

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.520

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9889.2	1577.1	9900.8	1573.3	9909	1570.7	9915.4	1568.5	9951.9	1567.8
9979.1	1567.3	9979.2	1567.3	9987.7	1565.4	9996.4	1562.9	9996.6	1562.8
9998.4	1562.8	10007.8	1563	10016.8	1565.1	10026.1	1566.9	10026.2	1566.9
10027.7	1566.9	10030.8	1567	10034.3	1567.1	10036.5	1567.2	10040.9	1567.1
10061.2	1566.4	10064.9	1566.2	10070.4	1565.1	10075.8	1564.1	10082.4	1567.4
10099.2	1574	10113	1579.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

9889.2 .065 9979.2 .05 10026.2 .065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.2	10026.2		76.16	58.86	41.79	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9904.20	9919.20	4.65	4.01	6.21	0.23	0.66	1.16
9919.20	9934.20	23.29	15.00	15.00	1.17	1.00	1.55
9934.20	9949.20	35.50	19.31	15.00	1.78	1.29	1.84
9949.20	9964.20	49.47	23.57	15.00	2.49	1.57	2.10
9964.20	9979.20	64.78	27.70	15.00	3.26	1.85	2.34
LB 9979.20	9988.60	118.64	28.54	9.65	5.96	3.04	4.16
9988.60	9998.00	314.29	51.41	9.74	15.79	5.47	6.11
9998.00	10007.40	417.23	60.08	9.40	20.97	6.39	6.94
10007.40	10016.80	298.18	49.61	9.64	14.98	5.28	6.01
10016.80	RB 10026.20	135.16	30.77	9.57	6.79	3.27	4.39
10026.20	10043.56	102.16	38.63	17.37	5.13	2.23	2.64
10043.56	10060.92	130.20	44.68	17.37	6.54	2.57	2.91
10060.92	10078.28	260.05	68.43	17.86	13.07	3.94	3.80
10078.28	10095.64	36.41	16.52	9.76	1.83	1.85	2.20

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.20	9979.20	58.52	23.18	11.64	2.94	2.52	2.52
LB 9979.20	9988.60	160.49	34.37	9.65	8.06	3.66	4.67
9988.60	9998.00	373.11	57.23	9.74	18.75	6.09	6.52
9998.00	10007.40	483.26	65.90	9.40	24.28	7.01	7.33
10007.40	10016.80	356.17	55.43	9.64	17.90	5.90	6.43
10016.80	RB 10026.20	179.12	36.59	9.57	9.00	3.89	4.89
10026.20	10043.56	155.59	49.38	17.37	7.82	2.84	3.15
10043.56	10060.92	188.64	55.44	17.37	9.48	3.19	3.40
10060.92	10078.28	35.10	14.68	7.81	1.76	3.60	2.39

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.509

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9859.2	1580.5	9876	1575.2	9900.3	1567.5	9925.7	1567.4	9929.7	1567.4
9941.3	1567.3	9943.1	1567.3	9945.4	1567.2	9949.4	1567.2	9951.4	1567.2
9958.2	1567.3	9976.4	1567.3	9976.5	1567.3	9983.1	1565.9	9995	1563.3
9997.9	1562.5	9998.5	1562.4	10001.9	1562.2	10007.6	1562	10012.7	1562.9
10021.9	1564.5	10025.8	1565	10037.5	1566.6	10054.8	1566.3	10060.4	1566.1
10066.1	1564.6	10070.3	1563.2	10070.3	1563.1	10070.4	1563.1	10074.7	1565.2
10075.2	1565.4	10075.4	1565.4	10087.1	1566.9	10092.7	1568.8	10097.8	1570
10112.7	1577.7	10114.7	1578.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9859.2	.065	9976.5	.05	10037.5	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.5	10037.5		104.94	63.79	34.34	.6	.8

Ineffective Flow num= 1

Sta L	Sta R	Elev
9859.2	9976.5	1575

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9878.75	9898.30	0.00	1.42	3.14	0.00	0.47	0.00
9898.30	9917.85	0.00	30.92	19.65	0.00	1.58	0.00
9917.85	9937.40	0.00	33.04	19.55	0.00	1.69	0.00
9937.40	9956.95	0.00	35.84	19.55	0.00	1.83	0.00
9956.95	9976.50	0.00	34.87	19.55	0.00	1.78	0.00
LB 9976.50	9988.70	135.89	37.64	12.48	6.83	3.09	3.61
9988.70	10000.90	384.34	70.22	12.47	19.31	5.76	5.47
10000.90	10013.10	512.22	82.94	12.29	25.74	6.80	6.18
10013.10	10025.30	313.40	61.91	12.36	15.75	5.07	5.06
10025.30	RB 10037.50	154.71	40.47	12.31	7.77	3.32	3.82
10037.50	10052.94	102.36	40.41	15.44	5.14	2.62	2.53
10052.94	10068.38	162.00	53.66	15.76	8.14	3.48	3.02
10068.38	10083.82	199.84	61.59	16.24	10.04	3.99	3.24
10083.82	10099.26	25.24	14.92	10.46	1.27	1.48	1.69

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9976.50	9988.70	162.98	45.57	14.91	8.19	3.73	3.58
9988.70	10000.90	451.17	78.14	12.47	22.67	6.41	5.77
10000.90	10013.10	585.77	90.86	12.29	29.44	7.45	6.45
10013.10	10025.30	376.28	69.83	12.36	18.91	5.72	5.39
10025.30	RB 10037.50	204.73	48.40	12.31	10.29	3.97	4.23
10037.50	10052.94	150.56	50.44	15.44	7.57	3.27	2.99
10052.94	10068.38	58.52	24.69	10.68	2.94	3.50	2.37

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.497

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9969	1574.2	9975.8	1573.6	9982.7	1573.4	9983.5	1573.3	9985	1571.4
9990.6	1563.8	9992.5	1561.2	9997.9	1561.2	10002.3	1561.3	10010.5	1562.4
10020	1564.6	10022.4	1565.3	10023.8	1565.3	10047.8	1566.4	10051.2	1566.6
10052.2	1566.1	10060.4	1562.4	10061.9	1563	10067.6	1565.3	10071.3	1566
10084.6	1568.6	10086	1568.8	10086.5	1568.9	10087.2	1569.1	10098.7	1571.5
10105.6	1575.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9969	.065	9990.6	.05	10022.4	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.6	10022.4	38.64	55.48	105.72	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9983.40	9990.60	14.09	5.31	4.71	0.71	1.90	2.65
LB 9990.60	9996.96	345.31	38.21	7.68	17.35	6.01	9.04
9996.96	10003.32	427.26	40.28	6.37	21.47	6.33	10.61
10003.32	10009.68	359.95	36.45	6.42	18.09	5.73	9.87
10009.68	10016.04	250.94	29.54	6.51	12.61	4.64	8.50
10016.04	RB 10022.40	130.65	20.03	6.57	6.57	3.15	6.52
10022.40	10034.29	91.04	24.76	11.90	4.58	2.08	3.68
10034.29	10046.17	55.15	18.33	11.90	2.77	1.54	3.01
10046.17	10058.06	80.26	23.48	12.58	4.03	1.98	3.42
10058.06	10069.94	216.56	42.77	12.72	10.88	3.60	5.06
10069.94	10081.83	18.78	8.85	9.70	0.94	0.93	2.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9983.40	9990.60	15.83	5.22	4.68	0.80	1.88	3.03
LB 9990.60	9996.96	392.92	38.02	7.68	19.74	5.98	10.33
9996.96	10003.32	486.37	40.10	6.37	24.44	6.30	12.13
10003.32	10009.68	409.41	36.26	6.42	20.57	5.70	11.29
10009.68	10016.04	284.85	29.35	6.51	14.31	4.61	9.71
10016.04	RB 10022.40	147.55	19.84	6.57	7.41	3.12	7.44
10022.40	10034.29	109.07	24.41	11.90	5.48	2.05	4.47
10034.29	10046.17	65.52	17.98	11.90	3.29	1.51	3.64
10046.17	10058.06	78.47	22.89	16.60	3.94	1.94	3.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.487

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9945	1574.8	9948.6	1574.3	9973.2	1565.1	9978.5	1562.4	9981.9	1562.3
9998	1561.1	10005.7	1560.4	10008	1560.2	10012.8	1560.1	10017.5	1561
10023.9	1563.5	10024.3	1563.6	10025.5	1564	10025.6	1564	10034.5	1565.5

10037.5	1566.1	10040.8	1566.8	10043.9	1566.7	10047.5	1566.6	10058.9	1566.6
10072	1566.4	10079.7	1566.3	10097	1567.2	10102.4	1567.5	10105	1567.5
10107.4	1574.4	10111	1579.4	10111.8	1579.3	10112.6	1581.2	10112.9	1581.5
10115.4	1583	10117.1	1584.1	10117.3	1584.3	10119.7	1586.1	10120.7	1586.2
10124.6	1587.3	10127.5	1588	10129	1588.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9945	.065	9978.5	.05	10025.6	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.5	10025.6	114.49	139.74	166.73	.6	.8

Ineffective Flow num= 1

Sta L	Sta R	Elev
10040.8	10129	1575

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.17	9967.33	0.00	0.01	0.26	0.00	0.05	0.18
9967.33	9978.50	66.52	26.23	12.21	3.34	2.35	2.54
LB 9978.50	9987.92	292.14	49.07	9.44	14.68	5.21	5.95
9987.92	9997.34	357.66	55.43	9.45	17.97	5.88	6.45
9997.34	10006.76	438.51	62.67	9.46	22.04	6.65	7.00
10006.76	10016.18	490.32	67.09	9.49	24.64	7.12	7.31
10016.18	RB 10025.60	267.57	47.63	9.99	13.45	5.06	5.62
10025.60	10040.80	77.27	31.28	15.46	3.88	2.06	2.47
10040.80	10055.50	0.00	10.89	14.70	0.00	0.74	0.00
10055.50	10070.20	0.00	12.51	14.70	0.00	0.85	0.00
10070.20	10084.90	0.00	14.65	14.71	0.00	1.00	0.00
10084.90	10099.60	0.00	6.33	14.72	0.00	0.43	0.00
10099.60	10114.30	0.00	0.01	0.72	0.00	0.02	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9978.50	9987.92	253.70	48.95	14.41	12.75	5.20	5.18
9987.92	9997.34	412.01	55.31	9.45	20.70	5.87	7.45
9997.34	10006.76	505.35	62.55	9.46	25.39	6.64	8.08
10006.76	10016.18	565.18	66.97	9.49	28.40	7.11	8.44
10016.18	RB 10025.60	253.77	47.51	13.36	12.75	5.04	5.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.460

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9966.9	1576.5	9967.1	1576.5	9976.2	1576.2	9985.1	1566.5	9987	1564.5
9992.2	1559.1	9996.9	1559.5	10004.8	1559.9	10017.5	1560.8	10018.2	1560.9
10018.6	1560.9	10029.8	1561.5	10035.4	1564.7	10048	1571.9	10050.5	1573.3
10051.8	1573.5	10054.5	1573.6	10071.6	1574.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9966.9	.05	9987	.04	10035.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987	10035.4	172.73	177.76	178.28	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.95	9987.00	0.09	0.10	0.63	0.00	0.23	0.94
LB 9987.00	9996.68	374.49	41.77	11.99	18.82	4.31	8.97
9996.68	10006.36	592.27	50.51	9.70	29.76	5.22	11.73
10006.36	10016.04	479.80	44.53	9.70	24.11	4.60	10.78
10016.04	10025.72	370.73	38.14	9.70	18.63	3.94	9.72
10025.72	RB 10035.40	172.58	24.91	10.54	8.67	2.57	6.93
10035.40	10053.50	0.04	0.06	0.51	0.00	0.13	0.74

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.95	9987.00	0.10	0.10	0.63	0.00	0.24	0.95
LB 9987.00	9996.68	374.48	41.84	11.99	18.82	4.32	8.95
9996.68	10006.36	591.93	50.58	9.70	29.75	5.23	11.70
10006.36	10016.04	479.69	44.60	9.70	24.11	4.61	10.75
10016.04	10025.72	370.83	38.22	9.70	18.63	3.95	9.70
10025.72	RB 10035.40	172.94	24.99	10.54	8.69	2.58	6.92
10035.40	10053.50	0.05	0.06	0.52	0.00	0.14	0.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.426

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9942.7	1567.6	9943.1	1567.5	9963.8	1562.8	9976.5	1560.1	9988.5	1558.6
9993.7	1558.5	9999.7	1558.4	10007.6	1558.3	10013	1559.4	10021.5	1561.1
10031.4	1562.8	10035.5	1563.3	10049.3	1564.9	10051.1	1565.2	10051.5	1565.2
10060.8	1567.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9942.7	.05	9963.8	.04	10035.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9963.8	10035.5	73.18	76.71	82.91	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.25	9963.80	4.15	2.59	4.90	0.21	0.54	1.60
LB 9963.80	9978.14	196.33	37.30	14.64	9.87	2.60	5.26
9978.14	9992.48	555.82	69.23	14.42	27.93	4.83	8.03
9992.48	10006.82	688.46	78.54	14.34	34.60	5.48	8.77
10006.82	10021.16	452.03	61.48	14.61	22.72	4.29	7.35
10021.16	RB 10035.50	91.63	23.54	14.52	4.60	1.64	3.89
10035.50	10048.15	1.58	1.48	5.08	0.08	0.29	1.07

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.25	9963.80	8.76	4.71	5.34	0.44	0.99	1.86
LB 9963.80	9978.14	214.38	43.65	14.64	10.77	3.04	4.91
9978.14	9992.48	540.56	75.58	14.42	27.16	5.27	7.15
9992.48	10006.82	658.49	84.89	14.34	33.09	5.92	7.76
10006.82	10021.16	447.42	67.83	14.61	22.48	4.73	6.60
10021.16	RB 10035.50	114.64	29.89	14.52	5.76	2.08	3.84
10035.50	10048.15	5.76	3.71	5.52	0.29	0.74	1.55

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.412

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9894.9	1565.8	9895.8	1565.8	9901.6	1565.7	9911.9	1565.4	9913.8	1565.3
9917.2	1564.7	9937.2	1561.4	9945.3	1561.2	9959.4	1560.8	9968.5	1560.5
9978.3	1559.3	9984.2	1558.6	9988.6	1558.3	10002.2	1557.8	10012	1560
10017.8	1561.2	10021.3	1561.2	10027.2	1561.7	10032.7	1563.2	10036.6	1564.5
10038.4	1565.7	10047.2	1569.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9894.9	.06	9968.5	.045	10017.8	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

9968.5	10017.8	207.83	223.65	246	.3	.5	

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9924.34	9939.06	17.03	7.08	9.53	0.86	0.75	2.40
9939.06	9953.78	83.29	21.85	14.73	4.19	1.48	3.81
9953.78	9968.50	126.77	28.12	14.73	6.37	1.91	4.51
LB 9968.50	9978.36	211.48	27.13	9.93	10.63	2.75	7.79
9978.36	9988.22	378.55	38.44	9.91	19.02	3.90	9.85
9988.22	9998.08	484.90	44.52	9.87	24.37	4.51	10.89
9998.08	10007.94	467.38	43.79	10.01	23.49	4.44	10.67
10007.94	RB 10017.80	176.40	24.48	10.08	8.86	2.48	7.21
10017.80	10027.60	42.17	12.49	9.84	2.12	1.27	3.38
10027.60	10037.40	2.03	1.29	3.19	0.10	0.42	1.57

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.78	9968.50	126.94	26.02	15.23	6.38	1.93	4.88
LB 9968.50	9978.36	231.23	27.12	9.93	11.62	2.75	8.53
9978.36	9988.22	413.98	38.43	9.91	20.80	3.90	10.77
9988.22	9998.08	530.32	44.51	9.87	26.65	4.51	11.92
9998.08	10007.94	511.15	43.78	10.01	25.69	4.44	11.68
10007.94	RB 10017.80	176.37	24.47	11.53	8.86	2.48	7.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.370

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9832.9	1567.3	9839.6	1563.7	9850.5	1559	9853.5	1558.6	9859.2	1557.7
9862.3	1557.1	9863.6	1556.8	9870.4	1557.7	9873.6	1558.2	9880.4	1558.3
9885.8	1558.5	9892.8	1558.7	9898	1558.7	9930	1559.1	9935.1	1559.3
9937.8	1559.3	9940.6	1559.3	9940.7	1559.3	9950.8	1558.3	9962.1	1557.3
9966.1	1557	9977.8	1556	9981.9	1555.3	10002.7	1554.7	10013.7	1554.2
10019.8	1557.9	10030.3	1564.2	10036.4	1567.3	10057.4	1577.3	10058.4	1577.7
10061	1577.7	10062	1577.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9832.9	.06	9940.6	.045	10019.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9940.6	10019.8	106.44	99.43	88.46	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9832.90	9854.44	4.22	2.91	5.04	0.21	0.59	1.45
9854.44	9875.98	116.39	38.21	21.79	5.85	1.77	3.05
9875.98	9897.52	39.06	19.76	21.55	1.96	0.92	1.98
9897.52	9919.06	18.84	12.75	21.54	0.95	0.59	1.48
9919.06	9940.60	5.43	6.05	21.54	0.27	0.28	0.90
LB 9940.60	9956.44	39.20	14.01	15.91	1.97	0.88	2.80
9956.44	9972.28	191.40	36.26	15.90	9.62	2.29	5.28
9972.28	9988.12	433.16	59.23	15.92	21.77	3.74	7.31
9988.12	10003.96	598.08	71.75	15.85	30.05	4.53	8.34
10003.96	RB 10019.80	540.55	69.26	16.88	27.16	4.37	7.81
10019.80	10033.87	3.67	1.93	2.96	0.18	0.76	1.90

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9854.44	9875.98	90.93	30.05	18.01	4.57	1.88	3.03
9875.98	9897.52	38.67	19.33	21.55	1.94	0.90	2.00
9897.52	9919.06	18.28	12.33	21.54	0.92	0.57	1.48
9919.06	9940.60	4.94	5.62	21.54	0.25	0.26	0.88
LB 9940.60	9956.44	38.76	13.70	15.91	1.95	0.86	2.83
9956.44	9972.28	193.68	35.95	15.90	9.73	2.27	5.39
9972.28	9988.12	440.78	58.92	15.92	22.15	3.72	7.48
9988.12	10003.96	609.55	71.43	15.85	30.63	4.51	8.53
10003.96	RB 10019.80	550.77	68.94	16.88	27.68	4.35	7.99
10019.80	10033.87	3.64	1.88	2.92	0.18	0.75	1.94

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.351

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9913.2	1576.7	9914.6	1576	9919.1	1573.3	9940.9	1561	9945.7	1555.2
9953.1	1553.7	9953.9	1553.8	9957.8	1555.7	9959.6	1556.7	9968.1	1556.3
9969.4	1556.2	9973.5	1555.8	9980.2	1555.5	9985.1	1555.2	9985.2	1555.2
9989.9	1554.5	9998.2	1553.2	9999.9	1553.2	10001.9	1553.2	10013.1	1553.6
10022.7	1553.5	10025.7	1553.8	10038.7	1555.1	10038.8	1555.1	10059.2	1561.3
10062.6	1561.9	10077.5	1563.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9913.2	.06	9985.2	.045	10038.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.2	10038.7	191.05	166.22	65.92	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.00	9956.40	174.32	56.71	16.20	8.76	4.07	3.07
9956.40	9970.80	105.10	40.42	14.84	5.28	2.81	2.60
9970.80	9985.20	154.87	50.44	14.43	7.78	3.50	3.07
LB 9985.20	9995.90	250.13	50.40	10.83	12.57	4.71	4.96
9995.90	10006.60	358.47	62.32	10.73	18.01	5.82	5.75
10006.60	10017.30	334.18	59.69	10.70	16.79	5.58	5.60
10017.30	10028.00	321.42	58.37	10.73	16.15	5.45	5.51
10028.00	RB 10038.70	235.90	48.53	10.75	11.85	4.54	4.86
10038.70	10051.63	55.58	26.71	13.51	2.79	2.06	2.08
10051.63	10064.57	0.00	0.02	0.34	0.00	0.05	0.17

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.00	9956.40	174.32	56.59	16.19	8.76	4.07	3.08
9956.40	9970.80	104.88	40.29	14.84	5.27	2.80	2.60
9970.80	9985.20	154.70	50.31	14.43	7.77	3.49	3.07
LB 9985.20	9995.90	250.14	50.30	10.83	12.57	4.70	4.97
9995.90	10006.60	358.70	62.23	10.73	18.03	5.82	5.76
10006.60	10017.30	334.36	59.60	10.70	16.80	5.57	5.61
10017.30	10028.00	321.57	58.27	10.73	16.16	5.45	5.52
10028.00	RB 10038.70	235.88	48.43	10.75	11.85	4.53	4.87
10038.70	10051.63	55.44	26.59	13.51	2.79	2.06	2.08
10051.63	10064.57	0.00	0.01	0.31	0.00	0.05	0.16

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.319

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9970.6	1587.9	9986.4	1566.5	9988.1	1564.2	9990.5	1556.8	9990.6	1556.6
9993.3	1550.8	10001.3	1551.4	10012.3	1552.1	10028.2	1554.3	10034.6	1555.3
10036.8	1555.3	10039.5	1555.4	10041.4	1555.5	10045.6	1555.6	10048.6	1555.8
10053.1	1555.9	10057.6	1555.9	10080.4	1556.6	10085.1	1556.8	10098.1	1558.9
10118.8	1562.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9970.6	.06	9990.6	.045	10034.6	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.6	10034.6	56.28	54.85	46.62	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9980.60	9990.60	0.35	0.46	1.69	0.02	0.84	0.75
LB 9990.60	9999.40	348.79	55.81	12.51	17.53	6.34	6.25
9999.40	10008.20	474.71	58.38	8.82	23.86	6.63	8.13
10008.20	10017.00	398.10	52.61	8.85	20.01	5.98	7.57
10017.00	10025.80	278.52	42.52	8.88	14.00	4.83	6.55
10025.80	RB 10034.60	168.18	31.44	8.90	8.45	3.57	5.35
10034.60	10051.44	142.01	44.50	16.85	7.14	2.64	3.19
10051.44	10068.28	103.75	36.86	16.85	5.21	2.19	2.81
10068.28	10085.12	67.86	28.57	16.85	3.41	1.70	2.38
10085.12	10101.96	7.73	5.96	8.70	0.39	0.69	1.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9980.60	9990.60	0.34	0.45	1.66	0.02	0.83	0.75
LB 9990.60	9999.40	349.75	55.60	12.51	17.58	6.32	6.29
9999.40	10008.20	476.16	58.16	8.82	23.93	6.61	8.19
10008.20	10017.00	399.04	52.40	8.85	20.05	5.95	7.62
10017.00	10025.80	278.72	42.30	8.88	14.01	4.81	6.59
10025.80	RB 10034.60	167.79	31.22	8.90	8.43	3.55	5.37
10034.60	10051.44	141.13	44.09	16.85	7.09	2.62	3.20
10051.44	10068.28	102.78	36.44	16.85	5.16	2.16	2.82
10068.28	10085.12	66.86	28.16	16.85	3.36	1.67	2.37
10085.12	10101.96	7.44	5.75	8.55	0.37	0.68	1.29

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.309

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9967.8	1568.1	9972.1	1565	9973.1	1564.6	9983.6	1557.4	9985.7	1556.1
9985.8	1556.1	9987.5	1552.1	9992.7	1551.4	10001.8	1551.5	10011.7	1551.2
10023.4	1554	10029.9	1555.7	10030	1555.7	10056.5	1556.6	10060.5	1556.7
10066.1	1557.7	10068.4	1558.2	10081.7	1560.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9967.8	.05	9985.7	.04	10030	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.7	10030	270.9	271.68	267.41	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.75	9985.70	0.17	0.15	0.82	0.01	0.22	1.13
LB 9985.70	9994.56	356.34	38.57	11.55	17.91	4.35	9.24
9994.56	10003.42	547.99	44.91	8.86	27.54	5.07	12.20
10003.42	10012.28	572.91	46.16	8.88	28.79	5.21	12.41
10012.28	10021.14	382.82	36.61	9.11	19.24	4.13	10.46
10021.14	RB 10030.00	109.98	17.35	9.14	5.53	1.96	6.34
10030.00	10040.34	15.38	6.78	10.35	0.77	0.66	2.27
10040.34	10050.68	4.29	3.15	10.35	0.22	0.30	1.36
10050.68	10061.02	0.12	0.25	3.81	0.01	0.06	0.48

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.75	9985.70	0.25	0.20	0.90	0.01	0.29	1.25
LB 9985.70	9994.56	355.43	39.24	11.55	17.86	4.43	9.06
9994.56	10003.42	544.39	45.57	8.86	27.36	5.14	11.95
10003.42	10012.28	568.78	46.83	8.88	28.58	5.29	12.15
10012.28	10021.14	382.41	37.28	9.11	19.22	4.21	10.26
10021.14	RB 10030.00	113.52	18.02	9.14	5.70	2.03	6.30
10030.00	10040.34	18.54	7.56	10.35	0.93	0.73	2.45
10040.34	10050.68	6.23	3.93	10.35	0.31	0.38	1.59

10050.68	10061.02	0.43	0.53	3.89	0.02	0.14	0.80

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.257

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9874.7	1568	9906.7	1551.6	9918.6	1551.8	9933.2	1552.1	9935.4	1552.2
9936.9	1552.2	9973.2	1550.4	9974	1550.3	9974.3	1550.3	9974.4	1550.3
9975.5	1550.1	9994	1547.9	9998.4	1547.8	10006	1547.5	10016.4	1550.5
10025.6	1553.2	10038.4	1557.1	10042.4	1558.4	10080.6	1569.2	10080.9	1569.2
10081.1	1569.2	10081.5	1569.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9874.7	.05	9974.4	.04	10016.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.4	10016.4	495.12	470.73	450.92	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9894.64	9914.58	35.99	13.02	11.07	1.81	1.21	2.76
9914.58	9934.52	60.74	22.55	19.95	3.05	1.13	2.69
9934.52	9954.46	70.78	24.73	19.96	3.56	1.24	2.86
9954.46	9974.40	187.23	44.33	19.97	9.41	2.22	4.22
LB 9974.40	9982.80	198.13	27.89	8.47	9.96	3.32	7.10
9982.80	9991.20	307.89	36.31	8.46	15.47	4.32	8.48
9991.20	9999.60	412.61	43.21	8.42	20.73	5.14	9.55
9999.60	10008.00	443.79	45.28	8.49	22.30	5.39	9.80
10008.00	RB 10016.40	239.47	31.65	8.74	12.03	3.77	7.57
10016.40	10048.95	33.36	11.13	9.08	1.68	1.28	3.00

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.46	9974.40	57.92	14.27	7.53	2.91	3.24	4.06
LB 9974.40	9982.80	263.97	33.16	8.47	13.27	3.95	7.96
9982.80	9991.20	385.32	41.58	8.46	19.36	4.95	9.27
9991.20	9999.60	499.10	48.48	8.42	25.08	5.77	10.29
9999.60	10008.00	532.38	50.55	8.49	26.75	6.02	10.53
10008.00	RB 10016.40	251.31	36.91	11.93	12.63	4.39	6.81

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.168

INPUT
Description: 100-year, 6-hour Peak Discharge of 2200 cfs from HEC-1 model at station C302.
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9919.8	1569	9920.8	1568.8	9931.4	1562.6	9937.9	1559.7	9974.6	1548
9974.7	1547.9	9979.9	1546.4	9983.2	1545.9	9988	1544.9	9990.2	1544.4
9991.2	1544.1	9996.7	1544.3	10011.4	1544.2	10015.7	1544.9	10028.8	1546.7
10038.6	1547.1	10040.8	1547.2	10041.6	1547.2	10047.8	1547.4	10055.3	1547.4
10066.3	1547.2	10075.2	1547	10076.5	1546.8	10077.1	1547	10079.3	1547.2
10082.9	1546.9	10085.1	1546.8	10087.8	1546.5	10097.6	1546.3	10110	1546.3
10110.2	1546.3	10110.6	1546.3	10116.7	1545.4	10121.3	1546	10127.6	1546.2
10131.4	1546.4	10134.1	1547	10139.1	1548.3	10140.3	1548.7	10142	1548.8
10144.1	1549.9	10149.3	1551.3	10157.6	1553.9	10162.6	1556.2	10169	1557.9
10172.7	1558.8	10176.5	1559.6	10181.9	1561.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9919.8	.06	9974.6	.045	10028.8	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

9974.6 10028.8 139.5 129.56 97.8 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.20	9974.60	0.31	0.30	1.45	0.01	0.22	1.01
LB 9974.60	9985.44	111.80	20.53	11.18	5.04	1.89	5.45
9985.44	9996.28	379.87	42.49	11.00	17.11	3.92	8.94
9996.28	10007.12	426.09	45.26	10.84	19.19	4.18	9.41
10007.12	10017.96	381.39	42.47	10.92	17.18	3.92	8.98
10017.96	RB 10028.80	178.38	26.94	10.94	8.03	2.49	6.62
10028.80	10044.11	75.44	21.94	15.32	3.40	1.43	3.44
10044.11	10059.42	46.02	16.31	15.31	2.07	1.07	2.82
10059.42	10074.73	61.27	19.36	15.31	2.76	1.26	3.16
10074.73	10090.04	89.06	24.29	15.40	4.01	1.59	3.67
10090.04	10105.35	142.94	32.19	15.31	6.44	2.10	4.44
10105.35	10120.66	188.18	38.06	15.41	8.48	2.49	4.94
10120.66	10135.97	136.38	31.41	15.45	6.14	2.05	4.34
10135.97	10151.28	2.87	1.74	3.68	0.13	0.49	1.64

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9947.20	9974.60	1.23	0.74	1.76	0.06	0.53	1.67
LB 9974.60	9985.44	152.71	23.93	11.18	6.88	2.21	6.38
9985.44	9996.28	456.96	45.89	11.00	20.58	4.23	9.96
9996.28	10007.12	508.69	48.66	10.84	22.91	4.49	10.45
10007.12	10017.96	458.82	45.87	10.92	20.67	4.23	10.00
10017.96	RB 10028.80	230.07	30.34	10.94	10.36	2.80	7.58
10028.80	10044.11	115.59	26.74	15.32	5.21	1.75	4.32
10044.11	10059.42	77.94	21.11	15.31	3.51	1.38	3.69
10059.42	10074.73	97.65	24.16	15.31	4.40	1.58	4.04
10074.73	10090.04	120.34	29.00	17.66	5.42	1.90	4.15

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.144

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9969.3	1557.9	9974.5	1554.3	9981.3	1547.9	9983.2	1546.1	9984.3	1545.1
9985.2	1544	9988.5	1541.7	9994.6	1541.8	10002	1541.8	10006.5	1542.6
10012.7	1543.7	10018.3	1544.8	10020.2	1544.5	10035.4	1544.5	10037.7	1544.7
10044.9	1544.2	10047.6	1544	10057.8	1546.6	10057.9	1546.7	10058	1546.7
10058.1	1546.7	10059.1	1546.6	10071.4	1546.1	10076.1	1545	10077.8	1544.7
10082.5	1545.3	10086.2	1545.8	10094	1546.1	10109.4	1546.7	10116.5	1546.5
10132.4	1545.8	10133.8	1545.9	10135.3	1545.8	10141.2	1545	10146.5	1544.4
10149.2	1544.9	10150.9	1545.3	10158.9	1545	10164.1	1545	10171.5	1548
10178.2	1550.3	10182.9	1551.7	10201.5	1557.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9969.3	.06	9983.2	.045	10018.3	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9983.2 10018.3 150.57 159 103.09 .3 .5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.25	9983.20	1.30	0.99	1.99	0.06	0.68	1.32
LB 9983.20	9990.22	185.94	29.80	8.65	8.38	4.25	6.24
9990.22	9997.24	348.07	39.93	7.02	15.68	5.69	8.72
9997.24	10004.26	338.07	39.32	7.05	15.23	5.60	8.60
10004.26	10011.28	245.40	32.58	7.13	11.05	4.64	7.53
10011.28	RB 10018.30	142.46	23.53	7.15	6.42	3.35	6.05
10018.30	10036.62	216.78	53.99	18.35	9.76	2.95	4.02
10036.62	10054.94	204.61	52.41	18.58	9.22	2.86	3.90
10054.94	10073.26	45.52	21.24	18.52	2.05	1.16	2.14
10073.26	10091.58	117.94	37.59	18.50	5.31	2.05	3.14
10091.58	10109.90	42.21	20.22	18.33	1.90	1.10	2.09
10109.90	10128.22	41.81	20.10	18.33	1.88	1.10	2.08
10128.22	10146.54	121.67	38.24	18.42	5.48	2.09	3.18
10146.54	10164.86	157.00	44.61	18.48	7.07	2.44	3.52
10164.86	10183.18	11.23	5.74	5.74	0.51	1.08	1.96

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9976.25	9983.20	1.44	0.93	1.93	0.06	0.66	1.55
LB 9983.20	9990.22	218.32	29.53	8.65	9.83	4.21	7.39
9990.22	9997.24	410.26	39.66	7.02	18.48	5.65	10.34
9997.24	10004.26	398.40	39.05	7.05	17.95	5.56	10.20
10004.26	10011.28	288.51	32.31	7.13	13.00	4.60	8.93
10011.28	RB 10018.30	166.59	23.26	7.15	7.50	3.31	7.16
10018.30	10036.62	245.28	53.28	18.35	11.05	2.91	4.60
10036.62	10054.94	231.36	51.71	18.58	10.42	2.82	4.47
10054.94	10073.26	49.77	20.54	18.52	2.24	1.12	2.42
10073.26	10091.58	132.17	36.89	18.50	5.95	2.01	3.58
10091.58	10109.90	46.02	19.52	18.33	2.07	1.07	2.36
10109.90	10128.22	31.88	14.98	16.41	1.44	0.99	2.13

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.114

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9919.5	1558.3	9925.1	1556.2	9953.8	1545.7	9958.2	1543.5	9965.5	1542.9
9993.3	1540.5	9997.3	1540.2	10001.4	1540	10002.8	1540	10006.3	1540
10007.2	1540.1	10009.4	1540.9	10014.3	1542.3	10016.9	1543	10022.7	1544.5
10022.7	1544.6	10024.6	1544.6	10025	1544.7	10026.1	1544.7	10035	1544.3
10055.2	1543.8	10056.5	1544	10057.5	1544	10060.7	1544.8	10062	1545.1
10073.4	1549.9	10082.2	1552.5	10089.7	1556.4	10091.3	1557.3	10094.5	1558.8
10099.3	1560.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9919.5	.05	9958.2	.04	10022.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9958.2	10022.7	240.73	278.7	300.45	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.85	9958.20	7.64	2.80	3.74	0.34	0.84	2.73
LB 9958.20	9971.10	188.41	28.49	12.95	8.49	2.21	6.61
9971.10	9984.00	370.44	42.74	12.95	16.69	3.31	8.67
9984.00	9996.90	599.28	57.04	12.95	26.99	4.42	10.51
9996.90	10009.80	734.86	64.71	13.07	33.10	5.02	11.36
10009.80	RB 10022.70	207.20	30.64	13.46	9.33	2.37	6.76
10022.70	10038.02	26.55	10.56	15.34	1.20	0.69	2.51
10038.02	10053.34	61.22	17.42	15.32	2.76	1.14	3.51
10053.34	10068.66	24.41	8.11	9.00	1.10	0.92	3.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.85	9958.20	12.61	4.32	4.20	0.57	1.29	2.92
LB 9958.20	9971.10	224.05	34.34	12.95	10.09	2.66	6.53
9971.10	9984.00	399.60	48.59	12.95	18.00	3.77	8.22
9984.00	9996.90	614.29	62.89	12.95	27.67	4.87	9.77
9996.90	10009.80	739.48	70.55	13.07	33.31	5.47	10.48
10009.80	RB 10022.70	229.97	36.49	14.49	10.36	2.83	6.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.061

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

9849	1548.5	9857.1	1545.2	9868.6	1540.2	9878.6	1540.3	9880.6	1540.3
9889	1540.7	9900.9	1541.5	9905.7	1541.5	9913.9	1541.5	9935.6	1541.6
9948.9	1541.6	9949	1541.6	9969.2	1539.8	9969.5	1539.8	9970.5	1539.8
9979.9	1538.9	9994.7	1538.3	10005.6	1537.6	10015.2	1540.9	10015.7	1541.1
10015.9	1541.1	10017	1541.2	10033	1542.7	10052.2	1545.2	10074.9	1547
10076.5	1547.3	10080.4	1548.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9849	.065	9949	.05	10015.9	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9949	10015.9	67.94	99.79	103.3	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9849.00	9869.00	30.77	13.11	8.44	1.39	1.69	2.35
9869.00	9889.00	223.91	60.92	20.01	10.09	3.05	3.68
9889.00	9909.00	124.74	42.90	20.03	5.62	2.15	2.91
9909.00	9929.00	100.28	37.62	20.00	4.52	1.88	2.67
9929.00	9949.00	94.25	36.24	20.00	4.25	1.81	2.60
LB 9949.00	9962.38	130.57	32.16	13.43	5.88	2.40	4.06
9962.38	9975.76	250.32	47.51	13.43	11.28	3.55	5.27
9975.76	9989.14	382.34	61.22	13.41	17.22	4.58	6.25
9989.14	10002.52	474.45	69.67	13.40	21.37	5.21	6.81
10002.52	RB 10015.90	351.21	59.15	13.98	15.82	4.42	5.94
10015.90	10048.15	57.15	27.72	22.65	2.57	1.23	2.06

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9889.00	9909.00	53.04	17.97	11.06	2.39	2.00	2.95
9909.00	9929.00	131.90	39.35	20.00	5.94	1.97	3.35
9929.00	9949.00	124.32	37.97	20.00	5.60	1.90	3.27
LB 9949.00	9962.38	164.60	33.31	13.43	7.41	2.49	4.94
9962.38	9975.76	309.69	48.67	13.43	13.95	3.64	6.36
9975.76	9989.14	468.83	62.38	13.41	21.12	4.66	7.52
9989.14	10002.52	579.61	70.83	13.40	26.11	5.29	8.18
10002.52	RB 10015.90	388.00	60.31	16.37	17.48	4.51	6.43

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.042

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9833.9	1546.8	9841.9	1545.8	9859.4	1540.1	9861.7	1539.3	9864.2	1538.3
9867.2	1538.8	9876.3	1540.1	9898.3	1540.6	9898.7	1540.6	9898.8	1540.6
9912.6	1540.7	9916.9	1540.9	9926.4	1541.4	9926.5	1541.4	9945.2	1540.7
9970.2	1539.1	9973.7	1538.9	9983.2	1538.6	9991.9	1537.6	9997	1537
9998.9	1537	10008.8	1537.1	10011.3	1539.8	10012.3	1540.9	10013	1541.6
10013.1	1541.6	10021.7	1542.4	10047.7	1544.9	10056.4	1545.6	10057.2	1545.8
10060.9	1546.7	10064.8	1548.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9833.9	.065	9926.5	.05	10013.1	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9926.5	10013.1	56.38	140.45	173.46	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9833.90	9852.42	0.36	0.52	1.89	0.02	0.29	0.68
9852.42	9870.94	191.59	57.67	19.29	8.63	3.11	3.32
9870.94	9889.46	170.68	53.01	18.58	7.69	2.86	3.22
9889.46	9907.98	126.56	44.25	18.52	5.70	2.39	2.86
9907.98	9926.50	94.36	37.11	18.54	4.25	2.00	2.54
LB 9926.50	9943.82	100.24	32.59	17.33	4.52	1.88	3.08
9943.82	9961.14	185.63	47.20	17.35	8.36	2.73	3.93
9961.14	9978.46	323.46	65.85	17.35	14.57	3.80	4.91
9978.46	9995.78	486.46	84.23	17.41	21.91	4.86	5.78
9995.78	RB 10013.10	528.15	92.20	19.29	23.79	5.32	5.73
10013.10	10038.95	12.53	9.85	14.46	0.56	0.68	1.27

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9852.42	9870.94	4.86	3.53	4.77	0.22	3.75	1.38
9870.94	9889.46	185.87	54.09	18.58	8.37	2.92	3.44
9889.46	9907.98	138.74	45.34	18.52	6.25	2.45	3.06

9907.98	9926.50	104.24	38.20	18.54	4.70	2.06	2.73
LB 9926.50	9943.82	112.31	33.61	17.33	5.06	1.94	3.34
9943.82	9961.14	204.74	48.21	17.35	9.22	2.78	4.25
9961.14	9978.46	353.21	66.87	17.35	15.91	3.86	5.28
9978.46	9995.78	528.27	85.25	17.41	23.80	4.92	6.20
9995.78	RB 10013.10	572.56	93.21	19.29	25.79	5.38	6.14
10013.10	10038.95	15.23	10.70	14.52	0.69	0.74	1.42

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 3.015

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9824.1	1547.7	9844.1	1545.2	9845	1545	9846.3	1544.8	9852	1543
9866.1	1538	9867.5	1538.2	9876	1539.4	9894.6	1539.5	9896.9	1539.5
9911.7	1540.4	9915.8	1540.6	9922.8	1540.3	9927.1	1540.1	9936.8	1539.3
9950.2	1537.4	9950.4	1537.4	9950.8	1537.4	9967.2	1536.6	9969.1	1536.9
9976.2	1537.5	9979.3	1537.3	9992	1536	9995.4	1535.8	10001.3	1535.3
10008.9	1538.3	10011.2	1539.4	10011.2	1539.5	10013.5	1539.5	10021.3	1539.5
10027.5	1539.5	10029.5	1539.5	10032.8	1538.9	10043	1537.4	10049.7	1537.1
10054.4	1537.9	10056	1538	10057.7	1539.3	10062	1542.3	10064.7	1542.3
10068.8	1542.3	10073.8	1542.3	10075.3	1542.3	10086.6	1542.4	10088.6	1542.5
10089.5	1542.5	10108.3	1543	10111.7	1543.3	10122.2	1543.2	10127.1	1544.7
10136.5	1547.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9824.1	.065	9976.2	.05	10011.2	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.2	10011.2	135.02	167	183.72	.6	.8

Ineffective Flow num= 1

Sta L	Sta R	Elev
10011.2	10136.5	1546

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9839.31	9854.52	0.19	0.43	1.65	0.01	0.28	0.44
9854.52	9869.73	101.47	46.13	15.95	4.57	3.03	2.20
9869.73	9884.94	128.00	52.11	15.27	5.77	3.43	2.46
9884.94	9900.15	111.74	47.96	15.22	5.03	3.15	2.33
9900.15	9915.36	75.97	38.07	15.24	3.42	2.50	2.00
9915.36	9930.57	70.20	36.30	15.23	3.16	2.39	1.93
9930.57	9945.78	140.54	55.19	15.32	6.33	3.63	2.55
9945.78	9960.99	267.69	81.12	15.27	12.06	5.33	3.30
9960.99	9976.20	298.82	86.65	15.27	13.46	5.70	3.45
LB 9976.20	9983.20	172.75	37.97	7.03	7.78	5.42	4.55
9983.20	9990.20	210.75	42.81	7.04	9.49	6.12	4.92
9990.20	9997.20	249.03	47.27	7.02	11.22	6.75	5.27
9997.20	10004.20	260.35	49.13	7.23	11.73	7.02	5.30
10004.20	RB 10011.20	132.52	33.60	7.70	5.97	4.80	3.94
10011.20	10029.10	0.00	56.52	17.90	0.00	3.16	0.00
10029.10	10047.00	0.00	80.04	18.07	0.00	4.47	0.00
10047.00	10064.90	0.00	62.45	19.36	0.00	3.49	0.00
10064.90	10082.80	0.00	6.15	17.90	0.00	0.34	0.00
10082.80	10100.70	0.00	2.07	12.63	0.00	0.16	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9869.73	9884.94	115.73	51.16	19.12	5.21	3.42	2.26
9884.94	9900.15	121.70	48.13	15.22	5.48	3.16	2.53
9900.15	9915.36	82.87	38.24	15.24	3.73	2.51	2.17
9915.36	9930.57	76.61	36.48	15.23	3.45	2.40	2.10
9930.57	9945.78	152.95	55.36	15.32	6.89	3.64	2.76
9945.78	9960.99	290.84	81.29	15.27	13.10	5.34	3.58
9960.99	9976.20	324.59	86.82	15.27	14.62	5.71	3.74
LB 9976.20	9983.20	182.61	38.05	7.03	8.23	5.44	4.80
9983.20	9990.20	222.68	42.89	7.04	10.03	6.13	5.19
9990.20	9997.20	263.05	47.35	7.02	11.85	6.76	5.55
9997.20	10004.20	274.99	49.21	7.23	12.39	7.03	5.59
10004.20	RB 10011.20	111.38	33.68	10.87	5.02	4.81	3.31

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.984

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9964.7	1548.1	9974.8	1540	9976	1538.7	9979.7	1536.2	9981	1535.9
9983.7	1535.5	9990.3	1534.3	9992.2	1534.3	9996.5	1534.3	10011.3	1534.6
10014.8	1534.6	10018.9	1534.7	10026.4	1538.5	10028.9	1539.8	10031	1543.7
10032.6	1546.3	10039.1	1558.8	10045.1	1564				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9964.7	.05	9976	.04	10026.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976	10026.4	366.88	356.38	343.69	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.35	9976.00	0.07	0.07	0.54	0.00	0.20	0.96
LB 9976.00	9986.08	236.80	28.26	10.95	10.67	2.80	8.38
9986.08	9996.16	575.10	46.69	10.15	25.91	4.63	12.32
9996.16	10006.24	591.27	47.35	10.08	26.63	4.70	12.49
10006.24	10016.32	553.68	45.52	10.08	24.94	4.52	12.16
10016.32	RB 10026.40	262.56	30.11	10.99	11.83	2.99	8.72
10026.40	10035.75	0.51	0.34	1.29	0.02	0.30	1.52

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9970.35	9976.00	0.10	0.09	0.60	0.00	0.26	1.05
LB 9976.00	9986.08	239.61	28.92	10.95	10.79	2.87	8.28
9986.08	9996.16	573.22	47.35	10.15	25.82	4.70	12.10
9996.16	10006.24	589.15	48.01	10.08	26.54	4.76	12.27
10006.24	10016.32	552.20	46.18	10.08	24.87	4.58	11.96
10016.32	RB 10026.40	265.05	30.77	10.99	11.94	3.05	8.61
10026.40	10035.75	0.67	0.41	1.35	0.03	0.36	1.63

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.916

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9965.2	1550.5	9971.1	1547.5	9973.5	1546.3	9981	1536.6	9981.9	1535.4
9982.8	1534.5	9985.3	1531.9	9986.1	1531.3	9987.8	1530.5	9995.2	1530.8
10004.4	1531.2	10011.6	1531.5	10014.3	1531.9	10021.3	1532.8	10025.8	1533.4
10026.1	1533.4	10032.3	1533.5	10039	1533.6	10048.8	1533.1	10052.6	1532.8
10057.9	1532.6	10093.3	1533.3	10109.2	1533.7	10117.5	1533.9	10121.2	1534
10135.5	1534.3	10138.7	1534.3	10140.1	1534.3	10141	1534.3	10153	1533.4
10154.6	1533.3	10155.2	1533.4	10156.9	1533.5	10166	1534.3	10168.2	1534.5
10171.2	1534.3	10172.2	1534.3	10177.9	1534.5	10194.4	1535.3	10198.4	1535.9
10209.9	1539.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9965.2	.05	9982.8	.04	10026.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.8	10026.1	343.88	351.81	322.51	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9974.00	9982.80	0.23	0.21	0.91	0.01	0.32	1.11
LB 9982.80	9991.46	244.79	31.61	10.15	11.03	3.65	7.74
9991.46	10000.12	359.14	37.35	8.67	16.18	4.31	9.62

10000.12	10008.78	308.96	34.12	8.67	13.92	3.94	9.05
10008.78	10017.44	238.27	29.26	8.72	10.73	3.38	8.14
10017.44	RB 10026.10	123.05	19.70	8.73	5.54	2.27	6.25
10026.10	10044.48	116.19	30.35	18.39	5.23	1.65	3.83
10044.48	10062.86	199.26	41.96	18.40	8.98	2.28	4.75
10062.86	10081.24	196.23	41.56	18.38	8.84	2.26	4.72
10081.24	10099.62	145.75	34.77	18.38	6.57	1.89	4.19
10099.62	10118.00	93.87	26.70	18.39	4.23	1.45	3.52
10118.00	10136.38	51.82	18.69	18.38	2.33	1.02	2.77
10136.38	10154.76	70.63	22.53	18.42	3.18	1.23	3.14
10154.76	10173.14	59.88	20.41	18.44	2.70	1.11	2.93
10173.14	10191.52	11.93	7.68	17.99	0.54	0.43	1.55

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9974.00	9982.80	1.07	0.73	1.72	0.05	1.13	1.48
LB 9982.80	9991.46	304.13	38.66	10.15	13.70	4.46	7.87
9991.46	10000.12	425.55	44.40	8.67	19.17	5.13	9.58
10000.12	10008.78	375.29	41.17	8.67	16.90	4.75	9.12
10008.78	10017.44	303.26	36.31	8.72	13.66	4.19	8.35
10017.44	RB 10026.10	181.99	26.75	8.73	8.20	3.09	6.80
10026.10	10044.48	214.58	45.31	18.39	9.67	2.47	4.74
10044.48	10062.86	313.69	56.92	18.40	14.13	3.10	5.51
10062.86	10081.24	100.45	22.75	10.26	4.52	3.19	4.42

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.850

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9882.7	1548.1	9885.2	1547.9	9888.3	1547.2	9891.3	1545.7	9892.1	1545.3
9912.9	1537.7	9934.2	1529.1	9944.8	1529.5	9946.6	1529.5	9950.8	1529.5
9974.7	1529.4	9975	1529.4	9978.5	1529	9984.6	1528.3	9987.1	1528.2
9994.6	1527.7	10008.3	1527	10010.8	1528.1	10015.3	1529.5	10021.7	1529.6
10023.3	1529.6	10030.8	1531.1	10052.6	1538	10065.2	1541.6	10069.8	1542.5
10079.5	1545.3	10083.7	1546.2	10084.6	1546.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9882.7	.05	9975	.04	10015.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015.3	373.3	372.73	359.17	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9919.62	9938.08	103.44	27.55	13.04	4.66	2.23	3.75
9938.08	9956.54	273.80	56.80	18.46	12.33	3.08	4.82
9956.54	9975.00	275.74	57.03	18.46	12.42	3.09	4.83
LB 9975.00	9983.06	192.86	28.92	8.11	8.69	3.59	6.67
9983.06	9991.12	265.78	35.00	8.08	11.97	4.34	7.59
9991.12	9999.18	318.99	39.04	8.07	14.37	4.84	8.17
9999.18	10007.24	366.97	42.45	8.07	16.53	5.27	8.64
10007.24	RB 10015.30	257.37	35.04	8.50	11.59	4.35	7.34
10015.30	10029.16	153.45	37.45	13.98	6.91	2.70	4.10
10029.16	10043.02	11.62	5.82	6.40	0.52	0.95	1.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.08	9956.54	97.61	20.69	9.69	4.40	3.16	4.72
9956.54	9975.00	368.05	59.37	18.46	16.58	3.22	6.20
LB 9975.00	9983.06	253.02	29.94	8.11	11.40	3.71	8.45
9983.06	9991.12	345.26	36.02	8.08	15.55	4.47	9.58
9991.12	9999.18	412.37	40.06	8.07	18.58	4.97	10.29
9999.18	10007.24	472.76	43.47	8.07	21.30	5.39	10.87
10007.24	RB 10015.30	270.92	36.06	11.66	12.20	4.47	7.51

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.779

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9899.6	1538.6	9907.6	1536.5	9909.8	1535.8	9927.3	1529.3	9931.4	1528.7
9945.6	1528.3	9964.4	1527.5	9971.5	1527.2	9975.1	1526.3	9988.8	1522.9
9999.4	1522.8	10003.2	1522.7	10005	1523.4	10015.2	1527.8	10015.3	1527.8
10041.4	1528.4	10042.9	1528.4	10043.5	1528.4	10075.2	1537	10076.3	1537.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9899.6	.05	9971.5	.04	10015.3	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9971.5 10015.3 552.93 540.36 529.03 .1 .3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9928.36	9942.74	10.97	6.92	14.12	0.49	0.49	1.59
9942.74	9957.12	36.06	14.23	14.39	1.62	0.99	2.53
9957.12	9971.50	80.03	22.97	14.39	3.60	1.60	3.48
LB 9971.50	9980.26	178.62	26.23	9.03	8.05	2.99	6.81
9980.26	9989.02	444.04	45.27	9.02	20.00	5.17	9.81
9989.02	9997.78	620.65	54.71	8.76	27.96	6.24	11.34
9997.78	10006.54	585.88	53.49	9.03	26.39	6.11	10.95
10006.54	RB 10015.30	187.32	27.58	9.53	8.44	3.15	6.79
10015.30	10027.50	42.79	14.17	12.20	1.93	1.16	3.02
10027.50	10039.70	26.99	10.75	12.20	1.22	0.88	2.51
10039.70	10051.90	6.67	3.61	6.48	0.30	0.56	1.85

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9928.36	9942.74	12.07	7.38	14.15	0.54	0.52	1.64
9942.74	9957.12	37.69	14.70	14.39	1.70	1.02	2.56
9957.12	9971.50	81.97	23.44	14.39	3.69	1.63	3.50
LB 9971.50	9980.26	179.23	26.51	9.03	8.07	3.03	6.76
9980.26	9989.02	442.17	45.56	9.02	19.92	5.20	9.71
9989.02	9997.78	616.91	55.00	8.76	27.79	6.28	11.22
9997.78	10006.54	582.47	53.78	9.03	26.24	6.14	10.83
10006.54	RB 10015.30	187.79	27.86	9.53	8.46	3.18	6.74
10015.30	10027.50	44.20	14.57	12.20	1.99	1.19	3.03
10027.50	10039.70	28.29	11.15	12.20	1.27	0.91	2.54
10039.70	10051.90	7.20	3.81	6.52	0.32	0.60	1.89

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.677

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9885.8	1528.3	9888.9	1527.1	9892	1526.5	9899.4	1524.8	9900	1524.6
9900.1	1524.6	9900.3	1524.6	9900.6	1524.6	9922.6	1524	9928.6	1523.6
9931.6	1523.5	9937.8	1523.3	9944	1523.1	9950.4	1522.9	9962.3	1522.3
9970.8	1522.2	9975.4	1522.1	9975.5	1522.1	9983.6	1519.5	9986.8	1517.8
9988.3	1517.6	9989.4	1517.6	9989.5	1517.6	9990	1517.6	9993.9	1517.6
10006.5	1517.9	10028.7	1522.8	10030.2	1523.1	10030.3	1523.2	10032.5	1523.2
10045.6	1523.3	10074.2	1523.5	10104.1	1523.2	10120.2	1523.2	10132.1	1524.9
10142	1527	10151.2	1529.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9885.8	.05	9975.5	.04	10030.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.5	10030.2	489.85	503.68	530.4	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9921.68	9939.62	3.60	3.64	13.09	0.16	0.28	0.99
9939.62	9957.56	29.15	14.48	17.95	1.31	0.81	2.01
9957.56	9975.50	79.06	26.35	17.95	3.56	1.47	3.00
LB 9975.50	9986.44	257.13	37.97	11.72	11.58	3.47	6.77
9986.44	9997.38	686.72	66.73	11.00	30.93	6.10	10.29
9997.38	10008.32	649.11	64.48	10.99	29.24	5.89	10.07
10008.32	10019.26	368.25	46.25	11.20	16.59	4.23	7.96
10019.26	RB 10030.20	90.03	19.86	11.20	4.06	1.82	4.53
10030.20	10054.40	17.62	11.19	24.24	0.79	0.46	1.57
10054.40	10078.60	8.46	7.20	24.20	0.38	0.30	1.17
10078.60	10102.80	13.99	9.74	24.20	0.63	0.40	1.44
10102.80	10127.00	16.89	10.34	21.20	0.76	0.49	1.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9975.50	9986.44	270.67	45.35	14.04	12.19	4.15	5.97
9986.44	9997.38	721.93	74.12	11.00	32.52	6.78	9.74
9997.38	10008.32	686.36	71.87	10.99	30.92	6.57	9.55
10008.32	10019.26	416.02	53.64	11.20	18.74	4.90	7.76
10019.26	RB 10030.20	125.01	27.25	12.51	5.63	2.49	4.59

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.581

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9836.8	1536.9	9867.8	1522.8	9874.1	1519.3	9876.6	1519.3	9879.6	1519.2
9897.6	1518.6	9922.4	1518.3	9923.8	1518.2	9924.8	1518.1	9933.3	1517.4
9934.6	1517.3	9934.9	1517.3	9935.3	1517.3	9940.8	1517.6	9942.7	1517.7
9953.1	1517.6	9960.5	1517.5	9965.2	1517.5	9970.2	1517.3	9970.4	1517.2
9984	1514.8	9984.8	1514.6	9985	1514.6	9990.4	1514.3	10006.9	1513.6
10012.2	1513.3	10014.9	1515.4	10018.6	1518.7	10019.4	1518.7	10022.7	1518.8
10077.3	1519.4	10085.1	1519.5	10088.6	1519.5	10105.6	1519.6	10111.6	1519.7
10125.2	1520	10134.1	1520.2	10144.7	1524.3	10150	1526.2	10156	1528.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9836.8	.05	9970.2	.04	10019.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970.2	10019.4	339.76	312.29	300.58	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9863.48	9890.16	0.77	1.12	8.21	0.03	0.14	0.68
9890.16	9916.84	26.99	15.23	26.69	1.22	0.57	1.77
9916.84	9943.52	107.72	34.96	26.73	4.85	1.31	3.08
9943.52	9970.20	146.35	41.99	26.68	6.59	1.57	3.49
LB 9970.20	9980.04	184.45	27.09	10.01	8.31	2.75	6.81
9980.04	9989.88	398.75	42.89	9.93	17.96	4.36	9.30
9989.88	9999.72	505.35	49.28	9.85	22.76	5.01	10.25
9999.72	10009.56	578.32	53.44	9.85	26.05	5.43	10.82
10009.56	RB 10019.40	265.77	36.05	11.82	11.97	3.66	7.37
10019.40	10064.93	5.54	5.92	32.54	0.25	0.18	0.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9970.20	9980.04	192.25	27.14	11.84	8.66	2.76	7.08
9980.04	9989.88	464.23	42.94	9.93	20.91	4.36	10.81
9989.88	9999.72	588.19	49.33	9.85	26.50	5.01	11.92
9999.72	10009.56	673.04	53.48	9.85	30.32	5.44	12.58
10009.56	RB 10019.40	302.29	36.10	12.25	13.62	3.67	8.37

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.522

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9941.1	1519.9	9943.8	1519.9	9946.6	1519.8	9958	1519	9968.2	1518.3
9976.7	1515.5	9982.3	1513.7	9988.7	1511.4	9993.5	1511.2	10004.8	1510.9
10013.3	1512.2	10015.2	1512.5	10016.3	1512.5	10022.2	1512.4	10026.3	1512.8
10031.9	1513.2	10051.6	1515	10052.1	1515.1	10052.5	1515.1	10053.8	1515.1
10069	1515.4	10095.2	1515.9	10132.9	1516.6	10135.8	1516.8	10143.8	1520.4
10162.6	1530.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9941.1	.05	9976.7	.04	10053.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.7	10053.8	237.55	269.05	271.63	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.83	9976.70	1.84	1.24	2.88	0.08	0.45	1.49
LB 9976.70	9992.12	352.56	52.10	16.11	15.88	3.38	6.77
9992.12	10007.54	773.57	82.12	15.46	34.85	5.33	9.42
10007.54	10022.96	523.49	65.07	15.51	23.58	4.22	8.05
10022.96	10038.38	343.27	50.46	15.48	15.46	3.27	6.80
10038.38	RB 10053.80	139.58	29.42	15.48	6.29	1.91	4.75
10053.80	10075.56	55.72	23.68	21.76	2.51	1.09	2.35
10075.56	10097.32	24.80	14.57	21.76	1.12	0.67	1.70
10097.32	10119.08	5.16	5.68	21.76	0.23	0.26	0.91
10119.08	10140.84	0.02	0.09	3.18	0.00	0.03	0.21

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.83	9976.70	2.10	1.32	2.91	0.09	0.48	1.60
LB 9976.70	9992.12	368.66	52.56	16.11	16.61	3.41	7.01
9992.12	10007.54	804.62	82.58	15.46	36.24	5.36	9.74
10007.54	10022.96	545.82	65.52	15.51	24.59	4.25	8.33
10022.96	10038.38	359.11	50.92	15.48	16.18	3.30	7.05
10038.38	RB 10053.80	139.68	29.87	16.82	6.29	1.94	4.68

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.471

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9773.9	1515.9	9776.9	1515.8	9778.8	1515.8	9780.1	1515.7	9795.2	1514.4
9810.7	1513.9	9817.6	1513.8	9830.5	1514.1	9832.7	1514.2	9857.6	1513.6
9898.6	1512.9	9945.8	1511.9	9946.2	1511.9	9948.4	1511.9	9956.3	1511.4
9963.7	1510.9	9967.5	1510.7	9985.1	1509.6	9988.5	1509.2	9990.8	1508.9
9999.9	1508.6	10004.2	1508.3	10011.1	1512.6	10027	1523.4	10027.9	1524.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9773.9	.05	9948.4	.04	10011.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9948.4	10011.1	245.42	266.83	265.48	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9843.70	9878.60	5.07	5.23	23.73	0.23	0.22	0.97
9878.60	9913.50	55.49	25.65	34.91	2.50	0.74	2.16
9913.50	9948.40	171.95	50.56	34.91	7.75	1.45	3.40
LB 9948.40	9960.94	171.93	27.16	12.57	7.74	2.17	6.33
9960.94	9973.48	289.35	37.12	12.56	13.03	2.96	7.80
9973.48	9986.02	425.84	46.81	12.57	19.18	3.73	9.10
9986.02	9998.56	631.22	59.30	12.58	28.43	4.73	10.64
9998.56	RB 10011.10	467.63	51.37	13.78	21.06	4.10	9.10
10011.10	10019.50	1.52	0.84	1.90	0.07	0.53	1.81

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9878.60	9913.50	54.84	23.38	33.90	2.47	0.70	2.35
9913.50	9948.40	183.53	48.84	34.91	8.27	1.40	3.76
LB 9948.40	9960.94	168.71	26.54	12.57	7.60	2.12	6.36
9960.94	9973.48	286.91	36.50	12.56	12.92	2.91	7.86
9973.48	9986.02	424.74	46.19	12.57	19.13	3.68	9.20
9986.02	9998.56	632.56	58.68	12.58	28.49	4.68	10.78
9998.56	RB 10011.10	467.35	50.75	13.78	21.05	4.05	9.21
10011.10	10019.50	1.36	0.76	1.81	0.06	0.51	1.79

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.421

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9828	1528.3	9830.2	1528.1	9835.8	1527.4	9836.6	1527.1	9838.3	1526.9
9844.1	1526.6	9848.2	1526.1	9849.2	1525.8	9859.3	1522.1	9862.4	1520.9
9867.6	1521.5	9875.9	1522	9876.2	1521.6	9876.6	1521.4	9880.1	1517.4
9882.9	1514.2	9887.8	1512.8	9899.6	1510.4	9904.3	1510.3	9936.9	1509.4
9943.9	1509	9947.5	1508.9	9961.2	1508.6	9965.1	1508.5	9965.2	1508.5
9979.7	1506.7	9983.1	1506.3	9983.6	1506.3	9989	1506.2	9995.3	1506.1
9995.7	1506.1	9997.5	1506	10005.7	1505.8	10007.7	1506.2	10028.2	1508.5
10030.8	1508.6	10030.9	1508.6	10045.8	1512.4	10048.4	1513.2	10055.7	1513.7
10060	1513.8	10061.1	1513.9	10065.6	1514.3	10066.1	1514.3	10066.2	1514.3
10066.3	1514.3	10066.4	1514.4	10066.5	1514.4	10066.6	1514.4	10087.3	1524.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9828	.05	9965.2	.04	10030.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9965.2	10030.8	580.62	555.18	525.18	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9882.88	9910.32	10.78	7.44	13.28	0.49	0.56	1.45
9910.32	9937.76	74.38	31.70	27.45	3.35	1.16	2.35
9937.76	9965.20	196.27	56.74	27.46	8.84	2.07	3.46
LB 9965.20	9978.32	262.64	42.30	13.22	11.83	3.22	6.21
9978.32	9991.44	467.82	59.69	13.16	21.07	4.55	7.84
9991.44	10004.56	531.54	64.39	13.12	23.94	4.91	8.26
10004.56	10017.68	432.30	57.05	13.22	19.47	4.35	7.58
10017.68	RB 10030.80	217.10	37.70	13.19	9.78	2.87	5.76
10030.80	10059.05	27.16	10.69	9.45	1.22	1.17	2.54

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.76	9965.20	104.75	31.35	13.16	4.72	3.07	3.34
LB 9965.20	9978.32	304.50	52.59	13.22	13.72	4.01	5.79
9978.32	9991.44	491.82	69.98	13.16	22.15	5.33	7.03
9991.44	10004.56	548.86	74.68	13.12	24.72	5.69	7.35
10004.56	10017.68	459.67	67.34	13.22	20.71	5.13	6.83
10017.68	RB 10030.80	261.80	47.99	13.19	11.79	3.66	5.46
10030.80	10059.05	48.59	17.88	10.23	2.19	1.95	2.72

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.315

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9945	1527.8	9959.6	1521.8	9964.2	1519.4	9981.7	1505.9	9982.4	1505.4
9990.2	1500.5	9991.1	1499.8	9996.1	1500.1	10001.8	1500.4	10006.7	1500.5
10019.5	1502.8	10022.9	1503.4	10023	1503.4	10029.5	1503.7	10032.2	1503.9
10053.1	1504.6	10087.7	1505.3	10109.5	1505	10129.8	1504.9	10132.8	1504.5
10138.2	1503.7	10143.4	1504.5	10146.2	1505.3	10155.6	1505.7	10156.9	1505.7
10178.3	1506.4	10190.9	1510.1	10212	1516.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9945	.05	9982.4	.04	10022.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.4	10022.9	422.21	433.8	428.7	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10087.7	10212	1510

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9963.70	9982.40	0.35	0.29	1.10	0.02	0.33	1.21
LB 9982.40	9990.50	175.43	25.86	9.59	7.90	3.19	6.78
9990.50	9998.60	558.07	48.80	8.27	25.14	6.02	11.44
9998.60	10006.70	508.31	45.76	8.11	22.90	5.65	11.11
10006.70	10014.80	386.07	39.04	8.23	17.39	4.82	9.89
10014.80	RB 10022.90	212.28	27.27	8.23	9.56	3.37	7.79
10022.90	10044.50	214.66	46.44	21.62	9.67	2.15	4.62
10044.50	10066.10	108.25	30.79	21.61	4.88	1.43	3.52
10066.10	10087.70	56.58	20.86	21.60	2.55	0.97	2.71
10087.70	10105.46	0.00	15.44	17.76	0.00	0.87	0.00
10105.46	10123.21	0.00	18.95	17.76	0.00	1.07	0.00
10123.21	10140.97	0.00	27.92	17.88	0.00	1.57	0.00
10140.97	10158.73	0.00	13.60	17.91	0.00	0.77	0.00
10158.73	10176.49	0.00	1.26	8.79	0.00	0.14	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9963.70	9982.40	0.35	0.24	1.01	0.02	0.30	1.46
LB 9982.40	9990.50	213.48	25.39	9.59	9.62	3.13	8.41
9990.50	9998.60	688.98	48.33	8.27	31.04	5.97	14.25
9998.60	10006.70	626.88	45.30	8.11	28.24	5.59	13.84
10006.70	10014.80	474.70	38.57	8.23	21.38	4.76	12.31
10014.80	RB 10022.90	215.60	26.80	10.82	9.71	3.31	8.05

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.233

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9706.8	1510.8	9709.9	1510.6	9711	1510.5	9724.4	1509.5	9726.1	1509
9727.3	1508.8	9730.3	1508.2	9733.7	1507.6	9739.7	1507.1	9741.4	1507
9742.8	1507.7	9747.8	1507.2	9748.5	1507.2	9806.3	1503.3	9814.3	1503.1
9825	1502.8	9868.8	1501.7	9906.2	1500.8	9928.8	1500.6	9952.4	1500
9956.5	1500	9956.7	1500	9979.8	1497.2	9983.1	1496.8	9985.2	1496.5
9991.8	1496.1	10005.6	1495.4	10008.6	1496.1	10019.1	1500.9	10034.5	1508.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9706.8	.05	9956.5	.04	10019.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9956.5	10019.1	614.99	606.28	562.41	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9856.62	9906.56	3.64	3.72	17.59	0.16	0.21	0.98
9906.56	9956.50	87.42	38.04	49.95	3.94	0.76	2.30
LB 9956.50	9969.02	133.32	24.40	12.61	6.01	1.95	5.46
9969.02	9981.54	348.04	43.41	12.61	15.68	3.47	8.02
9981.54	9994.06	605.88	60.45	12.57	27.29	4.83	10.02
9994.06	10006.58	761.31	69.31	12.56	34.29	5.54	10.98
10006.58	RB 10019.10	280.30	39.31	13.62	12.63	3.14	7.13
10019.10	10026.80	0.09	0.11	0.74	0.00	0.16	0.82

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9956.50	9969.02	144.45	27.72	14.09	6.51	2.21	5.21
9969.02	9981.54	371.23	46.72	12.61	16.72	3.73	7.95
9981.54	9994.06	624.84	63.76	12.57	28.15	5.09	9.80
9994.06	10006.58	776.46	72.63	12.56	34.98	5.80	10.69
10006.58	RB 10019.10	302.67	42.62	13.62	13.63	3.40	7.10
10019.10	10026.80	0.35	0.28	1.01	0.02	0.42	1.22

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.118

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9924.8	1508.5	9931.3	1507.4	9941.3	1505.6	9948.2	1504.4	9955.9	1503.2
9960.4	1503	9971.8	1502.6	9979.1	1502.4	9984.8	1494.3	9984.9	1494.2
9988.8	1488.6	9997.8	1489	10006.1	1489.3	10010.6	1490.1	10029.2	1493.5
10029.3	1493.6	10045.3	1494.1	10068.7	1494.9	10069.5	1495	10069.7	1495
10070	1495	10087.1	1494.5	10119.7	1494.6	10125.9	1494.7	10133.4	1494.3
10136.3	1494.1	10137.6	1494	10139.3	1494	10157.7	1493.4	10159.4	1493.8
10195.4	1506.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9924.8	.06	9984.9	.045	10029.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.9	10029.3	332.45	358.9	377.71	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.85	9984.90	0.54	0.46	1.37	0.02	0.57	1.18
LB 9984.90	9993.78	381.12	48.06	11.81	17.17	5.41	7.93
9993.78	10002.66	592.76	55.91	8.89	26.70	6.30	10.60
10002.66	10011.54	503.74	50.89	8.97	22.69	5.73	9.90
10011.54	10020.42	301.17	37.48	9.03	13.57	4.22	8.04
10020.42	RB 10029.30	133.66	23.06	9.07	6.02	2.60	5.80
10029.30	10045.91	68.94	23.99	16.62	3.11	1.44	2.87
10045.91	10062.52	31.28	14.93	16.62	1.41	0.90	2.09
10062.52	10079.13	10.09	7.58	16.62	0.45	0.46	1.33

10079.13	10095.74	22.67	12.31	16.61	1.02	0.74	1.84
10095.74	10112.35	23.23	12.49	16.61	1.05	0.75	1.86
10112.35	10128.96	19.97	11.41	16.62	0.90	0.69	1.75
10128.96	10145.57	50.02	19.80	16.63	2.25	1.19	2.53
10145.57	10162.18	80.41	26.44	16.82	3.62	1.59	3.04
10162.18	10178.79	0.39	0.43	1.68	0.02	0.27	0.91

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.85	9984.90	1.57	1.08	2.13	0.07	1.33	1.46
LB 9984.90	9993.78	441.73	54.80	11.81	19.90	6.17	8.06
9993.78	10002.66	667.36	62.65	8.89	30.06	7.06	10.65
10002.66	10011.54	577.21	57.64	8.97	26.00	6.49	10.01
10011.54	10020.42	369.52	44.22	9.03	16.64	4.98	8.36
10020.42	RB 10029.30	162.61	29.80	11.53	7.32	3.36	5.46

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.050

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9860.2	1496.2	9860.4	1496.2	9867.5	1495.1	9878.9	1493	9880.4	1493
9897	1492.4	9914.6	1491.9	9917	1491.5	9931.2	1489.5	9936.5	1489.3
9957.4	1489.3	9962.4	1489.2	9962.6	1489.2	9975.2	1487.9	9977.5	1487.7
9992.9	1487.3	10003.7	1487.1	10005.3	1487.4	10007.7	1487.8	10011.6	1488.6
10019	1490	10040.5	1490.3	10044.8	1490.4	10048.9	1490.5	10050.4	1490.5
10055.5	1490.2	10064.8	1489.5	10068.2	1489.2	10069.5	1489.2	10076	1489.6
10087.8	1490.3	10094	1493	10110.1	1499.3	10111.4	1500.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9860.2	.06	9962.4	.045	10019	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9962.4	10019	134.46	208.41	213.85	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10050.4	10111.4	1494

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9901.08	9921.52	4.08	2.96	6.28	0.18	0.48	1.38
9921.52	9941.96	152.57	41.68	20.54	6.87	2.04	3.66
9941.96	9962.40	214.22	51.00	20.44	9.65	2.49	4.20
LB 9962.40	9973.72	241.85	35.62	11.38	10.89	3.15	6.79
9973.72	9985.04	375.54	46.31	11.34	16.92	4.09	8.11
9985.04	9996.36	427.81	50.05	11.32	19.27	4.42	8.55
9996.36	10007.68	441.04	51.08	11.38	19.87	4.51	8.63
10007.68	RB 10019.00	204.97	32.43	11.53	9.23	2.86	6.32
10019.00	10034.70	89.43	26.27	15.70	4.03	1.67	3.40
10034.70	10050.40	68.48	22.38	15.70	3.08	1.43	3.06
10050.40	10070.73	0.00	40.05	20.38	0.00	1.97	0.00
10070.73	10091.07	0.00	36.49	20.66	0.00	1.79	0.00
10091.07	10111.40	0.00	0.00	0.15	0.00	0.03	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.96	9962.40	84.22	17.96	9.79	3.79	2.43	4.69
LB 9962.40	9973.72	297.33	34.60	11.38	13.39	3.06	8.59
9973.72	9985.04	466.95	45.29	11.34	21.03	4.00	10.31
9985.04	9996.36	533.44	49.03	11.32	24.03	4.33	10.88
9996.36	10007.68	550.32	50.06	11.38	24.79	4.42	10.99
10007.68	RB 10019.00	250.77	31.40	11.53	11.30	2.77	7.99
10019.00	10034.70	36.97	9.90	7.61	1.67	1.65	3.73

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 2.011

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9911.7	1492.2	9913.4	1492.2	9924.4	1492.1	9943.1	1487.3	9947.7	1486.2
9948.3	1486.1	9960.2	1487.7	9963.9	1488	9968.6	1488.6	9970.6	1488.5
9972.6	1488.4	9979.1	1488	9988	1484.7	9992.1	1482.5	9996.2	1482.8
9999.6	1483	10010.9	1483.9	10018.2	1484.6	10019.3	1484.7	10019.9	1485.3
10028.5	1487.3	10030.9	1489.9	10032.4	1490.6	10035	1491.8	10037.3	1493.7
10045.3	1496.9	10047.5	1497.8	10048.1	1497.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9911.7	.06	9979.1	.045	10028.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.1	10028.5	224.53	202.84	151.3	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9925.18	9938.66	0.29	0.34	1.68	0.01	0.21	0.85
9938.66	9952.14	93.65	25.29	13.80	4.22	1.88	3.70
9952.14	9965.62	57.23	18.70	13.58	2.58	1.39	3.06
9965.62	9979.10	11.23	7.03	13.52	0.51	0.52	1.60
LB 9979.10	9988.98	172.51	26.64	10.60	7.77	2.70	6.48
9988.98	9998.86	653.17	58.57	10.32	29.42	5.93	11.15
9998.86	10008.74	596.02	54.56	9.91	26.85	5.52	10.92
10008.74	10018.62	453.06	46.30	9.92	20.41	4.69	9.79
10018.62	RB 10028.50	180.82	27.15	10.36	8.14	2.75	6.66
10028.50	10038.30	2.04	1.12	2.12	0.09	0.78	1.82

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9925.18	9938.66	0.29	0.34	1.68	0.01	0.21	0.86
9938.66	9952.14	93.76	25.32	13.80	4.22	1.88	3.70
9952.14	9965.62	57.33	18.73	13.58	2.58	1.39	3.06
9965.62	9979.10	11.29	7.05	13.52	0.51	0.52	1.60
LB 9979.10	9988.98	172.57	26.66	10.60	7.77	2.70	6.47
9988.98	9998.86	652.97	58.59	10.32	29.41	5.93	11.14
9998.86	10008.74	595.87	54.58	9.91	26.84	5.52	10.92
10008.74	10018.62	452.99	46.32	9.92	20.40	4.69	9.78
10018.62	RB 10028.50	180.88	27.17	10.36	8.15	2.75	6.66
10028.50	10038.30	2.04	1.12	2.12	0.09	0.78	1.82

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.973

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9972.7	1497.1	9973.2	1496.7	9981.3	1486.7	9981.4	1486.7	9981.8	1486.2
9989.7	1480.4	9989.9	1480.3	9991.7	1480.4	10013.4	1482.3	10021.5	1483
10022.5	1483.2	10035.5	1484.9	10035.6	1484.9	10043.7	1485.1	10057.5	1485.5
10074	1486.2	10081	1488	10093.3	1491	10120.7	1497.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9972.7	.06	9981.3	.045	10035.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.3	10035.5	162.7	149.61	116.02	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9977.00	9981.30	0.08	0.12	0.69	0.00	0.27	0.66
LB 9981.30	9992.14	320.81	48.25	13.01	14.45	4.45	6.65
9992.14	10002.98	648.97	68.56	10.88	29.23	6.32	9.47
10002.98	10013.82	494.96	58.28	10.88	22.30	5.38	8.49
10013.82	10024.66	353.33	47.65	10.91	15.92	4.40	7.42
10024.66	RB 10035.50	191.49	33.02	10.93	8.63	3.05	5.80
10035.50	10052.54	122.64	36.13	17.05	5.52	2.12	3.39

10052.54	10069.58	74.88	26.87	17.05	3.37	1.58	2.79
10069.58	10086.62	12.85	7.10	8.59	0.58	0.84	1.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9977.00	9981.30	0.07	0.11	0.68	0.00	0.26	0.66
LB 9981.30	9992.14	320.87	48.16	13.01	14.45	4.44	6.66
9992.14	10002.98	649.69	68.47	10.88	29.27	6.32	9.49
10002.98	10013.82	495.31	58.19	10.88	22.31	5.37	8.51
10013.82	10024.66	353.38	47.56	10.91	15.92	4.39	7.43
10024.66	RB 10035.50	191.25	32.93	10.93	8.61	3.04	5.81
10035.50	10052.54	122.24	35.98	17.05	5.51	2.11	3.40
10052.54	10069.58	74.47	26.73	17.05	3.35	1.57	2.79
10069.58	10086.62	12.72	7.03	8.56	0.57	0.83	1.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.944

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9953.2	1506.5	9959	1503.3	9960.7	1502.3	9963.7	1499.5	9967.9	1495.5
9979.6	1484.2	9982.3	1481.6	9985.8	1481.2	10013.6	1480	10015.7	1480
10025.6	1481.3	10027.8	1481.6	10028.3	1481.7	10037.4	1484	10052.6	1487.1
10099.3	1497.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9953.2	.05	9979.6	.04	10037.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.6	10037.4	387.27	379.74	373.76	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.40	9979.60	0.21	0.17	0.82	0.01	0.29	1.27
LB 9979.60	9991.16	326.48	36.62	12.64	14.71	3.17	8.92
9991.16	10002.72	521.94	46.85	11.57	23.51	4.05	11.14
10002.72	10014.28	633.27	52.61	11.57	28.53	4.55	12.04
10014.28	10025.84	548.84	48.41	11.65	24.72	4.19	11.34
10025.84	RB 10037.40	186.49	25.53	11.87	8.40	2.21	7.31
10037.40	10068.35	2.77	1.46	3.86	0.12	0.39	1.90

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.40	9979.60	0.23	0.18	0.84	0.01	0.30	1.29
LB 9979.60	9991.16	326.87	36.79	12.64	14.72	3.18	8.88
9991.16	10002.72	521.66	47.02	11.57	23.50	4.07	11.09
10002.72	10014.28	632.50	52.78	11.57	28.49	4.57	11.98
10014.28	10025.84	548.44	48.58	11.65	24.70	4.20	11.29
10025.84	RB 10037.40	187.36	25.70	11.87	8.44	2.22	7.29
10037.40	10068.35	2.93	1.52	3.87	0.13	0.40	1.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.872

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9913.4	1497.9	9959.2	1482.1	9963.4	1480.7	9969.5	1478.6	9976.4	1477.7
9982.1	1477	9984.2	1476.6	9988	1475.7	10007.9	1475.7	10014.6	1475.7

10017	1476.3	10025.3	1478.4	10029.2	1480.5	10038.6	1485.6	10045.3	1488.2
10047.2	1489.1	10048.2	1489.6	10061.4	1494.2	10062.4	1494.6	10062.9	1494.7
10065	1494.9	10093.6	1498.8	10097.5	1499.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9913.4	.05	9963.4	.04	10029.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9963.4	10029.2	470.43	467.66	470.55	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.40	9963.40	0.04	0.07	0.67	0.00	0.11	0.60
LB 9963.40	9976.56	142.29	27.27	13.57	6.41	2.07	5.22
9976.56	9989.72	470.08	55.48	13.34	21.17	4.22	8.47
9989.72	10002.88	675.56	68.58	13.16	30.43	5.21	9.85
10002.88	10016.04	669.86	68.33	13.20	30.17	5.19	9.80
10016.04	RB 10029.20	262.02	39.81	13.98	11.80	3.02	6.58
10029.20	10063.35	0.14	0.16	0.86	0.01	0.21	0.89

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.40	9963.40	0.03	0.05	0.60	0.00	0.10	0.57
LB 9963.40	9976.56	141.07	26.99	13.57	6.35	2.05	5.23
9976.56	9989.72	470.08	55.21	13.34	21.17	4.19	8.52
9989.72	10002.88	676.64	68.31	13.16	30.48	5.19	9.91
10002.88	10016.04	670.90	68.05	13.20	30.22	5.17	9.86
10016.04	RB 10029.20	261.16	39.53	13.98	11.76	3.00	6.61
10029.20	10063.35	0.12	0.14	0.82	0.01	0.20	0.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.784

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9905	1488.6	9909.5	1487.1	9926.3	1481.8	9926.7	1481.7	9928.9	1481.6
9950.8	1479.8	9960.9	1475.7	9966.6	1473.2	9967.6	1473	9969.7	1472.6
9978.7	1470.8	9980.8	1470.7	10001.5	1471.1	10013.3	1472.8	10014.6	1472.9
10020.7	1475.7	10057.4	1492.7	10086.2	1499.5	10086.4	1499.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9905	.05	9960.9	.04	10020.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.9	10020.7	493.73	496.9	499.61	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9932.95	9960.90	0.04	0.06	0.56	0.00	0.11	0.68
LB 9960.90	9972.86	191.38	29.14	12.60	8.62	2.44	6.57
9972.86	9984.82	621.34	58.08	12.08	27.99	4.86	10.70
9984.82	9996.78	660.66	60.02	11.96	29.76	5.02	11.01
9996.78	10008.74	551.46	53.99	12.04	24.84	4.51	10.21
10008.74	RB 10020.70	195.09	29.50	12.62	8.79	2.47	6.61
10020.70	10053.55	0.03	0.05	0.50	0.00	0.11	0.67

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9932.95	9960.90	0.05	0.07	0.59	0.00	0.14	0.76
LB 9960.90	9972.86	192.93	29.49	12.60	8.69	2.47	6.54
9972.86	9984.82	620.22	58.43	12.08	27.94	4.89	10.62
9984.82	9996.78	659.26	60.37	11.96	29.70	5.05	10.92
9996.78	10008.74	550.88	54.34	12.04	24.81	4.54	10.14
10008.74	RB 10020.70	196.62	29.85	12.62	8.86	2.50	6.59
10020.70	10053.55	0.05	0.06	0.53	0.00	0.13	0.75

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3

REACH: 1 RS: 1.690

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9920.2	1478.6	9922.4	1478.5	9935.1	1477.7	9943.9	1475.7	9949.9	1474.3
9956.6	1471.6	9961.8	1470.6	9970.6	1467.7	9975.5	1466.5	9977.9	1466.1
9991.2	1466	10003.6	1466.1	10004.2	1466	10004.6	1465.9	10010.5	1468.8
10014.1	1471.3	10014.1	1471.4	10040.1	1485.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9920.2	.05	9956.6	.04	10014.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9956.6	10014.1	250.6	257.37	261.1	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.40	9956.60	0.85	0.75	2.08	0.04	0.39	1.13
LB 9956.60	9968.10	102.52	24.37	11.93	4.62	2.12	4.21
9968.10	9979.60	486.47	61.78	11.81	21.91	5.37	7.87
9979.60	9991.10	651.32	72.82	11.50	29.34	6.33	8.94
9991.10	10002.60	651.04	72.81	11.50	29.33	6.33	8.94
10002.60	RB 10014.10	326.71	50.68	13.08	14.72	4.41	6.45
10014.10	10027.10	1.09	0.86	2.02	0.05	0.49	1.27

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9938.40	9956.60	0.69	0.63	1.90	0.03	0.36	1.09
LB 9956.60	9968.10	99.40	23.63	11.93	4.48	2.05	4.21
9968.10	9979.60	486.67	61.04	11.81	21.92	5.31	7.97
9979.60	9991.10	653.60	72.08	11.50	29.44	6.27	9.07
9991.10	10002.60	653.31	72.06	11.50	29.43	6.27	9.07
10002.60	RB 10014.10	325.40	49.94	13.08	14.66	4.34	6.52
10014.10	10027.10	0.93	0.75	1.88	0.04	0.46	1.24

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.641

INPUT
Description: 100-year , 6-hour Peak Discharge of 2570 cfs from HEC-1 model at station C303.
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9798.5	1473.8	9834.5	1472.9	9893.9	1471.1	9909.1	1469.9	9939.2	1468.4
9945	1468.1	9971.2	1466.8	9976.2	1465.8	9983.3	1464.3	10004.6	1464.8
10009.6	1464.9	10012.6	1465.6	10015.1	1467	10020.7	1469.1	10032.6	1473.7
10042.5	1479.5	10048.7	1481.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9798.5	.05	9971.2	.04	10020.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.2	10020.7	192.06	214.61	220.91	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9884.85	9928.03	6.63	4.65	13.68	0.26	0.34	1.43
9928.03	9971.20	324.71	76.09	43.23	12.63	1.76	4.27
LB 9971.20	9981.10	359.99	38.03	10.11	14.01	3.84	9.47
9981.10	9991.00	605.54	51.63	9.95	23.56	5.22	11.73
9991.00	10000.90	573.95	49.91	9.90	22.33	5.04	11.50
10000.90	10010.80	527.75	47.51	9.93	20.53	4.80	11.11
10010.80	RB 10020.70	170.94	24.88	10.69	6.65	2.51	6.87
10020.70	10034.70	0.48	0.37	1.49	0.02	0.27	1.29

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9884.85	9928.03	6.84	3.43	6.45	0.27	0.57	2.00
9928.03	9971.20	349.67	77.74	43.23	13.61	1.80	4.50
LB 9971.20	9981.10	356.74	38.41	10.11	13.88	3.88	9.29
9981.10	9991.00	597.48	52.01	9.95	23.25	5.25	11.49
9991.00	10000.90	566.55	50.28	9.90	22.04	5.08	11.27
10000.90	10010.80	521.27	47.89	9.93	20.28	4.84	10.88
10010.80	RB 10020.70	170.87	25.26	10.69	6.65	2.55	6.76
10020.70	10034.70	0.58	0.43	1.53	0.02	0.31	1.35

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.600

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9729.5	1472.6	9735.7	1471.6	9738.4	1471.2	9746.5	1470.7	9748.1	1470.5
9749.6	1470.5	9771.8	1469	9775.4	1469	9781.2	1468.9	9797.3	1468.2
9806.8	1468	9819.7	1468.1	9830.7	1468	9846.1	1468.2	9859.3	1468.3
9863.1	1468	9869.7	1467.1	9883.3	1466.8	9909.3	1466.1	9925	1465.7
9925.8	1465.5	9930	1464.8	9946.7	1463	9947	1463	9947.3	1463
9951.6	1463.4	9955.4	1463.7	9968.3	1463.9	9968.9	1463.9	9970.1	1463.9
9980.4	1464	9986.2	1463.4	10005.4	1463.5	10011	1463.5	10016.8	1467
10020.5	1469.2	10034.8	1477.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9729.5	.05	9925.8	.04	10016.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9925.8	10016.8	119.2	196.07	218.03	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9847.28	9886.54	6.56	5.54	17.86	0.26	0.31	1.18
9886.54	9925.80	109.93	41.24	39.30	4.28	1.05	2.67
LB 9925.80	9944.00	385.83	53.46	18.34	15.01	2.94	7.22
9944.00	9962.20	587.55	68.67	18.25	22.86	3.77	8.56
9962.20	9980.40	476.82	60.52	18.20	18.55	3.33	7.88
9980.40	9998.60	574.26	67.71	18.23	22.34	3.72	8.48
9998.60	RB 10016.80	429.02	58.00	19.17	16.69	3.19	7.40
10016.80	10025.80	0.03	0.05	0.47	0.00	0.12	0.62

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9925.80	9944.00	391.95	62.70	20.58	15.25	3.44	6.25
9944.00	9962.20	609.99	77.90	18.25	23.73	4.28	7.83
9962.20	9980.40	508.25	69.75	18.20	19.78	3.83	7.29
9980.40	9998.60	597.85	76.94	18.23	23.26	4.23	7.77
9998.60	RB 10016.80	461.71	67.23	19.17	17.97	3.69	6.87
10016.80	10025.80	0.24	0.25	0.97	0.01	0.63	0.97

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.563

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9789.6	1468.1	9794.9	1467.6	9796.7	1467.3	9819.3	1466.8	9822.6	1466.7
9824.6	1466.6	9831.2	1466.3	9838.4	1465.9	9851.2	1465.5	9855.3	1465.4
9860.9	1464.7	9864.3	1464.4	9869.6	1464.7	9876.1	1465	9887.2	1465
9888.9	1465	9894.2	1465.1	9903.2	1465	9918	1464.3	9930	1462.6
9937.1	1461.2	9943.7	1460.4	9948.6	1459.7	9958.8	1461.8	9960.6	1462.3
9969.5	1463	9975	1463.3	9978.1	1463	9981.4	1462.6	9986.5	1461.6
9992.1	1461.6	9996.5	1461.2	10000	1460.8	10003.4	1460.8	10004.3	1460.8
10006.9	1460.5	10008.2	1460.6	10010.5	1460.9	10015.4	1461.5	10017.3	1461.8
10023.9	1462.1	10024.6	1462.2	10025.7	1462.2	10031.9	1463.4	10043	1465.4
10050.5	1466.1	10055.7	1467.9	10061.5	1471	10062.5	1471.3	10065.8	1472.9
10070.8	1475.1	10071.7	1475.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9789.6	.05	9975	.04	10031.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10031.9	131.38	140.13	122.93	.6	.8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9900.84	9937.92	166.50	30.41	20.80	6.48	1.48	5.47
9937.92	9975.00	868.27	103.69	37.49	33.78	2.80	8.37
LB 9975.00	9986.38	150.36	19.74	11.51	5.85	1.74	7.62
9986.38	9997.76	347.70	32.53	11.41	13.53	2.86	10.69
9997.76	10009.14	505.09	40.72	11.42	19.65	3.58	12.40
10009.14	10020.52	357.19	33.12	11.45	13.90	2.91	10.79
10020.52	RB 10031.90	168.60	21.14	11.51	6.56	1.86	7.97
10031.90	10051.80	6.29	2.40	5.24	0.24	0.46	2.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9937.92	9975.00	520.00	74.48	30.38	20.23	2.98	6.98
LB 9975.00	9986.38	240.89	28.27	11.51	9.37	2.48	8.52
9986.38	9997.76	451.44	41.05	11.41	17.57	3.61	11.00
9997.76	10009.14	610.80	49.25	11.42	23.77	4.33	12.40
10009.14	10020.52	460.94	41.64	11.45	17.94	3.66	11.07
10020.52	RB 10031.90	261.19	29.67	11.51	10.16	2.61	8.80
10031.90	10051.80	24.75	6.26	5.99	0.96	1.21	3.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.537

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9932.3	1467.9	9947.6	1465.7	9958.3	1464.1	9974.5	1461.5	9977.6	1460.4
9978.9	1459.9	9994.2	1454.1	9996.1	1453.2	9998.3	1452.9	10000.2	1452.9
10006.6	1452.8	10017.8	1457.1	10018.4	1457.3	10019.1	1457.5	10019.2	1457.5
10021.2	1457.7	10051.1	1462.2	10060.5	1466.2	10067.2	1468.3	10067.4	1468.8
10068.4	1468.8	10072	1469.7	10078.2	1469.9	10080.2	1470.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9932.3	.05	9978.9	.04	10019.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.9	10019.1	108.63	92.19	78.51	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.60	9978.90	0.21	0.19	1.07	0.01	0.19	1.07
LB 9978.90	9986.94	86.97	15.34	8.60	3.38	1.91	5.67
9986.94	9994.98	426.34	39.88	8.63	16.59	4.96	10.69

9994.98	10003.02	835.86	58.46	8.18	32.52	7.27	14.30
10003.02	10011.06	772.71	56.26	8.36	30.07	7.00	13.74
10011.06	RB 10019.10	328.90	34.05	8.58	12.80	4.24	9.66
10019.10	10039.47	119.02	27.84	19.47	4.63	1.44	4.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9955.60	9978.90	0.38	0.29	1.17	0.01	0.29	1.29
LB 9978.90	9986.94	91.74	16.17	8.60	3.57	2.01	5.67
9986.94	9994.98	426.45	40.70	8.63	16.59	5.06	10.48
9994.98	10003.02	827.10	59.29	8.18	32.18	7.37	13.95
10003.02	10011.06	765.31	57.08	8.36	29.78	7.10	13.41
10011.06	RB 10019.10	330.89	34.88	8.58	12.88	4.34	9.49
10019.10	10039.47	128.13	29.82	19.58	4.99	1.55	4.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.519

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9968.7	1469.5	9969.4	1469.2	9977.4	1462.2	9979.6	1459.8	9979.9	1459.6
9980.1	1459.5	9986.1	1457.2	9987	1456.8	9992.9	1454.3	9993.1	1454.2
9997.9	1451.1	9999.7	1449.9	10006.7	1450.4	10008.3	1450.5	10009.1	1450.6
10010.4	1450.7	10015.1	1451.4	10028.3	1457.4	10046	1465.6	10046.6	1465.8
10049.1	1467	10073.4	1469.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9968.7	.05	9986.1	.04	10028.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.1	10028.3	101.14	117.38	143.89	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9977.40	9986.10	0.46	0.33	1.41	0.02	0.25	1.40
LB 9986.10	9994.54	132.52	19.75	9.33	5.16	2.34	6.71
9994.54	10002.98	762.38	56.72	9.45	29.66	6.72	13.44
10002.98	10011.42	931.51	61.24	8.47	36.25	7.26	15.21
10011.42	10019.86	620.88	49.07	8.95	24.16	5.81	12.65
10019.86	RB 10028.30	122.14	18.76	9.27	4.75	2.22	6.51
10028.30	10050.85	0.10	0.10	0.72	0.00	0.15	0.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9977.40	9986.10	0.52	0.36	1.43	0.02	0.27	1.45
LB 9986.10	9994.54	133.69	19.93	9.33	5.20	2.36	6.71
9994.54	10002.98	761.54	56.90	9.45	29.63	6.74	13.38
10002.98	10011.42	930.12	61.42	8.47	36.19	7.28	15.14
10011.42	10019.86	620.70	49.25	8.95	24.15	5.84	12.60
10019.86	RB 10028.30	123.31	18.94	9.27	4.80	2.24	6.51
10028.30	10050.85	0.12	0.11	0.75	0.00	0.17	1.04

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.497

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9923.1	1468	9929.5	1467.2	9962.6	1463.5	9962.8	1463.5	9963.5	1463.4
9964.2	1463.3	9964.4	1463.2	9977.7	1456.2	9990.9	1449.1	9994.7	1449
10003.3	1448.8	10023.9	1454.2	10024.7	1454.4	10039.7	1461.4	10050.9	1467.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9923.1	.05	9977.7	.04	10024.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.7	10024.7	69.49	82.02	91.23	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9950.40	9977.70	0.03	0.05	0.47	0.00	0.11	0.61
LB 9977.70	9987.10	153.65	25.84	10.67	5.98	2.75	5.95
9987.10	9996.50	757.23	65.34	9.92	29.46	6.95	11.59
9996.50	10005.90	879.14	70.22	9.49	34.21	7.47	12.52
10005.90	10015.30	552.57	53.65	9.72	21.50	5.71	10.30
10015.30	RB 10024.70	215.55	30.49	9.72	8.39	3.24	7.07
10024.70	10037.80	11.83	4.38	4.78	0.46	1.01	2.70

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9950.40	9977.70	0.02	0.04	0.43	0.00	0.10	0.58
LB 9977.70	9987.10	152.74	25.67	10.67	5.94	2.73	5.95
9987.10	9996.50	758.03	65.16	9.92	29.50	6.93	11.63
9996.50	10005.90	880.35	70.04	9.49	34.25	7.45	12.57
10005.90	10015.30	552.60	53.47	9.72	21.50	5.69	10.34
10015.30	RB 10024.70	214.65	30.32	9.72	8.35	3.22	7.08
10024.70	10037.80	11.61	4.29	4.73	0.45	1.00	2.70

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.481

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9940.9	1464.4	9945.4	1463.7	9947.1	1462.7	9950.2	1461.2	9968.9	1451.8
9978.1	1450.6	9982.2	1449.9	9989.2	1448.7	9990.3	1448.5	10000.6	1447.8
10001.7	1447.7	10004.2	1449.7	10010.8	1454.5	10027.5	1466.6	10035.2	1468.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9940.9	.05	9968.9	.04	10010.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.9	10010.8	304.34	297.11	288.98	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.90	9968.90	38.03	8.86	6.64	1.48	1.49	4.29
LB 9968.90	9977.28	285.21	29.59	8.45	11.10	3.53	9.64
9977.28	9985.66	467.85	39.90	8.50	18.20	4.76	11.73
9985.66	9994.04	712.03	51.24	8.46	27.71	6.11	13.90
9994.04	10002.42	840.40	56.98	8.60	32.70	6.80	14.75
10002.42	RB 10010.80	226.43	28.03	10.44	8.81	3.35	8.08
10010.80	10023.00	0.05	0.06	0.48	0.00	0.14	0.84

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9954.90	9968.90	38.75	9.03	6.68	1.51	1.52	4.29
LB 9968.90	9977.28	286.38	29.83	8.45	11.14	3.56	9.60
9977.28	9985.66	468.12	40.15	8.50	18.21	4.79	11.66
9985.66	9994.04	710.84	51.49	8.46	27.66	6.14	13.81
9994.04	10002.42	838.32	57.23	8.60	32.62	6.83	14.65
10002.42	RB 10010.80	227.53	28.28	10.44	8.85	3.37	8.05
10010.80	10023.00	0.06	0.07	0.51	0.00	0.17	0.90

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.425

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9950.9	1467.6	9951.4	1467.2	9961.8	1461.2	9969.2	1454.5	9978.9	1448.4
9986	1443.8	9987.7	1443	9993.7	1441	9994.8	1440.7	9995.3	1440.7
9998.9	1440.9	10010.3	1441.8	10011.6	1441.9	10012.7	1442.5	10024.9	1448.4
10046.4	1458.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9950.9	.07	9978.9	.07	10024.9	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978.9	10024.9	203.47	210.84	195.99	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.90	9978.90	0.49	0.36	1.26	0.02	0.34	1.37
LB 9978.90	9988.10	202.86	33.21	10.76	7.89	3.61	6.11
9988.10	9997.30	758.63	69.85	9.55	29.52	7.59	10.86
9997.30	10006.50	834.86	72.98	9.23	32.48	7.93	11.44
10006.50	10015.70	626.92	62.70	9.70	24.39	6.82	10.00
10015.70	RB 10024.90	145.57	26.66	10.22	5.66	2.90	5.46
10024.90	10035.65	0.66	0.46	1.53	0.03	0.34	1.42

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.90	9978.90	0.40	0.31	1.17	0.02	0.31	1.31
LB 9978.90	9988.10	200.72	32.72	10.76	7.81	3.56	6.13
9988.10	9997.30	760.40	69.36	9.55	29.59	7.54	10.96
9997.30	10006.50	837.23	72.49	9.23	32.58	7.88	11.55
10006.50	10015.70	627.55	62.22	9.70	24.42	6.76	10.09
10015.70	RB 10024.90	143.16	26.17	10.22	5.57	2.84	5.47
10024.90	10035.65	0.54	0.39	1.41	0.02	0.31	1.37

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.385

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9977.8	1450.3	9985.5	1444.9	9991.2	1439.5	9998.1	1433	10003.3	1433.4
10007.7	1433.3	10015.7	1436.8	10018	1438.1	10021.5	1439.4	10023	1439.8
10026.4	1440.6	10027.9	1440.9	10047.2	1444	10050	1444.6	10058.1	1446.8
10066.6	1449								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9977.8	.07	9991.2	.07	10023	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.2	10023	172.59	154.51	133.59	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9984.50	9991.20	8.78	2.44	3.13	0.34	1.07	3.60
LB 9991.20	9997.56	308.80	32.73	8.74	12.02	5.15	9.44
9997.56	10003.92	848.86	53.59	6.58	33.03	8.43	15.84
10003.92	10010.28	792.51	51.49	6.60	30.84	8.10	15.39
10010.28	10016.64	439.76	37.02	7.00	17.11	5.82	11.88
10016.64	RB 10023.00	141.33	18.58	6.85	5.50	2.92	7.61
10023.00	10044.80	29.96	8.03	9.75	1.17	0.84	3.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9984.50	9991.20	9.48	2.62	3.20	0.37	1.15	3.63
LB 9991.20	9997.56	309.96	33.22	8.74	12.06	5.22	9.33
9997.56	10003.92	843.81	54.08	6.58	32.83	8.50	15.60
10003.92	10010.28	788.29	51.98	6.60	30.67	8.17	15.16
10010.28	10016.64	440.14	37.51	7.00	17.13	5.90	11.73
10016.64	RB 10023.00	144.55	19.07	6.85	5.62	3.00	7.58
10023.00	10044.80	33.76	8.77	9.83	1.31	0.92	3.85

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.356

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9943.9	1457.5	9964.2	1443.5	9966.1	1442.3	9968.9	1440.6	9980.3	1433.3
9994.5	1430.5	9999	1429.8	10014.2	1430.7	10018.6	1431	10023.6	1432
10033.6	1433.7	10034.4	1433.9	10050.4	1438.4	10058.3	1440.2	10067.3	1442.6
10080	1446.5	10085.6	1448.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9943.9	.07	9980.3	.07	10033.6	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.3	10033.6	145.83	132.08	121.17	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.10	9980.30	44.98	13.85	7.81	1.75	2.11	3.25
LB 9980.30	9990.96	365.61	56.11	10.87	14.23	5.26	6.52
9990.96	10001.62	618.90	76.72	10.79	24.08	7.20	8.07
10001.62	10012.28	629.45	77.19	10.68	24.49	7.24	8.15
10012.28	10022.94	518.03	68.88	10.76	20.16	6.46	7.52
10022.94	RB 10033.60	305.71	50.30	10.82	11.90	4.72	6.08

10033.60	10059.60	87.31	26.17	14.17	3.40	1.92	3.34

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.10	9980.30	45.00	13.86	7.81	1.75	2.11	3.25
LB 9980.30	9990.96	365.62	56.12	10.87	14.23	5.26	6.52
9990.96	10001.62	618.86	76.73	10.79	24.08	7.20	8.07
10001.62	10012.28	629.41	77.20	10.68	24.49	7.24	8.15
10012.28	10022.94	518.01	68.89	10.76	20.16	6.46	7.52
10022.94	RB 10033.60	305.73	50.32	10.82	11.90	4.72	6.08
10033.60	10059.60	87.37	26.18	14.17	3.40	1.92	3.34

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.331

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9927.9	1445.3	9935.4	1440.1	9947.5	1432.5	9967.4	1432.8	9969.4	1432.8
9995.3	1427.9	9996.7	1427.7	9997.3	1427.7	10007.5	1428.2	10018.5	1435.5
10021.1	1437.3	10031.5	1443.7	10060.8	1444.9	10073	1445.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9927.9	.07	9969.4	.07	10018.5	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9969.4	10018.5	161.17	142.49	135.88	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9936.20	9944.50	3.52	2.01	2.98	0.14	0.79	1.75
9944.50	9952.80	120.27	25.78	8.84	4.68	3.11	4.67
9952.80	9961.10	140.85	27.63	8.30	5.48	3.33	5.10
9961.10	9969.40	132.39	26.63	8.30	5.15	3.21	4.97
LB 9969.40	9979.22	228.72	40.27	9.99	8.90	4.10	5.68
9979.22	9989.04	426.31	58.51	9.99	16.59	5.96	7.29
9989.04	9998.86	662.34	76.07	9.95	25.77	7.75	8.71
9998.86	10008.68	680.46	77.68	10.07	26.48	7.91	8.76
10008.68	RB 10018.50	175.01	36.63	11.79	6.81	3.73	4.78
10018.50	10045.75	0.13	0.16	0.83	0.01	0.24	0.80

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9936.20	9944.50	3.55	2.02	2.99	0.14	0.80	1.76
9944.50	9952.80	120.44	25.84	8.84	4.69	3.11	4.66
9952.80	9961.10	141.01	27.69	8.30	5.49	3.34	5.09
9961.10	9969.40	132.56	26.68	8.30	5.16	3.21	4.97
LB 9969.40	9979.22	228.88	40.34	9.99	8.91	4.11	5.67
9979.22	9989.04	426.25	58.58	9.99	16.59	5.97	7.28
9989.04	9998.86	661.95	76.14	9.95	25.76	7.75	8.69
9998.86	10008.68	680.04	77.75	10.07	26.46	7.92	8.75
10008.68	RB 10018.50	175.18	36.70	11.79	6.82	3.74	4.77
10018.50	10045.75	0.13	0.17	0.83	0.01	0.24	0.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.304

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9954.5	1448.2	9957.5	1446.7	9978.5	1436.2	9982.6	1432.7	9986.2	1429.8
9990.8	1426.2	10004.4	1426.2	10016.5	1426.1	10031.4	1432.5	10044.3	1438
10057	1444.2	10059.4	1444.6	10062.8	1444.8	10066.9	1444.8	10083.5	1447.5
10104.9	1450.9	10123.6	1453.3	10128.3	1453.9	10143.6	1455.4	10154.2	1458

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9954.5	.06	9982.6	.06	10031.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.6	10031.4	238.08	239.31	232.98	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.55	9982.60	0.11	0.11	0.68	0.00	0.22	0.99
LB 9982.60	9992.36	284.13	41.27	12.02	11.06	4.23	6.88
9992.36	10002.12	745.67	67.74	9.76	29.01	6.94	11.01
10002.12	10011.88	749.82	67.97	9.76	29.18	6.96	11.03
10011.88	10021.64	640.21	62.95	10.22	24.91	6.45	10.17
10021.64	RB 10031.40	149.37	26.70	10.62	5.81	2.74	5.59
10031.40	10092.80	0.69	0.48	1.63	0.03	0.32	1.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.55	9982.60	0.08	0.09	0.59	0.00	0.19	0.92
LB 9982.60	9992.36	282.33	40.72	12.02	10.99	4.17	6.93
9992.36	10002.12	747.55	67.18	9.76	29.09	6.88	11.13
10002.12	10011.88	751.75	67.41	9.76	29.25	6.91	11.15
10011.88	10021.64	641.15	62.40	10.22	24.95	6.39	10.28
10021.64	RB 10031.40	146.59	26.15	10.62	5.70	2.68	5.61
10031.40	10092.80	0.55	0.40	1.49	0.02	0.29	1.38

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.259

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9949	1438.8	9961.1	1434.7	9966.7	1432.9	9972.7	1429.4	9980	1426.2
9988.9	1422.4	9999.9	1417.9	10000.6	1418.2	10004.6	1420	10011.6	1422.7
10011.7	1422.7	10018.8	1423.1	10019.1	1423.2	10019.2	1423.2	10019.4	1423.2
10072.5	1443.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9949	.06	9980	.06	10011.6	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10011.6	183.23	191.22	189.39	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.50	9980.00	0.87	0.46	1.58	0.03	0.32	1.90
LB 9980.00	9986.32	74.57	12.53	6.87	2.90	1.98	5.95
9986.32	9992.64	310.81	29.45	6.85	12.09	4.66	10.55
9992.64	9998.96	651.16	45.85	6.83	25.34	7.26	14.20
9998.96	10005.28	743.78	49.85	6.89	28.94	7.89	14.92
10005.28	RB 10011.60	394.22	33.82	6.77	15.34	5.35	11.66
10011.60	10042.05	394.59	47.46	17.83	15.35	2.77	8.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9964.50	9980.00	1.15	0.56	1.65	0.04	0.39	2.06
LB 9980.00	9986.32	77.36	12.98	6.87	3.01	2.05	5.96
9986.32	9992.64	311.67	29.91	6.85	12.13	4.73	10.42
9992.64	9998.96	647.05	46.31	6.83	25.18	7.33	13.97
9998.96	10005.28	738.11	50.30	6.89	28.72	7.96	14.67
10005.28	RB 10011.60	394.02	34.28	6.77	15.33	5.42	11.49
10011.60	10042.05	400.62	48.69	17.90	15.59	2.84	8.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.222

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9937.2	1437.9	9951.9	1428.7	9963.3	1422.2	9969.7	1419.8	9979.3	1413.7
9983.7	1413.3	9985.6	1413.3	9987.5	1413.2	9987.5	1413.1	9992.6	1409.2
9997.9	1405.2	10015.9	1415.7	10022.2	1419.3	10049.9	1436.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9937.2	.06	9987.5	.06	10015.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.5	10015.9	258.66	271.45	280.51	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.35	9987.50	212.04	28.68	13.00	8.25	2.34	7.39
LB 9987.50	9993.18	312.29	30.30	7.25	12.15	5.33	10.31
9993.18	9998.86	839.61	54.17	7.03	32.67	9.54	15.50
9998.86	10004.54	774.14	50.25	6.58	30.12	8.85	15.41
10004.54	10010.22	354.18	31.43	6.58	13.78	5.53	11.27
10010.22	RB 10015.90	77.27	12.61	6.58	3.01	2.22	6.13
10015.90	10032.90	0.47	0.28	1.13	0.02	0.28	1.71

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9962.35	9987.50	214.48	29.07	13.03	8.35	2.38	7.38
LB 9987.50	9993.18	312.72	30.48	7.25	12.17	5.37	10.26
9993.18	9998.86	837.10	54.35	7.03	32.57	9.57	15.40
9998.86	10004.54	772.15	50.43	6.58	30.04	8.88	15.31
10004.54	10010.22	354.54	31.61	6.58	13.80	5.57	11.21
10010.22	RB 10015.90	78.46	12.79	6.58	3.05	2.25	6.13
10015.90	10032.90	0.55	0.31	1.17	0.02	0.31	1.78

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.171

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9938.5	1429.6	9941.7	1429.5	9954	1421.4	9967.6	1412.7	9973.3	1409.1
9978.6	1408	9989.5	1406	9992	1405.5	9993.2	1405.4	9995.1	1405.3
10004.1	1404.8	10006.2	1405	10010.9	1405.5	10016.6	1405	10029.4	1409.6
10032.8	1411.9	10035.5	1413.7	10046.8	1419.1	10047.6	1419.6	10057.3	1424.6
10057.7	1425	10067.8	1431.6	10068.5	1432.1	10069.4	1433	10076	1439.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9938.5	.06	9967.6	.06	10032.8	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.6	10032.8	82.3	99.18	114.62	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.05	9967.60	0.19	0.25	1.06	0.01	0.28	0.73
LB 9967.60	9980.64	204.77	49.65	14.23	7.97	3.81	4.12
9980.64	9993.68	570.00	89.17	13.24	22.18	6.84	6.39
9993.68	10006.72	780.40	107.10	13.07	30.37	8.21	7.29
10006.72	10019.76	728.65	103.46	13.28	28.35	7.93	7.04
10019.76	RB 10032.80	284.16	60.64	14.35	11.06	4.65	4.69
10032.80	10054.40	1.83	1.41	2.47	0.07	0.68	1.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9953.05	9967.60	0.19	0.25	1.06	0.01	0.28	0.73
LB 9967.60	9980.64	204.76	49.65	14.23	7.97	3.81	4.12
9980.64	9993.68	570.00	89.17	13.24	22.18	6.84	6.39
9993.68	10006.72	780.41	107.10	13.07	30.37	8.21	7.29
10006.72	10019.76	728.66	103.45	13.28	28.35	7.93	7.04
10019.76	RB 10032.80	284.15	60.64	14.35	11.06	4.65	4.69
10032.80	10054.40	1.83	1.41	2.47	0.07	0.69	1.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.152

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9932	1428.1	9936.8	1427.9	9939.1	1427.9	9939.9	1427.9	9940.4	1427.9
9950.2	1422.4	9973.3	1410.5	9987.7	1403.1	9993.4	1402.8	10005.3	1402.7
10008.1	1405	10014	1410.3	10037.4	1431.8	10044.8	1438.3	10048	1439.1
10051	1439.8	10053.3	1439.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9932	.06	9973.3	.06	10014	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.3	10014	354.14	337.93	314.55	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.65	9973.30	1.25	0.76	1.93	0.05	0.44	1.65
LB 9973.30	9981.44	129.69	24.22	9.15	5.05	2.98	5.36
9981.44	9989.58	556.77	57.46	8.92	21.66	7.06	9.69
9989.58	9997.72	813.65	69.56	8.15	31.66	8.55	11.70
9997.72	10005.86	817.76	70.32	8.31	31.82	8.64	11.63
10005.86	RB 10014.00	249.80	38.38	10.83	9.72	4.72	6.51
10014.00	10033.65	1.07	0.64	1.60	0.04	0.54	1.67

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9952.65	9973.30	1.25	0.75	1.92	0.05	0.44	1.65
LB 9973.30	9981.44	129.62	24.20	9.15	5.04	2.97	5.36
9981.44	9989.58	556.78	57.44	8.92	21.66	7.06	9.69
9989.58	9997.72	813.71	69.55	8.15	31.66	8.54	11.70
9997.72	10005.86	817.83	70.31	8.31	31.82	8.64	11.63
10005.86	RB 10014.00	249.76	38.37	10.83	9.72	4.71	6.51
10014.00	10033.65	1.06	0.64	1.60	0.04	0.54	1.67

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3

REACH: 1 RS: 1.088

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9971.1	1431.1	9971.4	1431	9973.1	1429.7	9974	1429.9	9976.9	1427.7
9982.5	1414.6	9985.9	1406.9	9987	1404.5	9988.5	1400.5	9991.6	1400.5
10003.9	1400.2	10005.8	1400.7	10019.3	1402.8	10031.6	1404.6	10034.8	1405
10036.2	1405.4	10070.7	1420.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9971.1	.055	9985.9	.04	10034.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.9	10034.8	419.25	425.27	433.09	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.50	9985.90	0.01	0.02	0.30	0.00	0.14	0.39
LB 9985.90	9995.68	503.43	56.74	14.09	19.59	5.80	8.87
9995.68	10005.46	844.95	67.04	9.83	32.88	6.86	12.60
10005.46	10015.24	630.19	56.39	9.91	24.52	5.77	11.18
10015.24	10025.02	380.75	41.65	9.89	14.82	4.26	9.14
10025.02	RB 10034.80	193.00	27.69	9.88	7.51	2.83	6.97
10034.80	10052.75	17.67	6.28	5.80	0.69	1.17	2.81

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9978.50	9985.90	0.01	0.02	0.30	0.00	0.14	0.39
LB 9985.90	9995.68	503.40	56.76	14.09	19.59	5.80	8.87
9995.68	10005.46	844.82	67.06	9.83	32.87	6.86	12.60
10005.46	10015.24	630.15	56.41	9.91	24.52	5.77	11.17
10015.24	10025.02	380.81	41.67	9.89	14.82	4.26	9.14
10025.02	RB 10034.80	193.10	27.71	9.88	7.51	2.83	6.97
10034.80	10052.75	17.70	6.29	5.81	0.69	1.17	2.81

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 1.008

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9959.3	1421.5	9961.9	1421.3	9962.6	1421.3	9967.4	1416.8	9984.1	1401.1
9989.6	1396	9993.1	1392.7	9999.9	1393.2	10008.1	1393.9	10021.7	1398.8
10026.8	1401	10036.9	1405.4	10045.5	1410.7	10051.4	1415		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9959.3	.065	9984.1	.055	10026.8	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.1	10026.8	99.77	112.77	114.71	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.70	9984.10	0.03	0.05	0.43	0.00	0.15	0.70
LB 9984.10	9992.64	253.46	36.40	11.68	9.86	4.26	6.96
9992.64	10001.18	953.01	71.74	8.74	37.08	8.40	13.28
10001.18	10009.72	824.70	65.57	8.67	32.09	7.68	12.58
10009.72	10018.26	440.95	45.88	9.08	17.16	5.37	9.61
10018.26	RB 10026.80	97.67	18.68	9.21	3.80	2.19	5.23
10026.80	10039.10	0.18	0.18	0.99	0.01	0.20	0.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.70	9984.10	0.03	0.04	0.42	0.00	0.15	0.70
LB 9984.10	9992.64	253.32	36.36	11.68	9.86	4.26	6.97
9992.64	10001.18	953.29	71.71	8.74	37.09	8.40	13.29
10001.18	10009.72	824.87	65.54	8.67	32.10	7.67	12.59
10009.72	10018.26	440.86	45.84	9.08	17.15	5.37	9.62

10018.26	RB 10026.80	97.45	18.64	9.21	3.79	2.18	5.23
10026.80	10039.10	0.17	0.17	0.98	0.01	0.20	0.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.986

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9939	1418.8	9941.5	1418.7	9943.2	1417.8	9953.2	1412.3	9974.4	1399.9
9980.9	1396.1	9985.6	1392.6	9998.7	1392.6	10000.7	1392.6	10002.5	1392.6
10002.7	1392.6	10002.9	1392.7	10017.9	1395.9	10018.2	1395.9	10027.2	1397.7
10040.9	1409.5	10048.3	1415.1	10050.8	1416.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9939	.065	9974.4	.055	10027.2	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.4	10027.2	108.87	139.97	180.69	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.70	9974.40	0.10	0.14	0.80	0.00	0.20	0.74
LB 9974.40	9984.96	208.03	38.19	12.59	8.09	3.62	5.45
9984.96	9995.52	814.55	81.21	10.72	31.69	7.69	10.03
9995.52	10006.08	796.73	79.95	10.65	31.00	7.57	9.96
10006.08	10016.64	506.49	61.25	10.80	19.71	5.80	8.27
10016.64	RB 10027.20	234.90	38.58	10.77	9.14	3.65	6.09
10027.20	10039.00	9.20	3.94	3.99	0.36	1.30	2.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.70	9974.40	0.09	0.13	0.76	0.00	0.19	0.71
LB 9974.40	9984.96	207.20	37.96	12.59	8.06	3.60	5.46
9984.96	9995.52	815.59	80.99	10.72	31.73	7.67	10.07
9995.52	10006.08	797.69	79.73	10.65	31.04	7.55	10.01
10006.08	10016.64	506.37	61.03	10.80	19.70	5.78	8.30
10016.64	RB 10027.20	234.00	38.36	10.77	9.10	3.63	6.10
10027.20	10039.00	9.06	3.87	3.96	0.35	1.29	2.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.960

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9906.6	1418	9909	1417.9	9938.5	1402.5	9940.4	1401.5	9941.3	1401.2
9953.6	1395.9	9954.8	1395.8	9958.3	1395.4	9977.1	1393.4	9988.1	1391.5
9992.9	1390.6	9994.8	1390.6	9998	1390.8	10001.9	1391.2	10007.6	1391.2
10009.2	1395.6	10015.1	1411.3	10021.9	1430.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9906.6	.065	9977.1	.055	10009.2	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9977.1	10009.2	157.45	165.22	153.7	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.85	9959.47	43.67	11.51	9.23	1.70	1.29	3.79
9959.47	9977.10	335.04	50.73	17.72	13.04	2.88	6.60
LB 9977.10	9983.52	297.92	28.06	6.51	11.59	4.37	10.62
9983.52	9989.94	434.60	35.20	6.52	16.91	5.48	12.35

9989.94	9996.36	576.31	41.58	6.48	22.42	6.48	13.86
9996.36	10002.78	545.21	40.14	6.44	21.21	6.25	13.58
10002.78	RB 10009.20	336.50	35.10	9.50	13.09	5.47	9.59
10009.20	10015.55	0.74	0.49	1.73	0.03	0.81	1.51

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9941.85	9959.47	45.21	11.86	9.27	1.76	1.33	3.81
9959.47	9977.10	338.39	51.42	17.72	13.17	2.92	6.58
LB 9977.10	9983.52	298.27	28.31	6.51	11.61	4.41	10.54
9983.52	9989.94	433.81	35.45	6.52	16.88	5.52	12.24
9989.94	9996.36	574.22	41.83	6.48	22.34	6.51	13.73
9996.36	10002.78	543.42	40.39	6.44	21.14	6.29	13.45
10002.78	RB 10009.20	335.90	35.35	9.50	13.07	5.51	9.50
10009.20	10015.55	0.78	0.51	1.77	0.03	0.84	1.51

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.928

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9949.2	1418	9955.6	1417.3	9964.6	1416.4	9973.5	1405.4	9983.9	1393.5
9989.1	1387.7	9992.1	1387.4	9996.6	1387.6	10005.6	1388.3	10019.6	1388.6
10027.2	1389.7	10029	1390.1	10038	1390.6	10043.8	1390.8	10045.9	1393.5
10054.8	1404.6	10064.7	1414.4	10070.6	1417.9	10073.2	1419.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9949.2	.055	9983.9	.04	10045.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.9	10045.9	401.51	402.26	405.3	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.55	9983.90	0.34	0.38	1.24	0.01	0.47	0.90
LB 9983.90	9996.30	515.34	69.72	15.01	20.05	5.62	7.39
9996.30	10008.70	724.19	79.29	12.43	28.18	6.40	9.13
10008.70	10021.10	637.49	73.43	12.42	24.80	5.92	8.68
10021.10	10033.50	436.04	58.65	12.51	16.97	4.73	7.44
10033.50	RB 10045.90	256.29	44.25	13.73	9.97	3.57	5.79
10045.90	10059.55	0.30	0.35	1.19	0.01	0.47	0.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9966.55	9983.90	0.33	0.37	1.22	0.01	0.46	0.90
LB 9983.90	9996.30	515.43	69.55	15.01	20.06	5.61	7.41
9996.30	10008.70	724.68	79.12	12.43	28.20	6.38	9.16
10008.70	10021.10	637.74	73.26	12.42	24.81	5.91	8.70
10021.10	10033.50	435.79	58.48	12.51	16.96	4.72	7.45

10033.50	RB 10045.90	255.74	44.08	13.73	9.95	3.55	5.80
10045.90	10059.55	0.29	0.34	1.18	0.01	0.46	0.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.852

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9940.5	1407.8	9949.1	1403.2	9952.4	1401.5	9961.2	1395.7	9961.6	1395.5
9961.8	1395.4	9972.8	1389.5	9976.5	1387.6	9980.7	1387	9980.9	1387
9988.3	1385.3	9990.6	1384.8	9997.7	1384.5	10015.9	1383.9	10024.8	1389.1
10058.3	1408.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9940.5	.055	9972.8	.04	10024.8	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9972.8	10024.8	456.51	481.23	489.86	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.65	9972.80	0.06	0.07	0.59	0.00	0.14	0.83
LB 9972.80	9983.20	157.07	22.54	10.96	6.11	2.17	6.97
9983.20	9993.60	525.60	45.88	10.59	20.45	4.41	11.46
9993.60	10004.00	724.22	55.22	10.41	28.18	5.31	13.11
10004.00	10014.40	805.60	58.86	10.41	31.35	5.66	13.69
10014.40	RB 10024.80	356.87	37.99	11.81	13.89	3.65	9.39
10024.80	10041.55	0.58	0.40	1.35	0.02	0.34	1.47

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9956.65	9972.80	0.08	0.09	0.62	0.00	0.17	0.89
LB 9972.80	9983.20	158.66	22.80	10.96	6.17	2.19	6.96
9983.20	9993.60	525.71	46.14	10.59	20.46	4.44	11.39
9993.60	10004.00	723.19	55.49	10.41	28.14	5.34	13.03
10004.00	10014.40	804.06	59.13	10.41	31.29	5.69	13.60
10014.40	RB 10024.80	357.66	38.25	11.81	13.92	3.68	9.35
10024.80	10041.55	0.64	0.43	1.37	0.03	0.37	1.51

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.761

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9878.9	1400.2	9884.3	1397.5	9914.2	1383.4	9917	1382.4	9927.8	1382.6
9931.4	1382.6	9942.1	1382.6	9966.7	1382.7	9967.4	1382.5	9991.2	1378.4
9991.5	1378.4	9991.7	1378.4	9992.2	1378.4	10011.6	1379.3	10017.6	1384.3
10035.1	1399.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9878.9	.065	9966.7	.045	10017.6	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9966.7	10017.6	83.62	145.33	167.66	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9903.99	9916.53	14.09	6.09	5.66	0.55	1.17	2.31
9916.53	9929.07	106.42	28.22	12.57	4.14	2.25	3.77
9929.07	9941.61	99.56	27.09	12.54	3.87	2.16	3.68
9941.61	9954.16	97.76	26.79	12.54	3.80	2.14	3.65
9954.16	9966.70	93.90	26.15	12.54	3.65	2.09	3.59
LB 9966.70	9976.88	195.83	30.67	10.35	7.62	3.01	6.38
9976.88	9987.06	421.52	48.55	10.33	16.40	4.77	8.68
9987.06	9997.24	648.63	62.68	10.25	25.24	6.16	10.35
9997.24	10007.42	604.55	59.95	10.19	23.52	5.89	10.08
10007.42	RB 10017.60	287.65	40.98	11.99	11.19	4.03	7.02
10017.60	10026.35	0.09	0.12	0.71	0.00	0.23	0.70

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9916.53	9929.07	84.21	24.73	13.41	3.28	2.23	3.40
9929.07	9941.61	101.98	27.01	12.54	3.97	2.15	3.78
9941.61	9954.16	100.13	26.72	12.54	3.90	2.13	3.75
9954.16	9966.70	96.17	26.08	12.54	3.74	2.08	3.69
LB 9966.70	9976.88	198.23	30.61	10.35	7.71	3.01	6.48
9976.88	9987.06	427.19	48.49	10.33	16.62	4.76	8.81
9987.06	9997.24	657.68	62.62	10.25	25.59	6.15	10.50
9997.24	10007.42	612.93	59.89	10.19	23.85	5.88	10.23
10007.42	RB 10017.60	291.41	40.92	11.99	11.34	4.02	7.12
10017.60	10026.35	0.09	0.12	0.70	0.00	0.23	0.70

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.734

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9919.7	1399.7	9928.1	1395.7	9962.2	1380.3	9977.4	1380.2	9977.8	1380.2
9978	1380.1	9980.3	1379.7	9993.8	1377.1	10007.1	1376.5	10016.3	1376.2
10023.09	1381.68	10027.1	1384.7	10045	1398.7	10055.1	1406.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9919.7	.065	9978	.045	10023.09	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9978	10023.09	105.19	93.54	82.98	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.85	9963.42	29.75	10.21	7.38	1.16	1.49	2.91
9963.42	9978.00	166.85	37.74	14.60	6.49	2.59	4.42
LB 9978.00	9987.02	252.93	32.14	9.18	9.84	3.56	7.87
9987.02	9996.04	484.18	47.39	9.15	18.84	5.25	10.22
9996.04	10005.05	615.52	54.44	9.03	23.95	6.04	11.31
10005.05	10014.07	680.47	57.81	9.02	26.48	6.41	11.77
10014.07	RB 10023.09	339.01	41.13	10.95	13.19	4.56	8.24
10023.09	10039.09	1.28	0.88	1.92	0.05	0.58	1.45

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9948.85	9963.42	23.22	7.55	5.17	0.90	2.21	3.07
9963.42	9978.00	168.66	37.61	14.60	6.56	2.58	4.48
LB 9978.00	9987.02	253.06	32.05	9.18	9.85	3.55	7.90
9987.02	9996.04	485.13	47.30	9.15	18.88	5.25	10.26
9996.04	10005.05	616.97	54.36	9.03	24.01	6.03	11.35
10005.05	10014.07	682.17	57.73	9.02	26.54	6.40	11.82
10014.07	RB 10023.09	339.53	41.04	10.95	13.21	4.55	8.27
10023.09	10039.09	1.26	0.87	1.90	0.05	0.57	1.45

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.716

INPUT
Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9914.8	1396.2	9940.6	1386.6	9948.7	1383.5	9949.6	1383.3	9957	1382.3
9965.9	1381	9966	1381	9986.1	1376.7	9987.5	1376.3	9987.8	1376.3
9989.8	1375.6	10003.6	1375.7	10017.2	1375.9	10023.1	1378.8	10028.2	1381.7
10045.7	1391.5	10053.8	1396.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9914.8	.065	9965.9	.045	10028.2	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9965.9	10028.2	145.43	108.03	81.47	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9940.35	9965.90	8.40	5.69	8.92	0.33	0.64	1.48
LB 9965.90	9978.36	163.54	32.41	12.74	6.36	2.60	5.05
9978.36	9990.82	536.58	66.26	12.81	20.88	5.32	8.10
9990.82	10003.28	790.83	82.70	12.46	30.77	6.64	9.56
10003.28	10015.74	764.27	81.02	12.46	29.74	6.50	9.43
10015.74	RB 10028.20	306.13	48.89	13.90	11.91	3.92	6.26
10028.20	10041.00	0.25	0.31	1.21	0.01	0.29	0.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9940.35	9965.90	8.30	5.63	8.87	0.32	0.64	1.47
LB 9965.90	9978.36	163.16	32.32	12.74	6.35	2.59	5.05
9978.36	9990.82	536.60	66.17	12.81	20.88	5.31	8.11
9990.82	10003.28	791.20	82.61	12.46	30.79	6.63	9.58
10003.28	10015.74	764.61	80.93	12.46	29.75	6.50	9.45
10015.74	RB 10028.20	305.89	48.80	13.90	11.90	3.92	6.27
10028.20	10041.00	0.24	0.30	1.19	0.01	0.29	0.80

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.695

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9961.8	1390.4	9980.7	1376.9	9986.5	1375	9989.7	1373.7	9991.8	1372.8
9993.9	1371.9	9996.4	1370.8	9999.8	1371.4	10008	1372.4	10013.86	1377.99
10015.9	1379.8	10018.7	1382.1	10018.8	1382.1	10020.2	1382	10044.7	1396

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9961.8	.065	9980.7	.045	10013.86	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.7	10013.86	199.95	199.67	200.28	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.25	9980.70	10.67	3.64	3.92	0.42	1.14	2.93
LB 9980.70	9987.33	201.04	22.35	7.00	7.82	3.37	9.00
9987.33	9993.96	501.42	39.09	7.20	19.51	5.89	12.83
9993.96	10000.60	847.77	52.73	6.92	32.99	7.95	16.08
10000.60	10007.23	748.51	48.26	6.68	29.12	7.28	15.51
10007.23	RB 10013.86	259.16	28.62	8.88	10.08	4.31	9.06
10013.86	10029.28	1.43	0.80	1.79	0.06	0.59	1.80

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9971.25	9980.70	10.98	3.73	3.95	0.43	1.17	2.94
LB 9980.70	9987.33	202.34	22.54	7.00	7.87	3.40	8.98
9987.33	9993.96	501.53	39.29	7.20	19.51	5.92	12.76
9993.96	10000.60	846.13	52.93	6.92	32.92	7.98	15.99
10000.60	10007.23	747.49	48.46	6.68	29.09	7.31	15.42
10007.23	RB 10013.86	260.00	28.81	8.88	10.12	4.34	9.02
10013.86	10029.28	1.52	0.84	1.82	0.06	0.62	1.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.658

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9926.8	1390.3	9936.7	1384.7	9952	1376.5	9953.3	1375.8	9957.9	1373.1
9965.1	1372.5	9969.2	1372.1	9971	1372	9980.7	1371	9984.8	1370.8
9989.2	1370.5	9995.8	1369.4	10000.2	1368.7	10001.2	1368.5	10003.4	1370.4
10008.22	1374.8	10011.1	1377.3	10025.3	1390.1	10025.6	1390.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9926.8	.055	9957.9	.041	10008.22	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9957.91	10008.22	158.23	171.39	178.1	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.35	9957.90	25.92	8.30	6.22	1.01	1.54	3.12
LB 9957.90	9967.96	286.92	35.67	10.10	11.16	3.54	8.04
9967.96	9978.03	418.08	44.72	10.11	16.27	4.44	9.35
9978.03	9988.09	565.99	53.59	10.09	22.02	5.33	10.56
9988.09	9998.16	759.52	64.18	10.19	29.55	6.38	11.83
9998.16	RB 10008.22	511.60	54.99	12.52	19.91	5.46	9.30
10008.22	10016.91	1.97	1.16	2.16	0.08	0.71	1.70

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9942.35	9957.90	25.55	8.15	6.16	0.99	1.53	3.13
LB 9957.90	9967.96	285.79	35.39	10.10	11.12	3.52	8.08
9967.96	9978.03	417.55	44.44	10.11	16.25	4.42	9.40
9978.03	9988.09	566.27	53.31	10.09	22.03	5.30	10.62
9988.09	9998.16	760.99	63.90	10.19	29.61	6.35	11.91
9998.16	RB 10008.22	511.96	54.71	12.52	19.92	5.44	9.36
10008.22	10016.91	1.89	1.11	2.12	0.07	0.70	1.69

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.625

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9922.4	1383.8	9925.8	1383.7	9925.8	1383.6	9940.9	1374	9941.5	1373.7
9966.6	1371.5	9979.4	1370.4	9982.1	1369.8	9988.4	1368.2	9999.1	1367.7
10010.6	1367.1	10017.8	1373.5	10019.9	1375.3	10028	1382.8	10036.4	1387.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9922.4	.07	9979.4	.05	10017.8	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9979.4	10017.8	168.24	142.94	118.26	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.80	9945.20	0.90	0.95	3.92	0.04	0.24	0.95
9945.20	9956.60	23.99	10.44	11.44	0.93	0.92	2.30
9956.60	9968.00	81.97	21.83	11.44	3.19	1.92	3.75
9968.00	9979.40	163.92	33.09	11.44	6.38	2.90	4.95
LB 9979.40	9987.08	323.64	33.00	7.90	12.59	4.30	9.81
9987.08	9994.76	524.06	43.67	7.73	20.39	5.69	12.00
9994.76	10002.44	586.82	46.64	7.69	22.83	6.07	12.58
10002.44	10010.12	651.49	49.66	7.69	25.35	6.47	13.12
10010.12	RB 10017.80	213.16	28.35	10.11	8.29	3.69	7.52
10017.80	10027.10	0.03	0.05	0.45	0.00	0.15	0.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.80	9945.20	1.13	1.10	3.96	0.04	0.28	1.03
9945.20	9956.60	25.47	10.89	11.44	0.99	0.96	2.34
9956.60	9968.00	83.98	22.28	11.44	3.27	1.95	3.77
9968.00	9979.40	166.04	33.53	11.44	6.46	2.94	4.95
LB 9979.40	9987.08	323.84	33.30	7.90	12.60	4.34	9.73
9987.08	9994.76	522.46	43.97	7.73	20.33	5.73	11.88
9994.76	10002.44	584.61	46.94	7.69	22.75	6.11	12.45
10002.44	10010.12	648.61	49.96	7.69	25.24	6.51	12.98
10010.12	RB 10017.80	213.82	28.65	10.11	8.32	3.73	7.46
10017.80	10027.10	0.04	0.06	0.49	0.00	0.19	0.71

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.598

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9952.6	1380.4	9968.4	1371.8	9971.4	1370.1	9973.4	1369.3	9979	1366.2
9981.1	1365.8	9988.1	1365.2	9991.5	1365.3	10001	1365.6	10009.9	1365.9
10010.2	1365.9	10010.6	1365.9	10015.5	1366.5	10025.2	1367.6	10027.9	1367.7
10032.6	1371.7	10040.8	1378.8	10041.1	1379	10062.8	1387.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9952.6	.07	9968.4	.05	10032.6	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.4	10032.6	105.79	81.25	47.74	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9960.50	9968.40	0.03	0.07	0.56	0.00	0.13	0.44
LB 9968.40	9981.24	246.48	45.89	14.28	9.59	3.57	5.37
9981.24	9994.08	747.27	85.63	12.87	29.08	6.67	8.73
9994.08	10006.92	713.17	83.21	12.85	27.75	6.48	8.57
10006.92	10019.76	588.54	74.29	12.91	22.90	5.79	7.92
10019.76	RB 10032.60	274.47	49.04	14.35	10.68	3.82	5.60
10032.60	10047.70	0.04	0.08	0.56	0.00	0.18	0.50

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

9960.50	9968.40	0.03	0.06	0.54	0.00	0.13	0.44
LB 9968.40	9981.24	246.11	45.78	14.28	9.58	3.57	5.38
9981.24	9994.08	747.62	85.52	12.87	29.09	6.66	8.74
9994.08	10006.92	713.46	83.10	12.85	27.76	6.47	8.59
10006.92	10019.76	588.61	74.17	12.91	22.90	5.78	7.94
10019.76	RB 10032.60	274.14	48.93	14.35	10.67	3.81	5.60
10032.60	10047.70	0.04	0.07	0.55	0.00	0.18	0.49

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.583

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9960.2	1380.6	9976.3	1370.9	9986.1	1365	9989.3	1364.9	9991	1364.4
9991.9	1364.4	9999.8	1364.3	10000.6	1364.3	10001.3	1364.5	10013.1	1366
10022.7	1365.8	10027.6	1365.7	10044.7	1368.7	10044.8	1368.7	10049.8	1371.2
10068.1	1380.5	10081.6	1387.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9960.2	.07	9976.3	.05	10049.8	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.3	10049.8	102.64	90.97	68.16	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.25	9976.30	0.42	0.55	1.58	0.02	0.41	0.77
LB 9976.30	9991.00	389.66	70.55	16.41	15.16	4.80	5.52
9991.00	10005.70	828.42	106.33	14.76	32.23	7.23	7.79
10005.70	10020.40	604.86	88.03	14.76	23.54	5.99	6.87
10020.40	10035.10	546.40	82.95	14.82	21.26	5.64	6.59
10035.10	RB 10049.80	200.08	46.15	15.44	7.79	3.14	4.34
10049.80	10065.70	0.15	0.26	1.14	0.01	0.26	0.58

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.25	9976.30	0.41	0.53	1.55	0.02	0.40	0.77
LB 9976.30	9991.00	389.41	70.36	16.41	15.15	4.79	5.53
9991.00	10005.70	829.13	106.14	14.76	32.26	7.22	7.81
10005.70	10020.40	605.01	87.85	14.76	23.54	5.98	6.89
10020.40	10035.10	546.41	82.76	14.82	21.26	5.63	6.60
10035.10	RB 10049.80	199.49	45.96	15.44	7.76	3.13	4.34
10049.80	10065.70	0.14	0.25	1.11	0.01	0.25	0.58

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.565

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9955.6	1380.4	9957.8	1379.7	9964.4	1377	9976.1	1372.3	9981.5	1368.9
9990.1	1363.3	9995.6	1363.3	10012.6	1363.4	10015.1	1364.3	10028.5	1368.1
10034.3	1369.3	10074.2	1389.6	10076.5	1390.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9955.6	.055	9981.5	.04	10028.5	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.5	10028.5	229.26	241.76	253.47	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.55	9981.50	0.09	0.10	0.65	0.00	0.17	0.91
LB 9981.50	9990.90	270.90	31.82	11.06	10.54	3.39	8.51
9990.90	10000.30	770.67	55.83	9.40	29.99	5.94	13.80
10000.30	10009.70	760.32	55.38	9.40	29.58	5.89	13.73
10009.70	10019.10	585.80	47.99	9.71	22.79	5.11	12.21
10019.10	RB 10028.50	175.15	23.31	9.77	6.82	2.48	7.51
10028.50	10052.50	7.07	3.18	5.66	0.27	0.57	2.22

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9968.55	9981.50	0.12	0.12	0.69	0.00	0.21	0.99
LB 9981.50	9990.90	272.46	32.20	11.06	10.60	3.43	8.46
9990.90	10000.30	768.60	56.21	9.40	29.91	5.98	13.67
10000.30	10009.70	758.34	55.76	9.40	29.51	5.93	13.60
10009.70	10019.10	585.30	48.37	9.71	22.77	5.15	12.10
10019.10	RB 10028.50	177.43	23.69	9.77	6.90	2.52	7.49
10028.50	10052.50	7.76	3.40	5.70	0.30	0.61	2.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.520

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9950.8	1378.3	9950.9	1378.2	9951.6	1377.3	9958	1373.1	9961.8	1370.7
9967	1368.1	9971.8	1365.3	9978.8	1361.2	9983	1359.9	9990.3	1359.4
10001.6	1359.6	10002.1	1359.6	10004	1360.1	10025.5	1365	10027.6	1365.3
10027.6	1365.4	10032.8	1370.5	10039.8	1376.2	10040.3	1376.6	10043.5	1379.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9950.8	.055	9971.8	.04	10027.6	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9971.8	10027.6	196.85	203.95	202.82	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.30	9971.80	0.02	0.03	0.36	0.00	0.09	0.62
LB 9971.80	9982.96	306.26	36.11	12.47	11.92	3.24	8.48
9982.96	9994.12	897.40	65.90	11.18	34.92	5.90	13.62
9994.12	10005.28	869.22	64.83	11.26	33.82	5.81	13.41
10005.28	10016.44	427.21	42.62	11.45	16.62	3.82	10.02
10016.44	RB 10027.60	69.89	14.42	11.51	2.72	1.29	4.85
10027.60	10035.55	0.00	0.00	0.12	0.00	0.04	0.32

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9961.30	9971.80	0.03	0.04	0.39	0.00	0.12	0.71
LB 9971.80	9982.96	307.66	36.46	12.47	11.97	3.27	8.44
9982.96	9994.12	895.14	66.24	11.18	34.83	5.94	13.51
9994.12	10005.28	867.16	65.17	11.26	33.74	5.84	13.31
10005.28	10016.44	428.14	42.96	11.45	16.66	3.85	9.97
10016.44	RB 10027.60	71.87	14.76	11.51	2.80	1.32	4.87
10027.60	10035.55	0.00	0.01	0.15	0.00	0.07	0.39

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.481

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9941.1	1379.1	9947.8	1377.6	9953	1374.7	9961.5	1368.8	9971.7	1364.5
9974.8	1363.1	9987.6	1357.1	10000.2	1357.2	10001.7	1357.3	10003.5	1357.5
10022.5	1359.3	10036	1361.3	10036.8	1361.4	10036.9	1361.6	10037.6	1362.1
10039.2	1363.2	10047	1368.7	10062.9	1378				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9941.1	.055	9974.8	.04	10039.2	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.8	10039.2	504	502.03	501.45	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.95	9974.80	0.20	0.23	1.11	0.01	0.23	0.84
LB 9974.80	9987.68	296.82	44.79	14.22	11.55	3.48	6.63
9987.68	10000.56	877.74	82.52	12.88	34.15	6.41	10.64
10000.56	10013.44	726.71	73.81	12.94	28.28	5.73	9.85
10013.44	10026.32	480.91	57.66	12.96	18.71	4.48	8.34
10026.32	RB 10039.20	187.57	33.43	13.62	7.30	2.60	5.61
10039.20	10051.05	0.06	0.09	0.62	0.00	0.18	0.66

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9957.95	9974.80	0.31	0.33	1.21	0.01	0.32	0.96
LB 9974.80	9987.68	300.40	45.95	14.22	11.69	3.57	6.54
9987.68	10000.56	871.20	83.68	12.88	33.90	6.50	10.41
10000.56	10013.44	723.28	74.98	12.94	28.14	5.82	9.65
10013.44	10026.32	482.12	58.82	12.96	18.76	4.57	8.20
10026.32	RB 10039.20	192.58	34.59	13.62	7.49	2.69	5.57
10039.20	10051.05	0.11	0.14	0.71	0.00	0.27	0.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.386

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9954.6	1368.8	9957	1368.6	9957.9	1368.5	9963.5	1366	9966.9	1364.4
9978.9	1358.1	9980.12	1357.44	9988.9	1352.8	9990.8	1351.9	9991	1351.9
9992.6	1351.9	10008.6	1352	10017.5	1353.8	10025.4	1355.4	10049.3	1358.3
10054.2	1358.7	10069.2	1362.9	10085	1367.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9954.6	.055	9980.12	.04	10025.4	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.12	10025.4	407.6	424.08	432.44	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.36	9980.12	0.49	0.39	1.36	0.02	0.32	1.26
LB 9980.12	9989.18	202.97	27.55	10.24	7.90	3.04	7.37
9989.18	9998.23	695.35	55.33	9.23	27.06	6.11	12.57
9998.23	10007.29	707.27	55.47	9.06	27.52	6.13	12.75
10007.29	10016.34	570.26	49.09	9.21	22.19	5.42	11.62
10016.34	RB 10025.40	288.58	32.66	9.24	11.23	3.61	8.84
10025.40	10045.27	104.84	29.48	20.01	4.08	1.48	3.56
10045.27	10065.13	0.24	0.32	2.31	0.01	0.14	0.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9967.36	9980.12	1.31	0.78	1.69	0.05	0.65	1.69
LB 9980.12	9989.18	230.80	30.46	10.24	8.98	3.36	7.58
9989.18	9998.23	728.37	58.25	9.23	28.34	6.43	12.50
9998.23	10007.29	740.69	58.39	9.06	28.82	6.45	12.69
10007.29	10016.34	603.70	52.00	9.21	23.49	5.74	11.61
10016.34	RB 10025.40	265.13	35.57	12.25	10.32	3.93	7.45

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.306

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9856.2	1362.1	9856.3	1362.1	9859.2	1361.3	9872.2	1353.7	9873.5	1353.6
9883.6	1353.4	9885.6	1353.4	9885.8	1353.4	9887.2	1353.3	9911.6	1351.4
9925.3	1351.9	9934.7	1352.3	9941.9	1352.5	9947.8	1352.4	9952.7	1352.5
9978.9	1348.4	9979.2	1348.4	9979.6	1348.4	10001.5	1348	10013.4	1352
10016.4	1353	10047.7	1354.4	10077.6	1355.7	10079.3	1355.9	10088.6	1356.7
10094.6	1357.1	10100.5	1358						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9856.2	.055	9952.7	.04	10016.4	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9952.7	10016.4	271.38	347.27	389.79	.3	.5

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9875.50	9894.80	3.77	2.81	8.60	0.15	0.33	1.34
9894.80	9914.10	94.64	26.92	19.35	3.68	1.39	3.52
9914.10	9933.40	108.92	29.26	19.31	4.24	1.52	3.72
9933.40	9952.70	50.03	18.34	19.31	1.95	0.95	2.73
LB 9952.70	9965.44	137.36	23.78	12.90	5.34	1.87	5.78
9965.44	9978.18	461.07	49.18	12.90	17.94	3.86	9.37
9978.18	9990.92	728.88	64.44	12.75	28.36	5.06	11.31
9990.92	10003.66	765.72	66.61	12.86	29.79	5.23	11.50
10003.66	RB 10016.40	217.97	31.90	13.44	8.48	2.50	6.83
10016.40	10044.43	1.64	1.53	8.28	0.06	0.18	1.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9933.40	9952.70	58.04	18.82	18.89	2.26	1.06	3.08
LB 9952.70	9965.44	157.89	25.38	12.90	6.14	1.99	6.22
9965.44	9978.18	501.57	50.78	12.90	19.52	3.99	9.88
9978.18	9990.92	783.08	66.04	12.75	30.47	5.18	11.86
9990.92	10003.66	821.57	68.21	12.86	31.97	5.35	12.05
10003.66	RB 10016.40	243.90	33.50	13.44	9.49	2.63	7.28
10016.40	10044.43	3.96	2.63	8.94	0.15	0.30	1.50

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.240

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9771.8	1357.4	9800.5	1351.3	9806.5	1350.1	9807.4	1350	9819.5	1348.9
9829.2	1348.2	9837.8	1347.6	9844.7	1346.1	9845.9	1345.9	9847.6	1346.1
9861.3	1347.3	9870.4	1347.8	9871.6	1347.8	9874.2	1347.8	9885.4	1347.9
9891.6	1347.9	9904.8	1348.6	9908.4	1348.8	9913.9	1349	9921.9	1349.1
9934.1	1349.2	9954.7	1349.2	9969	1349.1	9979.1	1349	9979.3	1349
9980.1	1348.8	10000.1	1343.6	10012.7	1345.9	10014.5	1346.3	10020.1	1346.6
10042.3	1347.5	10042.4	1347.5	10048	1347.1	10049.3	1346.9	10050.5	1346.7
10052.4	1346.3	10055.8	1346.1	10076.6	1345.5	10088.3	1347.5	10090.7	1348
10097.4	1348.4	10115.9	1349.5	10121.1	1351.7	10156.1	1362.3	10172.1	1366.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9771.8	.055	9829.2	.04	9870.4	.05	9979.1	.04	10042.4	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9979.1 10042.4 253.46 291.51 314.13 .6 .8

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9813.26	9833.99	31.36	13.46	18.49	1.22	0.73	2.33
9833.99	9854.72	287.74	52.16	20.96	11.20	2.52	5.52
9854.72	9875.45	163.99	37.70	20.77	6.38	1.82	4.35
9875.45	9896.18	82.47	28.06	20.74	3.21	1.35	2.94
9896.18	9916.91	21.02	12.36	20.75	0.82	0.60	1.70
9916.91	9937.64	1.45	2.49	20.73	0.06	0.12	0.58
9937.64	9958.37	0.47	1.27	20.73	0.02	0.06	0.37
9958.37	9979.10	2.45	3.40	20.73	0.10	0.16	0.72
LB 9979.10	9991.76	106.24	23.36	13.07	4.13	1.85	4.55
9991.76	10004.42	526.15	60.90	13.01	20.47	4.81	8.64
10004.42	10017.08	347.16	47.21	12.84	13.51	3.73	7.35
10017.08	10029.74	183.42	32.02	12.67	7.14	2.53	5.73
10029.74	RB 10042.40	125.22	25.47	12.67	4.87	2.01	4.92
10042.40	10068.34	355.67	74.38	26.04	13.84	2.87	4.78
10068.34	10094.28	321.05	70.09	26.17	12.49	2.70	4.58
10094.28	10120.22	14.11	9.17	17.60	0.55	0.52	1.54

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9854.72	9875.45	149.11	31.22	17.91	5.80	2.02	4.78
9875.45	9896.18	143.90	35.69	20.74	5.60	1.72	4.03
9896.18	9916.91	54.74	19.99	20.75	2.13	0.96	2.74
9916.91	9937.64	17.61	10.12	20.73	0.69	0.49	1.74
9937.64	9958.37	14.22	8.90	20.73	0.55	0.43	1.60
9958.37	9979.10	20.35	11.03	20.73	0.79	0.53	1.84
LB 9979.10	9991.76	174.29	28.02	13.07	6.78	2.21	6.22
9991.76	10004.42	720.83	65.56	13.01	28.05	5.18	11.00
10004.42	10017.08	492.06	51.87	12.84	19.15	4.10	9.49
10017.08	10029.74	278.70	36.68	12.67	10.84	2.90	7.60
10029.74	RB 10042.40	200.74	30.12	12.67	7.81	2.38	6.66
10042.40	10068.34	303.46	52.50	21.34	11.81	2.98	5.78

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.185

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9933.1	1351.4	9943.8	1349.3	9968.8	1344	9975.2	1342.7	9978.3	1341.9
9988.6	1339.6	9995.7	1338	9999.4	1337.3	10003.6	1338	10025.3	1341.9
10027.7	1342.4	10033.7	1343	10042.7	1344	10081.4	1348.2	10084.3	1348.2
10089	1348.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

9933.1 .055 9968.8 .04 10042.7 .05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9968.8	10042.7	219	214.45	180.92	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9950.95	9968.80	0.04	0.06	0.78	0.00	0.08	0.63
LB 9968.80	9983.58	150.55	26.03	15.14	5.86	1.76	5.78
9983.58	9998.36	883.34	75.22	15.13	34.37	5.09	11.74
9998.36	10013.14	1088.44	84.99	15.01	42.35	5.75	12.81
10013.14	10027.92	391.06	46.01	15.03	15.22	3.11	8.50
10027.92	RB 10042.70	56.48	14.35	14.86	2.20	0.97	3.94
10042.70	10065.85	0.09	0.12	1.50	0.00	0.08	0.70

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9950.95	9968.80	0.06	0.08	0.81	0.00	0.11	0.75
LB 9968.80	9983.58	152.80	26.44	15.14	5.95	1.79	5.78
9983.58	9998.36	881.28	75.64	15.13	34.29	5.12	11.65
9998.36	10013.14	1084.75	85.40	15.01	42.21	5.78	12.70
10013.14	10027.92	392.42	46.42	15.03	15.27	3.14	8.45
10027.92	RB 10042.70	58.55	14.76	14.86	2.28	1.00	3.97
10042.70	10065.85	0.14	0.16	1.53	0.01	0.11	0.84

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Unnamed Wash 3
REACH: 1 RS: 0.144

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9952	1346.9	9959.6	1346.8	9963.9	1346.8	9973.8	1346.5	9986.9	1338.1
9991.7	1335	9991.8	1335	9991.9	1335	10006.5	1336.3	10022.2	1336.1
10031.6	1336.1	10041	1340.4	10041.7	1340.8	10047.3	1341.1	10056.1	1341.6
10071.8	1342.2	10076.5	1342.4	10080.1	1342.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9952	.055	9986.9	.04	10041	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.9	10041	0	0	0	.1	.3

FLOW DISTRIBUTION OUTPUT Profile #Floodplain

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.45	9986.90	17.24	5.21	4.79	0.67	1.29	3.31
LB 9986.90	9997.72	599.13	52.56	11.76	23.31	4.86	11.40
9997.72	10008.54	598.91	50.90	10.85	23.30	4.70	11.77
10008.54	10019.36	553.21	48.47	10.82	21.53	4.48	11.41
10019.36	10030.18	573.99	49.55	10.82	22.33	4.58	11.58
10030.18	RB 10041.00	227.46	29.40	11.76	8.85	2.72	7.74
10041.00	10060.55	0.06	0.07	0.57	0.00	0.14	0.85

FLOW DISTRIBUTION OUTPUT Profile #Method 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9969.45	9986.90	17.24	5.21	4.79	0.67	1.29	3.31
LB 9986.90	9997.72	599.12	52.56	11.76	23.31	4.86	11.40
9997.72	10008.54	598.90	50.90	10.85	23.30	4.70	11.77
10008.54	10019.36	553.21	48.47	10.82	21.53	4.48	11.41
10019.36	10030.18	573.99	49.55	10.82	22.33	4.58	11.58
10030.18	RB 10041.00	227.48	29.40	11.76	8.85	2.72	7.74
10041.00	10060.55	0.06	0.07	0.57	0.00	0.14	0.85

SUMMARY OF MANNING'S N VALUES

River:Unnamed Wash 3

Reach	River Sta.	n1	n2	n3	n4	n5
1	4.540	.05	.045	.05		
1	4.464	.05	.045	.05		
1	4.428	.06	.05	.06		
1	4.417	.06	.05	.06		
1	4.399	.06	.05	.06		
1	4.379	.05	.045	.05		
1	4.338	.05	.045	.05		
1	4.289	.05	.045	.05		
1	4.229	.06	.05	.06		
1	4.197	.06	.05	.06		
1	4.177	.06	.05	.06		
1	4.145	.05	.045	.05		
1	4.110	.05	.045	.05		
1	4.013	.05	.045	.05		
1	3.921	.05	.045	.05		
1	3.826	.05	.045	.05		
1	3.731	.05	.045	.05		
1	3.649	.05	.045	.05		
1	3.561	.05	.045	.05		
1	3.520	.065	.05	.065		
1	3.509	.065	.05	.065		
1	3.497	.065	.05	.065		
1	3.487	.065	.05	.065		
1	3.460	.05	.04	.05		
1	3.426	.05	.04	.05		
1	3.412	.06	.045	.06		
1	3.370	.06	.045	.06		
1	3.351	.06	.045	.06		
1	3.319	.06	.045	.06		
1	3.309	.05	.04	.05		
1	3.257	.05	.04	.05		
1	3.168	.06	.045	.06		
1	3.144	.06	.045	.06		
1	3.114	.05	.04	.05		
1	3.061	.065	.05	.065		
1	3.042	.065	.05	.065		
1	3.015	.065	.05	.065		
1	2.984	.05	.04	.05		
1	2.916	.05	.04	.05		
1	2.850	.05	.04	.05		
1	2.779	.05	.04	.05		
1	2.677	.05	.04	.05		
1	2.581	.05	.04	.05		
1	2.522	.05	.04	.05		
1	2.471	.05	.04	.05		
1	2.421	.05	.04	.05		
1	2.315	.05	.04	.05		
1	2.233	.05	.04	.05		
1	2.118	.06	.045	.06		
1	2.050	.06	.045	.06		
1	2.011	.06	.045	.06		
1	1.973	.06	.045	.06		
1	1.944	.05	.04	.05		
1	1.872	.05	.04	.05		
1	1.784	.05	.04	.05		
1	1.690	.05	.04	.05		
1	1.641	.05	.04	.05		
1	1.600	.05	.04	.05		
1	1.563	.05	.04	.05		
1	1.537	.05	.04	.05		
1	1.519	.05	.04	.05		
1	1.497	.05	.04	.05		
1	1.481	.05	.04	.05		
1	1.425	.07	.07	.07		
1	1.385	.07	.07	.07		
1	1.356	.07	.07	.07		
1	1.331	.07	.07	.07		
1	1.304	.06	.06	.06		
1	1.259	.06	.06	.06		
1	1.222	.06	.06	.06		
1	1.171	.06	.06	.06		
1	1.152	.06	.06	.06		
1	1.088	.055	.04	.055		
1	1.008	.065	.055	.065		
1	0.986	.065	.055	.065		
1	0.960	.065	.055	.065		
1	0.928	.055	.04	.055		
1	0.852	.055	.04	.055		
1	0.761	.065	.045	.065		
1	0.734	.065	.045	.065		
1	0.716	.065	.045	.065		
1	0.695	.065	.045	.065		
1	0.658	.055	.04	.055		
1	0.625	.07	.05	.07		
1	0.598	.07	.05	.07		

1	0.583	.07	.05	.07		
1	0.565	.055	.04	.055		
1	0.520	.055	.04	.055		
1	0.481	.055	.04	.055		
1	0.386	.055	.04	.055		
1	0.306	.055	.04	.05		
1	0.240	.055	.04	.05	.04	.05
1	0.185	.055	.04	.05		
1	0.144	.055	.04	.05		

SUMMARY OF REACH LENGTHS

River: Unnamed Wash 3

Reach	River Sta.	Left	Channel	Right
1	4.540	408.34	403.08	393.77
1	4.464	177.57	190.3	196.89
1	4.428	53.35	59.8	61.25
1	4.417	58.11	95.09	108.36
1	4.399	88.85	100.95	108.28
1	4.379	227.3	216.77	209.09
1	4.338	271.97	262.62	247.96
1	4.289	306.45	313.66	311.67
1	4.229	188.63	169.51	127.27
1	4.197	110.53	106.77	95.7
1	4.177	164.5	170.2	145.4
1	4.145	179.55	182.46	183.66
1	4.110	512.17	510.52	514.71
1	4.013	481.7	486.09	518.09
1	3.921	494.14	502.61	500.07
1	3.826	508.81	500.95	474.83
1	3.731	432.61	436.4	445.33
1	3.649	465.68	461.55	451.4
1	3.561	221.16	216.34	209.79
1	3.520	76.16	58.86	41.79
1	3.509	104.94	63.79	34.34
1	3.497	38.64	55.48	105.72
1	3.487	114.49	139.74	166.73
1	3.460	172.73	177.76	178.28
1	3.426	73.18	76.71	82.91
1	3.412	207.83	223.65	246
1	3.370	106.44	99.43	88.46
1	3.351	191.05	166.22	65.92
1	3.319	56.28	54.85	46.62
1	3.309	270.9	271.68	267.41
1	3.257	495.12	470.73	450.92
1	3.168	139.5	129.56	97.8
1	3.144	150.57	159	103.09
1	3.114	240.73	278.7	300.45
1	3.061	67.94	99.79	103.3
1	3.042	56.38	140.45	173.46
1	3.015	135.02	167	183.72
1	2.984	366.88	356.38	343.69
1	2.916	343.88	351.81	322.51
1	2.850	373.3	372.73	359.17
1	2.779	552.93	540.36	529.03
1	2.677	489.85	503.68	530.4
1	2.581	339.76	312.29	300.58
1	2.522	237.55	269.05	271.63
1	2.471	245.42	266.83	265.48
1	2.421	580.62	555.18	525.18
1	2.315	422.21	433.8	428.7
1	2.233	614.99	606.28	562.41
1	2.118	332.45	358.9	377.71
1	2.050	134.46	208.41	213.85
1	2.011	224.53	202.84	151.3
1	1.973	162.7	149.61	116.02
1	1.944	387.27	379.74	373.76
1	1.872	470.43	467.66	470.55
1	1.784	493.73	496.9	499.61
1	1.690	250.6	257.37	261.1
1	1.641	192.06	214.61	220.91
1	1.600	119.2	196.07	218.03
1	1.563	131.38	140.13	122.93
1	1.537	108.63	92.19	78.51
1	1.519	101.14	117.38	143.89
1	1.497	69.49	82.02	91.23
1	1.481	304.34	297.11	288.98
1	1.425	203.47	210.84	195.99
1	1.385	172.59	154.51	133.59
1	1.356	145.83	132.08	121.17
1	1.331	161.17	142.49	135.88
1	1.304	238.08	239.31	232.98
1	1.259	183.23	191.22	189.39
1	1.222	258.66	271.45	280.51
1	1.171	82.3	99.18	114.62
1	1.152	354.14	337.93	314.55
1	1.088	419.25	425.27	433.09
1	1.008	99.77	112.77	114.71
1	0.986	108.87	139.97	180.69
1	0.960	157.45	165.22	153.7

1	0.928	401.51	402.26	405.3
1	0.852	456.51	481.23	489.86
1	0.761	83.62	145.33	167.66
1	0.734	105.19	93.54	82.98
1	0.716	145.43	108.03	81.47
1	0.695	199.95	199.67	200.28
1	0.658	158.23	171.39	178.1
1	0.625	168.24	142.94	118.26
1	0.598	105.79	81.25	47.74
1	0.583	102.64	90.97	68.16
1	0.565	229.26	241.76	253.47
1	0.520	196.85	203.95	202.82
1	0.481	504	502.03	501.45
1	0.386	407.6	424.08	432.44
1	0.306	271.38	347.27	389.79
1	0.240	253.46	291.51	314.13
1	0.185	219	214.45	180.92
1	0.144	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Unnamed Wash 3

Reach	River Sta.	Contr.	Expan.
1	4.540	.1	.3
1	4.464	.1	.3
1	4.428	.1	.3
1	4.417	.1	.3
1	4.399	.1	.3
1	4.379	.1	.3
1	4.338	.1	.3
1	4.289	.1	.3
1	4.229	.1	.3
1	4.197	.1	.3
1	4.177	.1	.3
1	4.145	.1	.3
1	4.110	.1	.3
1	4.013	.1	.3
1	3.921	.1	.3
1	3.826	.1	.3
1	3.731	.1	.3
1	3.649	.1	.3
1	3.561	.1	.3
1	3.520	.1	.3
1	3.509	.6	.8
1	3.497	.3	.5
1	3.487	.6	.8
1	3.460	.1	.3
1	3.426	.1	.3
1	3.412	.3	.5
1	3.370	.3	.5
1	3.351	.1	.3
1	3.319	.1	.3
1	3.309	.1	.3
1	3.257	.1	.3
1	3.168	.1	.3
1	3.144	.3	.5
1	3.114	.1	.3
1	3.061	.1	.3
1	3.042	.1	.3
1	3.015	.6	.8
1	2.984	.3	.5
1	2.916	.1	.3
1	2.850	.1	.3
1	2.779	.1	.3
1	2.677	.1	.3
1	2.581	.1	.3
1	2.522	.1	.3
1	2.471	.1	.3
1	2.421	.1	.3
1	2.315	.1	.3
1	2.233	.1	.3
1	2.118	.1	.3
1	2.050	.3	.5
1	2.011	.1	.3
1	1.973	.1	.3
1	1.944	.1	.3
1	1.872	.1	.3
1	1.784	.1	.3
1	1.690	.1	.3
1	1.641	.1	.3
1	1.600	.1	.3
1	1.563	.6	.8
1	1.537	.1	.3
1	1.519	.1	.3
1	1.497	.1	.3
1	1.481	.1	.3
1	1.425	.1	.3
1	1.385	.1	.3
1	1.356	.1	.3
1	1.331	.1	.3

1	1.304	.1	.3
1	1.259	.1	.3
1	1.222	.1	.3
1	1.171	.1	.3
1	1.152	.1	.3
1	1.088	.1	.3
1	1.008	.1	.3
1	0.986	.1	.3
1	0.960	.1	.3
1	0.928	.1	.3
1	0.852	.1	.3
1	0.761	.1	.3
1	0.734	.1	.3
1	0.716	.1	.3
1	0.695	.1	.3
1	0.658	.1	.3
1	0.625	.1	.3
1	0.598	.1	.3
1	0.583	.1	.3
1	0.565	.1	.3
1	0.520	.1	.3
1	0.481	.1	.3
1	0.386	.1	.3
1	0.306	.3	.5
1	0.240	.6	.8
1	0.185	.1	.3
1	0.144	.1	.3

APPENDIX M: APPROXIMATE METHOD CALCULATIONS

Tributary 1 to Unnamed Wash 1 – Approximate Method Reach

Tributary 1 to Unnamed Wash 1 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 1 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0136	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,684.92	ft
Elevation Range	1,681.83 to 1,691.00	
Flow Area	122.8	ft²
Wetted Perimeter	59.70	ft
Top Width	59.11	ft
Actual Depth	3.09	ft
Critical Elevation	1,684.66	ft
Critical Slope	0.0189	ft/ft
Velocity	7.01	ft/s
Velocity Head	0.76	ft
Specific Energy	1,685.68	ft
Froude Number	0.86	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+33.65	0.050
0+33.65	1+25.30	0.040
1+25.30	1+54.40	0.050

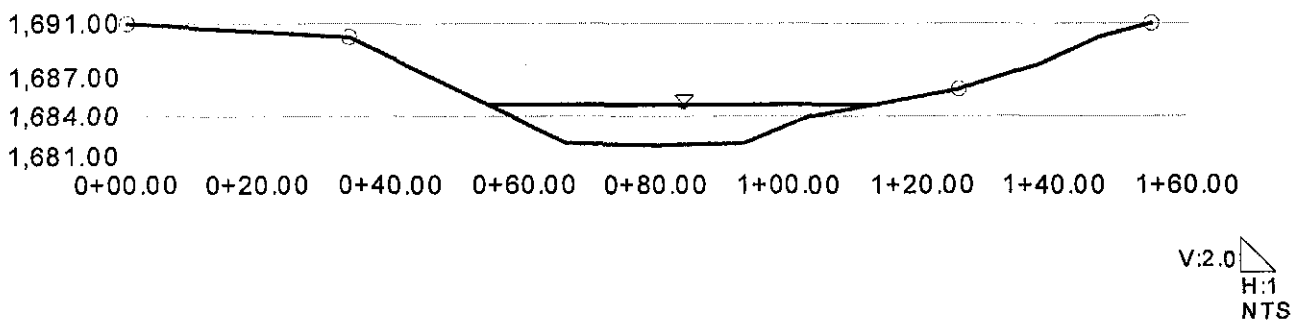
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,691.00
0+33.65	1,690.00
0+66.16	1,682.00
0+79.50	1,681.83
0+93.42	1,682.00
1+03.37	1,684.00
1+25.30	1,686.00
1+37.54	1,688.00
1+46.76	1,690.00
1+54.40	1,691.00

Tributary 1 to Unnamed Wash 1 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 1 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0136	ft/ft
Water Surface Elevation	1,684.92	ft
Elevation Range	1,681.83 to 1,691.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 1 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 1 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0125	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.046	
Water Surface Elevation	977.28	ft
Elevation Range	973.20 to 987.20	
Flow Area	164.4	ft²
Wetted Perimeter	95.57	ft
Top Width	94.97	ft
Actual Depth	4.08	ft
Critical Elevation	976.75	ft
Critical Slope	0.0262	ft/ft
Velocity	5.23	ft/s
Velocity Head	0.43	ft
Specific Energy	977.70	ft
Froude Number	0.70	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+68.00	0.050
1+68.00	2+10.90	0.040
2+10.90	2+90.90	0.050

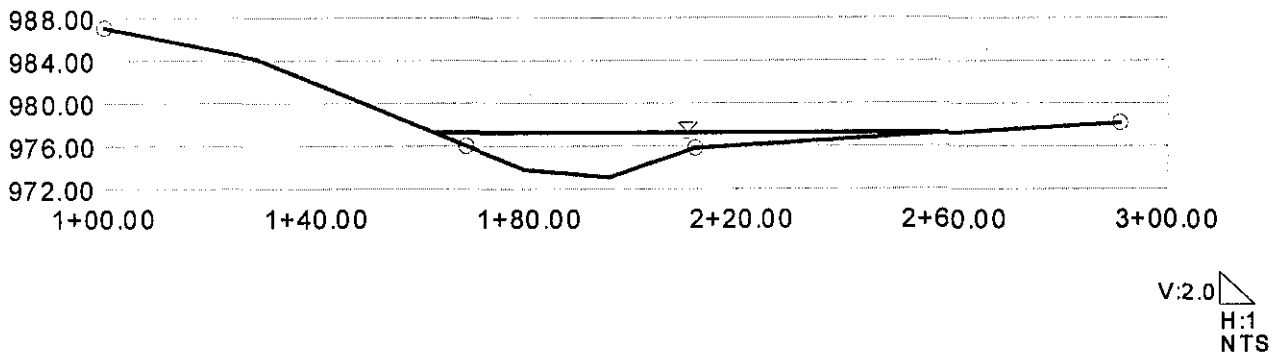
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	987.20
1+28.40	984.20
1+68.00	976.00
1+78.80	973.90
1+95.00	973.20
2+10.90	975.90
2+90.90	978.30

Tributary 1 to Unnamed Wash 1 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 1 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.046
Slope	0.0125 ft/ft
Water Surface Elevation	977.28 ft
Elevation Range	973.20 to 987.20
Discharge	860 cfs



Tributary 1 to Unnamed Wash 1 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 1 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0125	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.042	
Water Surface Elevation	985.90	ft
Elevation Range	982.00 to 989.50	
Flow Area	162.0	ft²
Wetted Perimeter	103.51	ft
Top Width	101.87	ft
Actual Depth	3.90	ft
Critical Elevation	985.51	ft
Critical Slope	0.0233	ft/ft
Velocity	5.31	ft/s
Velocity Head	0.44	ft
Specific Energy	986.33	ft
Froude Number	0.74	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
1+00.00	1+73.70	0.050
1+73.70	2+55.00	0.040
2+55.00	3+47.70	0.050

Natural Channel Points	
Station (ft)	Elevation (ft)
1+00.00	989.50
1+38.40	989.10
1+55.20	985.20
1+73.70	985.90
1+81.10	983.30
2+17.00	985.60
2+24.90	982.60
2+38.10	982.00

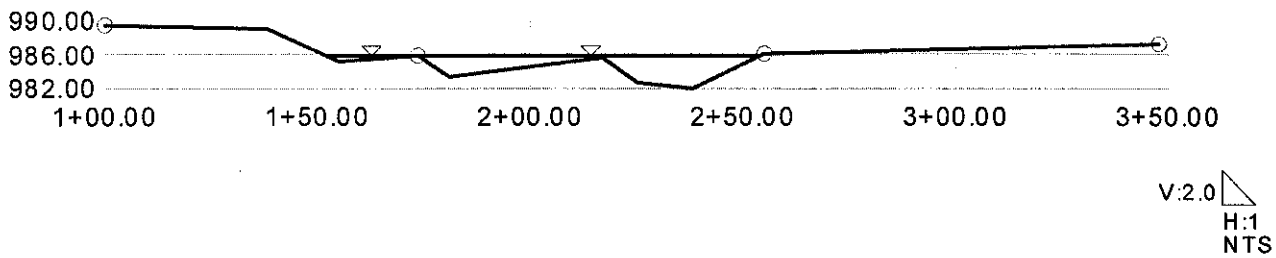
Tributary 1 to Unnamed Wash 1 - Approximate Method Section C-C
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
2+55.00	986.10
3+47.70	987.30

Tributary 1 to Unnamed Wash 1 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 1 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.042	
Slope	0.0125	ft/ft
Water Surface Elevation	985.90	ft
Elevation Range	982.00 to 989.50	
Discharge	860	cfs



Unnamed Wash 2 – Approximate Method Reach

Unnamed Wash 2 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0220	ft/ft
Discharge	1,670	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,865.59	ft
Elevation Range	1,862.00 to 1,880.00	
Flow Area	155.2	ft²
Wetted Perimeter	56.91	ft
Top Width	55.66	ft
Actual Depth	3.59	ft
Critical Elevation	1,865.86	ft
Critical Slope	0.0167	ft/ft
Velocity	10.76	ft/s
Velocity Head	1.80	ft
Specific Energy	1,867.39	ft
Froude Number	1.14	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+44.58	0.050
0+44.58	1+10.98	0.040
1+10.98	1+29.87	0.050

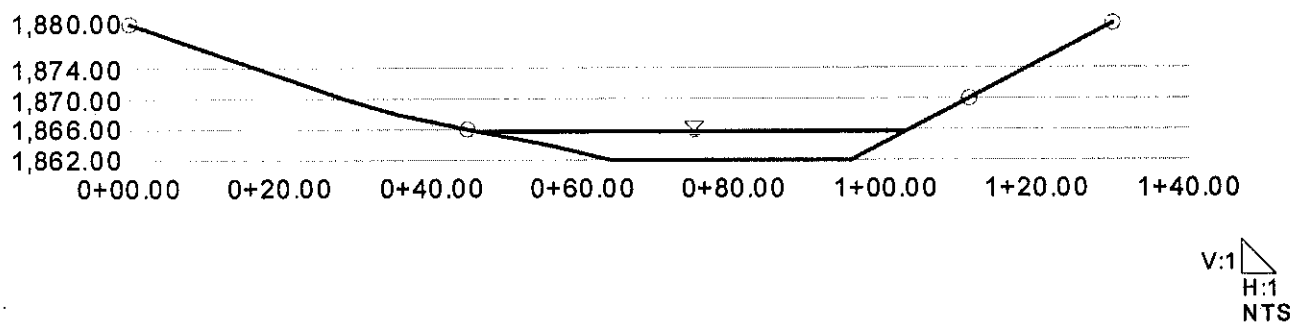
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,880.00
0+28.19	1,870.00
0+35.15	1,868.00
0+44.58	1,866.00
0+55.22	1,864.00
0+63.57	1,862.00
0+95.49	1,862.00
1+10.98	1,870.00
1+29.87	1,880.00

Unnamed Wash 2 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0220	ft/ft
Water Surface Elevation	1,865.59	ft
Elevation Range	1,862.00 to 1,880.00	
Discharge	1,670	cfs



Unnamed Wash 2 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0293	ft/ft
Discharge	1,670	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,893.78	ft
Elevation Range	1,890.00 to 1,900.00	
Flow Area	138.7	ft²
Wetted Perimeter	53.25	ft
Top Width	52.39	ft
Actual Depth	3.78	ft
Critical Elevation	1,894.35	ft
Critical Slope	0.0165	ft/ft
Velocity	12.04	ft/s
Velocity Head	2.25	ft
Specific Energy	1,896.04	ft
Froude Number	1.30	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+16.46	0.050
0+16.46	0+70.50	0.040
0+70.50	1+01.03	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,900.00
0+05.65	1,898.00
0+11.92	1,896.00
0+16.46	1,894.00
0+24.40	1,892.00
0+36.32	1,890.00
0+54.92	1,890.00
0+63.22	1,892.00
0+70.50	1,894.00
0+79.06	1,896.00
0+91.62	1,898.00

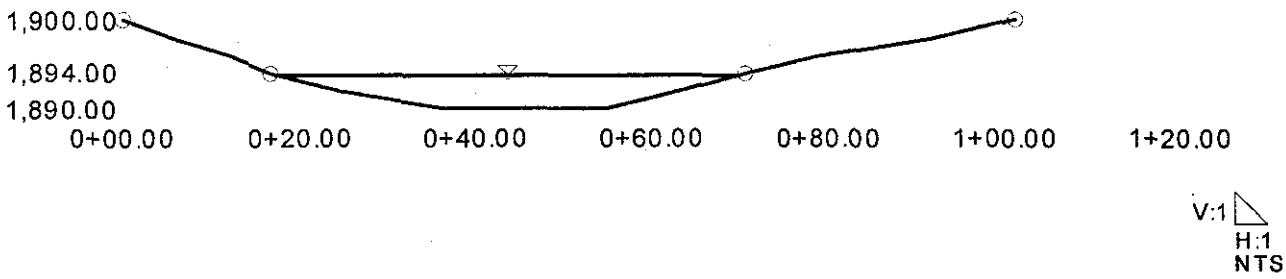
Unnamed Wash 2 - Approximate Method Section B-B
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+01.03	1,900.00

Unnamed Wash 2 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0293	ft/ft
Water Surface Elevation	1,893.78	ft
Elevation Range	1,890.00 to 1,900.00	
Discharge	1,670	cfs



Unnamed Wash 2 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0189	ft/ft
Discharge	1,670	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	992.67	ft
Elevation Range	988.30 to 1,024.70	
Flow Area	149.3	ft²
Wetted Perimeter	46.06	ft
Top Width	43.87	ft
Actual Depth	4.37	ft
Critical Elevation	992.85	ft
Critical Slope	0.0164	ft/ft
Velocity	11.19	ft/s
Velocity Head	1.94	ft
Specific Energy	994.62	ft
Froude Number	1.07	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+98.00	0.050
1+98.00	2+80.90	0.040
2+80.90	3+51.20	0.050

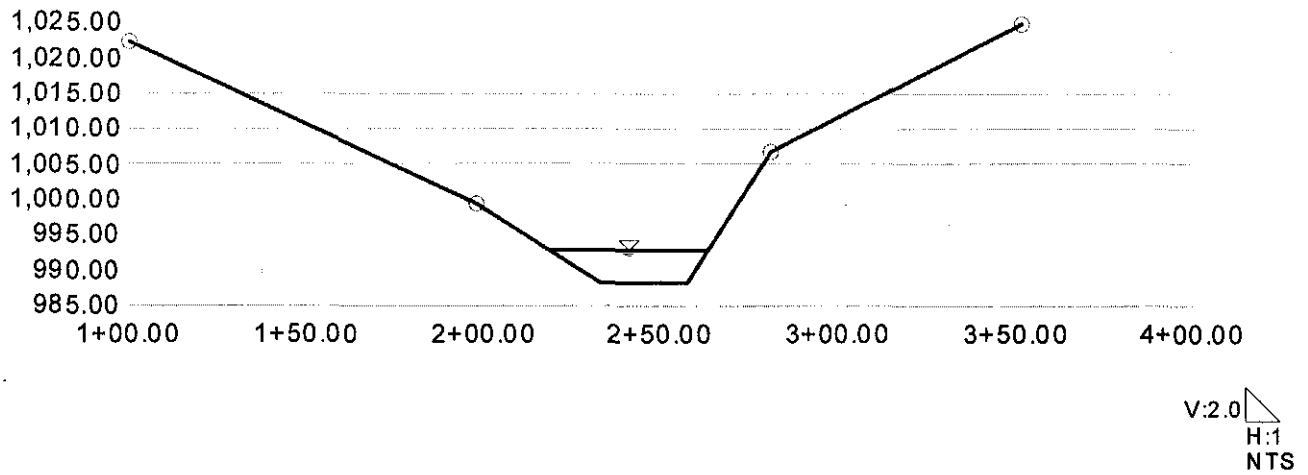
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,022.20
1+98.00	999.30
2+33.00	988.30
2+57.40	988.30
2+80.90	1,006.80
3+51.20	1,024.70

Unnamed Wash 2 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0189	ft/ft
Water Surface Elevation	992.67	ft
Elevation Range	988.30 to 1,024.70	
Discharge	1,670	cfs



Unnamed Wash 2 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0200	ft/ft
Discharge	1,670	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	989.98	ft
Elevation Range	985.30 to 1,030.50	
Flow Area	142.1	ft²
Wetted Perimeter	42.49	ft
Top Width	39.66	ft
Actual Depth	4.68	ft
Critical Elevation	990.22	ft
Critical Slope	0.0165	ft/ft
Velocity	11.75	ft/s
Velocity Head	2.15	ft
Specific Energy	992.13	ft
Froude Number	1.09	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+67.50	0.050
1+67.50	2+56.20	0.040
2+56.20	3+41.50	0.050

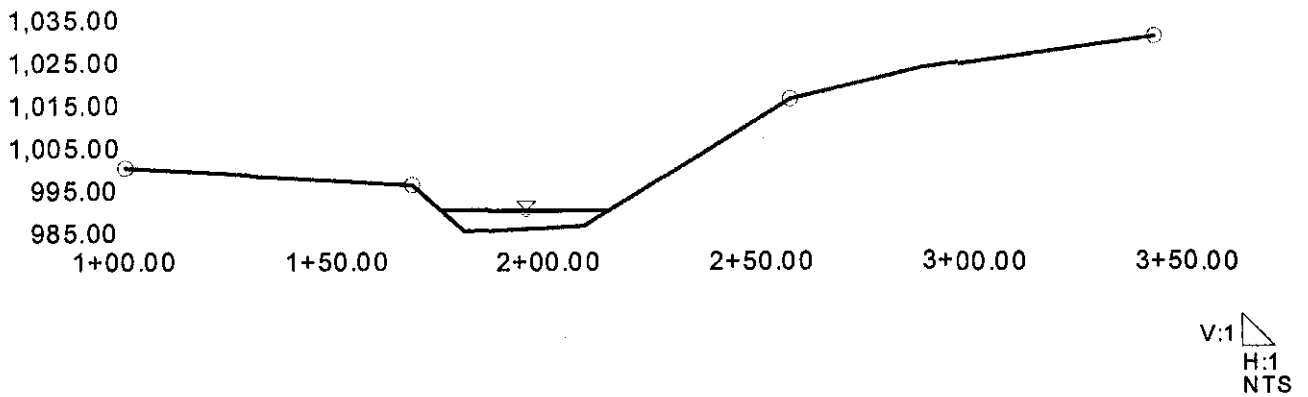
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,000.30
1+67.50	996.10
1+79.80	985.30
2+08.20	986.30
2+56.20	1,016.10
2+87.40	1,023.50
3+41.50	1,030.50

Unnamed Wash 2 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0200	ft/ft
Water Surface Elevation	989.98	ft
Elevation Range	985.30 to 1,030.50	
Discharge	1,670	cfs



Unnamed Wash 2 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0177	ft/ft
Discharge	1,670	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	988.80	ft
Elevation Range	983.00 to 1,015.10	
Flow Area	151.2	ft²
Wetted Perimeter	45.22	ft
Top Width	42.52	ft
Actual Depth	5.80	ft
Critical Elevation	988.89	ft
Critical Slope	0.0165	ft/ft
Velocity	11.05	ft/s
Velocity Head	1.90	ft
Specific Energy	990.70	ft
Froude Number	1.03	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+94.10	0.050
1+94.10	2+87.10	0.040
2+87.10	3+59.50	0.050

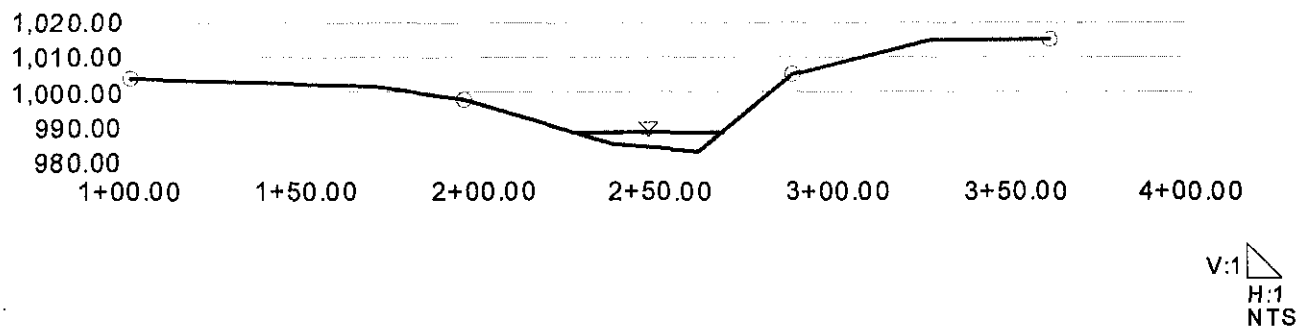
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,004.10
1+68.60	1,001.60
1+94.10	998.10
2+35.90	985.40
2+60.20	983.00
2+87.10	1,005.20
3+26.70	1,015.10
3+59.50	1,014.70

Unnamed Wash 2 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0177	ft/ft
Water Surface Elevation	988.80	ft
Elevation Range	983.00 to 1,015.10	
Discharge	1,670	cfs



Unnamed Wash 2 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0222	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.041	
Water Surface Elevation	994.41	ft
Elevation Range	989.90 to 1,007.20	
Flow Area	134.7	ft²
Wetted Perimeter	50.69	ft
Top Width	48.58	ft
Actual Depth	4.51	ft
Critical Elevation	994.58	ft
Critical Slope	0.0186	ft/ft
Velocity	10.24	ft/s
Velocity Head	1.63	ft
Specific Energy	996.04	ft
Froude Number	1.08	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+69.50	0.050
1+69.50	2+22.30	0.040
2+22.30	3+14.50	0.050

Natural Channel Points

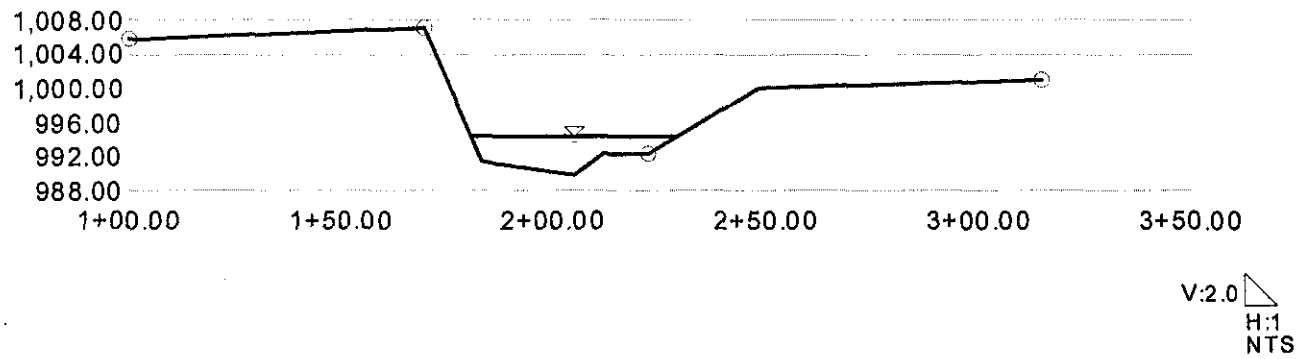
Station (ft)	Elevation (ft)
1+00.00	1,005.80
1+69.50	1,007.20
1+83.10	991.50
2+04.70	989.90
2+11.60	992.40
2+22.30	992.40
2+48.20	1,000.00
3+14.50	1,001.00

Unnamed Wash 2 - Approximate Method Section F-F

Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.041	
Slope	0.0222	ft/ft
Water Surface Elevation	994.41	ft
Elevation Range	989.90 to 1,007.20	
Discharge	1,380	cfs



Unnamed Wash 2 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0278	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	982.96	ft
Elevation Range	979.30 to 1,008.40	
Flow Area	119.3	ft²
Wetted Perimeter	46.79	ft
Top Width	44.53	ft
Actual Depth	3.66	ft
Critical Elevation	983.40	ft
Critical Slope	0.0173	ft/ft
Velocity	11.56	ft/s
Velocity Head	2.08	ft
Specific Energy	985.04	ft
Froude Number	1.25	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+74.40	0.050
1+74.40	2+52.10	0.040
2+52.10	2+66.80	0.050

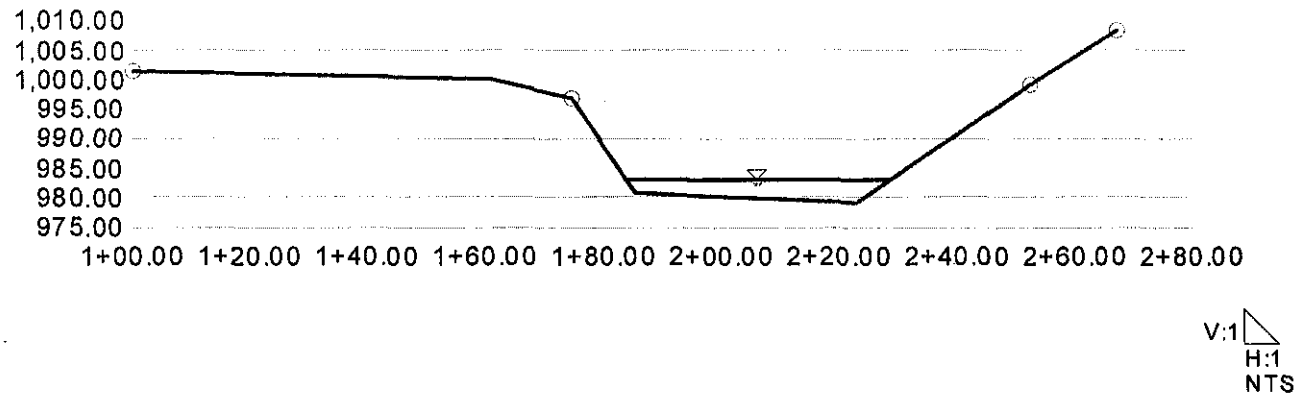
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,001.40
1+60.70	1,000.20
1+74.40	996.80
1+85.20	980.90
2+23.00	979.30
2+52.10	999.30
2+66.80	1,008.40

Unnamed Wash 2 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0278	ft/ft
Water Surface Elevation	982.96	ft
Elevation Range	979.30 to 1,008.40	
Discharge	1,380	cfs



Unnamed Wash 2 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0286	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.042	
Water Surface Elevation	981.62	ft
Elevation Range	976.60 to 1,007.30	
Flow Area	111.0	ft²
Wetted Perimeter	37.27	ft
Top Width	34.33	ft
Actual Depth	5.02	ft
Critical Elevation	982.17	ft
Critical Slope	0.0188	ft/ft
Velocity	12.43	ft/s
Velocity Head	2.40	ft
Specific Energy	984.02	ft
Froude Number	1.22	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+84.00	0.050
1+84.00	2+37.30	0.040
2+37.30	4+17.00	0.050

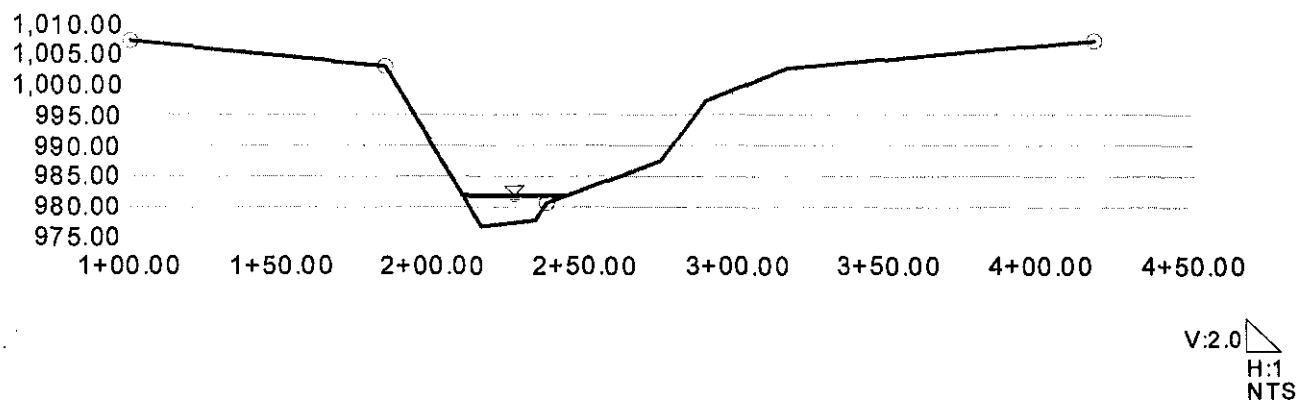
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,007.30
1+84.00	1,003.00
2+15.40	976.60
2+33.70	977.60
2+37.30	980.40
2+75.00	987.50
2+89.70	997.30
3+16.30	1,002.60
4+17.00	1,007.10

Unnamed Wash 2 - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 2 - Approximate Method Section H-H
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.042	
Slope	0.0286	ft/ft
Water Surface Elevation	981.62	ft
Elevation Range	976.60 to 1,007.30	
Discharge	1,380	cfs



Tributary 1 to Unnamed Wash 2 – Approximate Method Reach

Tributary 1 to Unnamed Wash 2 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0218	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,731.82	ft
Elevation Range	1,728.00 to 1,750.00	
Flow Area	99.3	ft²
Wetted Perimeter	35.77	ft
Top Width	34.01	ft
Actual Depth	3.82	ft
Critical Elevation	1,731.59	ft
Critical Slope	0.0277	ft/ft
Velocity	8.66	ft/s
Velocity Head	1.17	ft
Specific Energy	1,732.99	ft
Froude Number	0.89	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+32.78	0.050

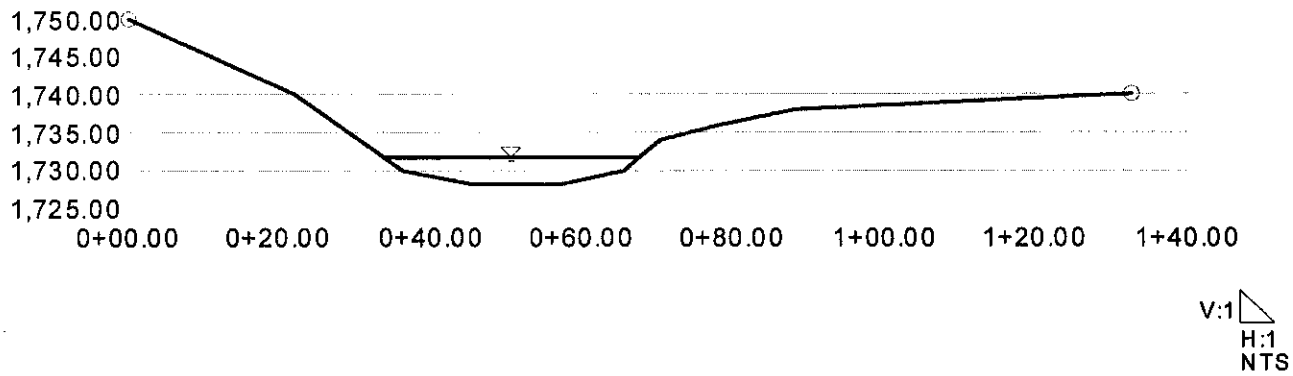
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,750.00
0+22.04	1,740.00
0+36.19	1,730.00
0+45.54	1,728.00
0+57.50	1,728.00
0+65.70	1,730.00
0+67.82	1,732.00
0+70.52	1,734.00
0+78.29	1,736.00
0+88.38	1,738.00
1+32.78	1,740.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0218	ft/ft
Water Surface Elevation	1,731.82	ft
Elevation Range	1,728.00 to 1,750.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 2 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0206	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,751.52	ft
Elevation Range	1,748.00 to 1,762.00	
Flow Area	108.6	ft²
Wetted Perimeter	42.89	ft
Top Width	41.72	ft
Actual Depth	3.52	ft
Critical Elevation	1,751.24	ft
Critical Slope	0.0281	ft/ft
Velocity	7.92	ft/s
Velocity Head	0.98	ft
Specific Energy	1,752.49	ft
Froude Number	0.87	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+30.06	0.050

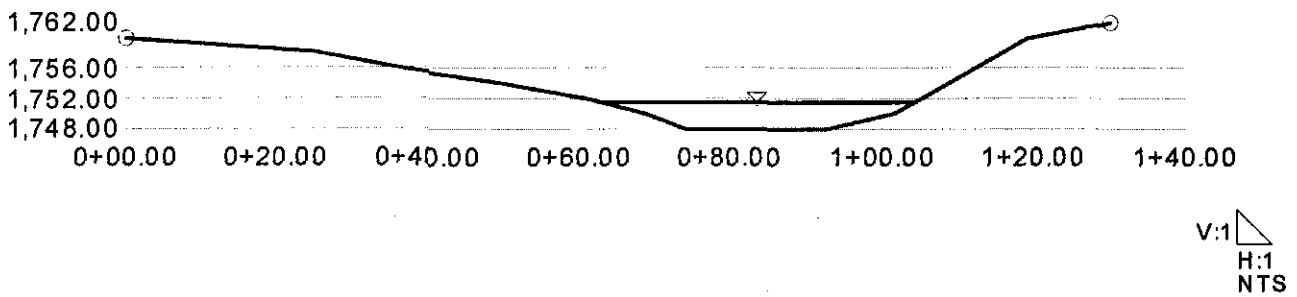
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,760.00
0+24.87	1,758.00
0+36.03	1,756.00
0+49.38	1,754.00
0+60.74	1,752.00
0+68.54	1,750.00
0+74.08	1,748.00
0+92.74	1,748.00
1+01.70	1,750.00
1+19.21	1,760.00
1+30.06	1,762.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0206	ft/ft
Water Surface Elevation	1,751.52	ft
Elevation Range	1,748.00 to 1,762.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 2 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0160	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,768.62	ft
Elevation Range	1,764.00 to 1,782.00	
Flow Area	136.1	ft²
Wetted Perimeter	62.47	ft
Top Width	61.25	ft
Actual Depth	4.62	ft
Critical Elevation	1,768.13	ft
Critical Slope	0.0298	ft/ft
Velocity	6.32	ft/s
Velocity Head	0.62	ft
Specific Energy	1,769.24	ft
Froude Number	0.75	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+69.55	0.050

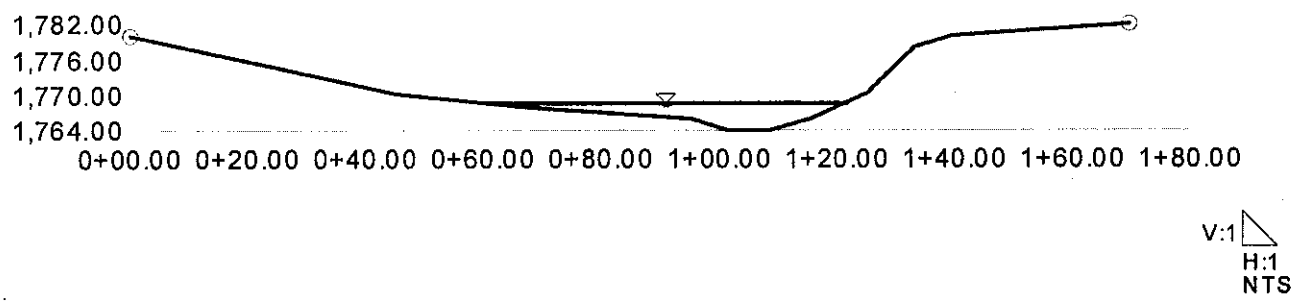
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,780.00
0+44.95	1,770.00
0+67.21	1,768.00
0+94.98	1,766.00
1+01.28	1,764.00
1+08.69	1,764.00
1+15.31	1,766.00
1+24.94	1,770.00
1+33.14	1,778.00
1+39.59	1,780.00
1+69.55	1,782.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0160	ft/ft
Water Surface Elevation	1,768.62	ft
Elevation Range	1,764.00 to 1,782.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 2 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0220	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,788.30	ft
Elevation Range	1,784.20 to 1,800.00	
Flow Area	113.1	ft²
Wetted Perimeter	49.95	ft
Top Width	48.73	ft
Actual Depth	4.10	ft
Critical Elevation	1,788.08	ft
Critical Slope	0.0290	ft/ft
Velocity	7.60	ft/s
Velocity Head	0.90	ft
Specific Energy	1,789.20	ft
Froude Number	0.88	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+67.08	0.050

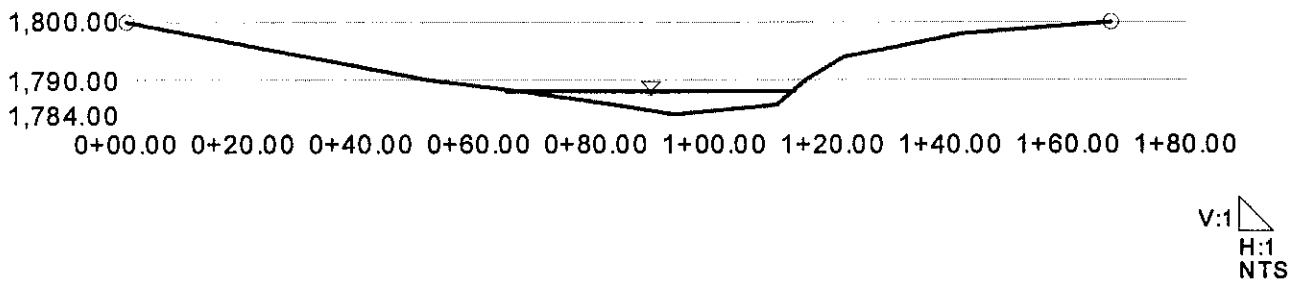
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,800.00
0+51.35	1,790.00
0+67.10	1,788.00
0+82.88	1,786.00
0+93.25	1,784.20
1+10.70	1,786.00
1+15.48	1,790.00
1+21.98	1,794.00
1+32.20	1,796.00
1+42.13	1,798.00
1+67.08	1,800.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0220	ft/ft
Water Surface Elevation	1,788.30	ft
Elevation Range	1,784.20 to 1,800.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 2 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0180	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,808.60	ft
Elevation Range	1,804.00 to 1,820.00	
Flow Area	109.1	ft²
Wetted Perimeter	39.28	ft
Top Width	37.80	ft
Actual Depth	4.60	ft
Critical Elevation	1,808.17	ft
Critical Slope	0.0277	ft/ft
Velocity	7.88	ft/s
Velocity Head	0.96	ft
Specific Energy	1,809.57	ft
Froude Number	0.82	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+75.80	0.050

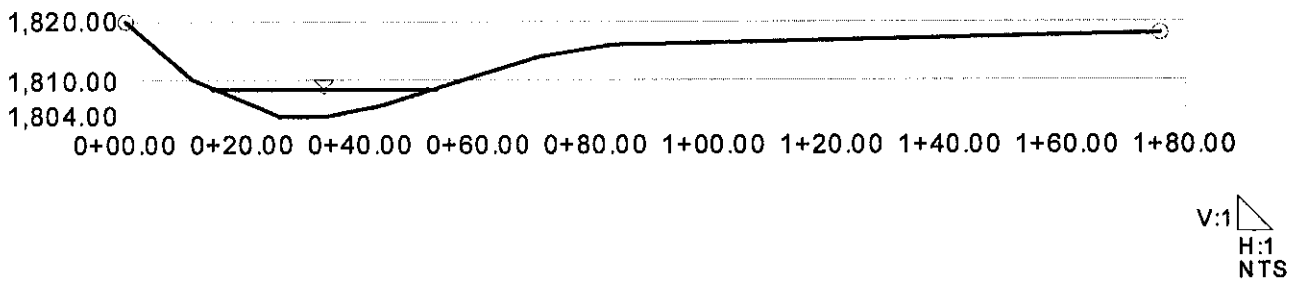
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,820.00
0+11.56	1,810.00
0+26.28	1,804.00
0+34.22	1,804.00
0+43.97	1,806.00
0+57.52	1,810.00
0+70.48	1,814.00
0+82.74	1,816.00
1+75.80	1,818.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0180	ft/ft
Water Surface Elevation	1,808.60	ft
Elevation Range	1,804.00 to 1,820.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 2 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0200	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,827.44	ft
Elevation Range	1,824.00 to 1,840.00	
Flow Area	114.8	ft²
Wetted Perimeter	48.25	ft
Top Width	47.45	ft
Actual Depth	3.44	ft
Critical Elevation	1,827.15	ft
Critical Slope	0.0285	ft/ft
Velocity	7.49	ft/s
Velocity Head	0.87	ft
Specific Energy	1,828.31	ft
Froude Number	0.85	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+54.56	0.050

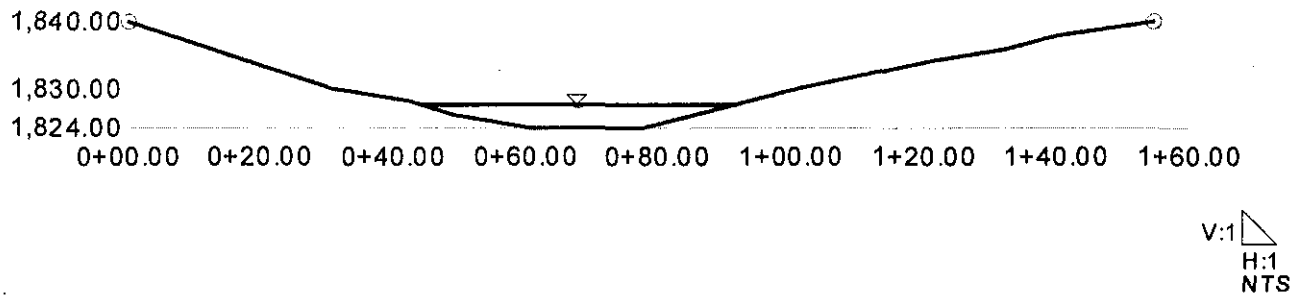
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,840.00
0+29.79	1,830.00
0+42.27	1,828.00
0+48.68	1,826.00
0+60.73	1,824.00
0+77.63	1,824.00
0+85.79	1,826.00
1+01.72	1,830.00
1+11.82	1,832.00
1+21.72	1,834.00
1+32.80	1,836.00
1+40.38	1,838.00
1+54.56	1,840.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0200	ft/ft
Water Surface Elevation	1,827.44	ft
Elevation Range	1,824.00 to 1,840.00	
Discharge	860	cfs



Tributary 1 to Unnamed Wash 2 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0117	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,835.23	ft
Elevation Range	1,830.00 to 1,850.00	
Flow Area	135.2	ft²
Wetted Perimeter	48.55	ft
Top Width	47.15	ft
Actual Depth	5.23	ft
Critical Elevation	1,834.35	ft
Critical Slope	0.0281	ft/ft
Velocity	6.36	ft/s
Velocity Head	0.63	ft
Specific Energy	1,835.86	ft
Froude Number	0.66	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+63.04	0.050

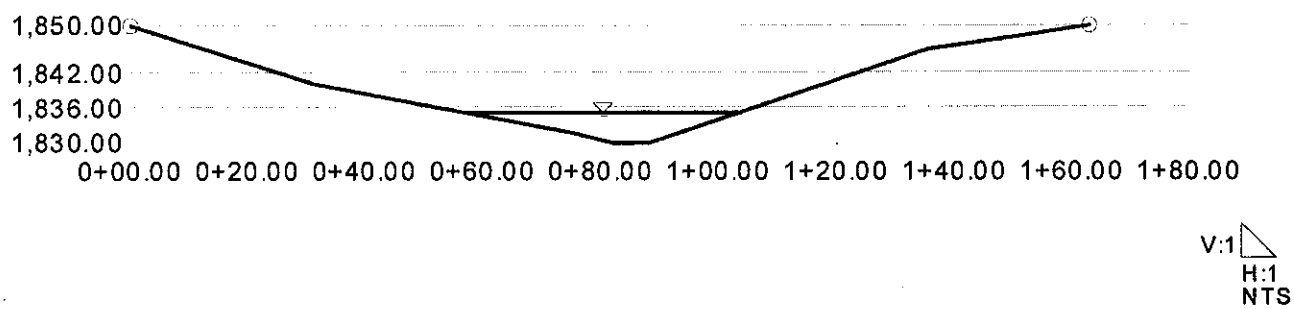
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,850.00
0+31.36	1,840.00
0+74.23	1,832.00
0+82.03	1,830.00
0+88.39	1,830.00
1+18.39	1,840.00
1+35.84	1,846.00
1+49.87	1,848.00
1+63.04	1,850.00

Tributary 1 to Unnamed Wash 2 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 2 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0117	ft/ft
Water Surface Elevation	1,835.23	ft
Elevation Range	1,830.00 to 1,850.00	
Discharge	860	cfs



Tributary 2 to Unnamed Wash 2 – Approximate Method Reach

Tributary 2 to Unnamed Wash 2 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0166	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,802.95	ft
Elevation Range	1,801.00 to 1,820.00	
Flow Area	209.1	ft²
Wetted Perimeter	174.24	ft
Top Width	173.90	ft
Actual Depth	1.95	ft
Critical Elevation	1,802.84	ft
Critical Slope	0.0227	ft/ft
Velocity	5.40	ft/s
Velocity Head	0.45	ft
Specific Energy	1,803.40	ft
Froude Number	0.87	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+86.13	0.050
0+86.13	2+87.06	0.040
2+87.06	3+05.51	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,820.00
0+31.00	1,810.00
0+45.86	1,806.00
0+86.13	1,804.00
0+93.82	1,802.00
1+27.12	1,802.00
1+37.56	1,802.80
1+49.03	1,802.00
2+00.53	1,801.00
2+60.97	1,802.00
2+87.06	1,810.00

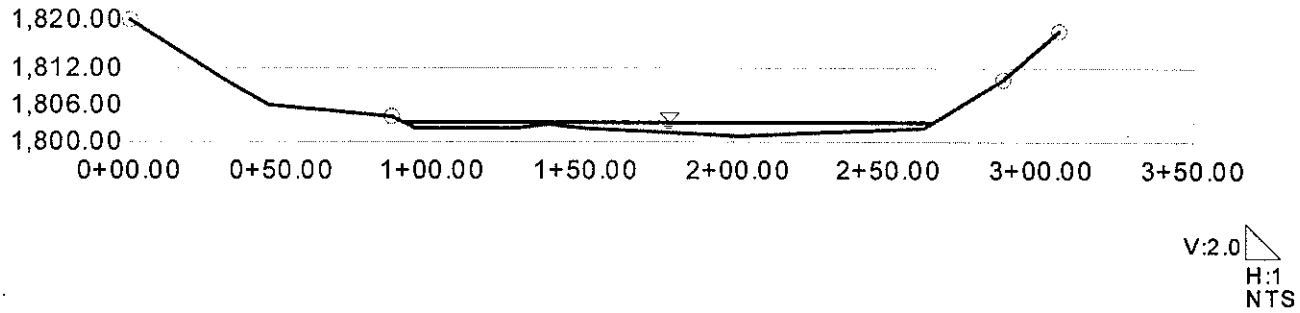
Tributary 2 to Unnamed Wash 2 - Approximate Method Section A-A
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
3+05.51	1,818.00

Tributary 2 to Unnamed Wash 2 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0166	ft/ft
Water Surface Elevation	1,802.95	ft
Elevation Range	1,801.00 to 1,820.00	
Discharge	1,130	cfs



Tributary 2 to Unnamed Wash 2 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0193	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.041	
Water Surface Elevation	1,823.44	ft
Elevation Range	1,820.00 to 1,834.00	
Flow Area	127.5	ft²
Wetted Perimeter	54.04	ft
Top Width	53.28	ft
Actual Depth	3.44	ft
Critical Elevation	1,823.46	ft
Critical Slope	0.0189	ft/ft
Velocity	8.87	ft/s
Velocity Head	1.22	ft
Specific Energy	1,824.66	ft
Froude Number	1.01	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+09.08	0.050
0+09.08	0+78.74	0.040
0+78.74	1+19.47	0.050

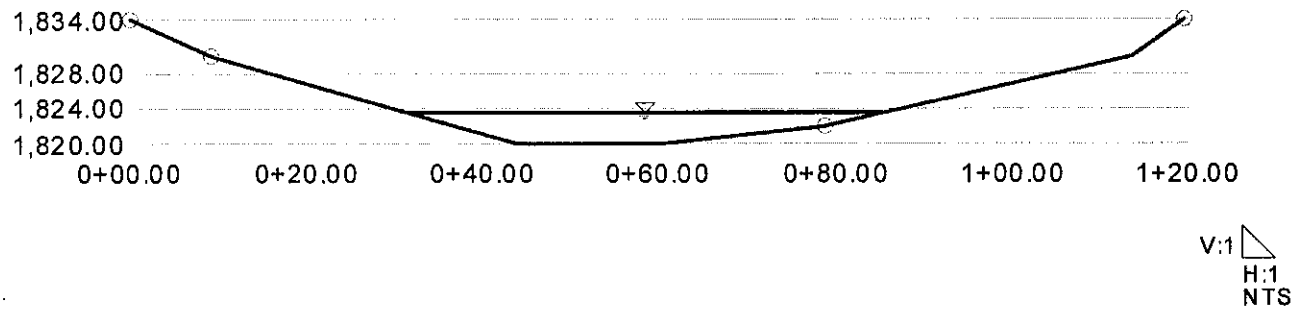
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,834.00
0+09.08	1,830.00
0+43.64	1,820.00
0+60.43	1,820.00
0+78.74	1,822.00
1+13.65	1,830.00
1+19.47	1,834.00

Tributary 2 to Unnamed Wash 2 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.041	
Slope	0.0193	ft/ft
Water Surface Elevation	1,823.44	ft
Elevation Range	1,820.00 to 1,834.00	
Discharge	1,130	cfs



Tributary 2 to Unnamed Wash 2 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0200	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,842.55	ft
Elevation Range	1,840.00 to 1,852.00	
Flow Area	131.7	ft²
Wetted Perimeter	62.30	ft
Top Width	61.42	ft
Actual Depth	2.55	ft
Critical Elevation	1,842.60	ft
Critical Slope	0.0186	ft/ft
Velocity	8.58	ft/s
Velocity Head	1.14	ft
Specific Energy	1,843.69	ft
Froude Number	1.03	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+13.39	0.050
0+13.39	0+86.23	0.040
0+86.23	1+13.05	0.050

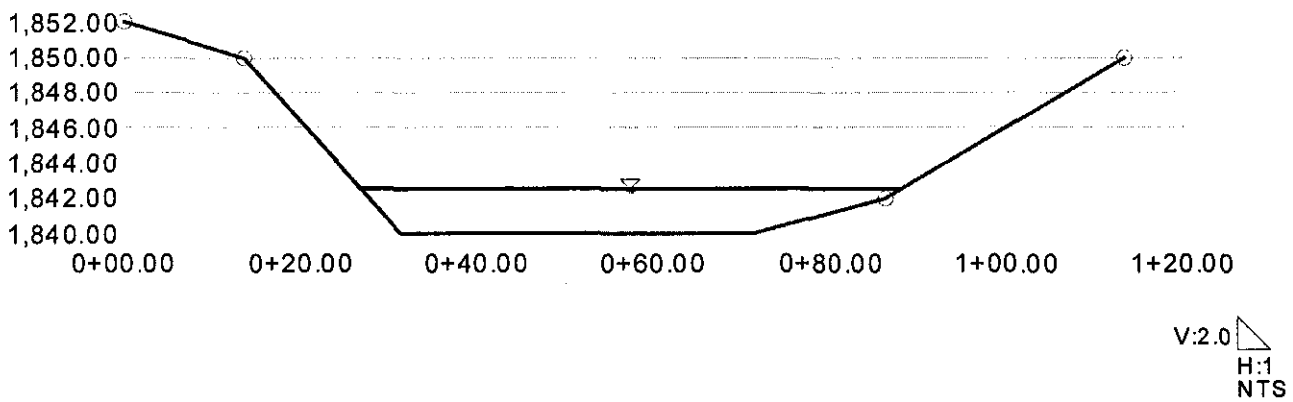
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,852.00
0+13.39	1,850.00
0+31.19	1,840.00
0+71.25	1,840.00
0+86.23	1,842.00
1+13.05	1,850.00

Tributary 2 to Unnamed Wash 2 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0200	ft/ft
Water Surface Elevation	1,842.55	ft
Elevation Range	1,840.00 to 1,852.00	
Discharge	1,130	cfs



Tributary 2 to Unnamed Wash 2 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0167	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	927.52	ft
Elevation Range	924.00 to 942.00	
Flow Area	137.5	ft²
Wetted Perimeter	61.35	ft
Top Width	60.27	ft
Actual Depth	3.52	ft
Critical Elevation	927.45	ft
Critical Slope	0.0183	ft/ft
Velocity	8.22	ft/s
Velocity Head	1.05	ft
Specific Energy	928.57	ft
Froude Number	0.96	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+64.90	0.050
1+64.90	2+60.00	0.040
2+60.00	2+99.70	0.050

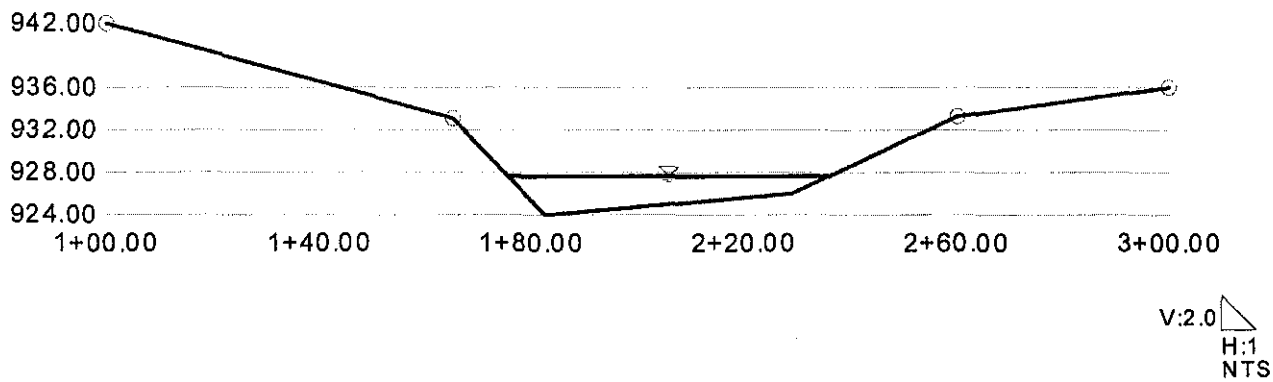
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	942.00
1+64.90	933.00
1+82.60	924.00
2+29.20	925.90
2+60.00	933.30
2+99.70	936.00

Tributary 2 to Unnamed Wash 2 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0167	ft/ft
Water Surface Elevation	927.52	ft
Elevation Range	924.00 to 942.00	
Discharge	1,130	cfs



Tributary 2 to Unnamed Wash 2 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0209	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	941.67	ft
Elevation Range	937.50 to 977.80	
Flow Area	107.3	ft²
Wetted Perimeter	39.10	ft
Top Width	37.29	ft
Actual Depth	4.17	ft
Critical Elevation	941.87	ft
Critical Slope	0.0172	ft/ft
Velocity	10.53	ft/s
Velocity Head	1.72	ft
Specific Energy	943.39	ft
Froude Number	1.09	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	2+40.00	0.050
2+40.00	3+15.70	0.040
3+15.70	4+13.20	0.050

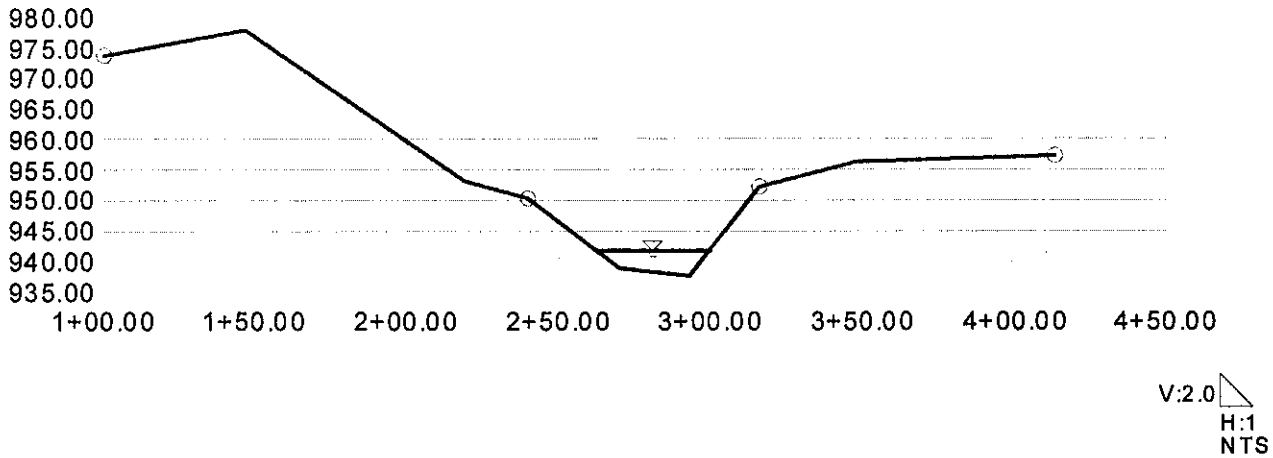
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	973.80
1+46.40	977.80
2+19.00	953.20
2+40.00	950.20
2+70.00	938.70
2+93.10	937.50
3+15.70	952.10
3+48.30	956.20
4+13.20	957.30

Tributary 2 to Unnamed Wash 2 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 2 to Unnamed Wash 2 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0209	ft/ft
Water Surface Elevation	941.67	ft
Elevation Range	937.50 to 977.80	
Discharge	1,130	cfs



Twin Buttes Wash – Approximate Method Reach

Twin Buttes - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0123	ft/ft
Discharge	1,390	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.048	
Water Surface Elevation	1,529.65	ft
Elevation Range	1,524.70 to 1,542.00	
Flow Area	240.2	ft²
Wetted Perimeter	110.38	ft
Top Width	108.87	ft
Actual Depth	4.95	ft
Critical Elevation	1,528.93	ft
Critical Slope	0.0268	ft/ft
Velocity	5.79	ft/s
Velocity Head	0.52	ft
Specific Energy	1,530.17	ft
Froude Number	0.69	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+24.88	0.050
0+24.88	0+79.26	0.040
0+79.26	*2+08.16*	*0.055*

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,542.00
0+07.50	1,540.00
0+10.89	1,538.00
0+24.88	1,530.00
0+32.50	1,526.00
0+34.60	1,524.80
0+55.40	1,524.70
0+60.35	1,526.00
0+79.26	1,528.00
1+46.25	1,530.00
1+70.72	1,532.00

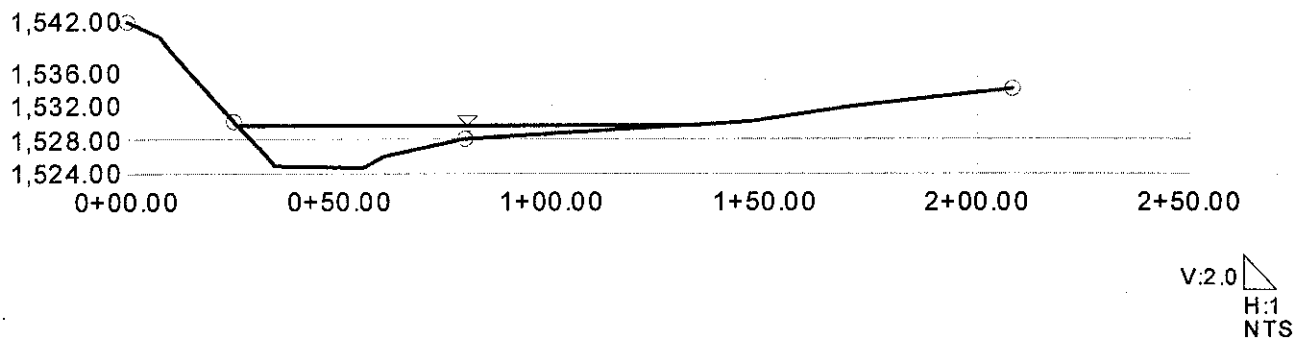
Twin Buttes - Approximate Method Section A-A
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
2+08.16	1,534.00

Twin Buttes - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.048	
Slope	0.0123	ft/ft
Water Surface Elevation	1,529.65	ft
Elevation Range	1,524.70 to 1,542.00	
Discharge	1,390	cfs



Twin Buttes - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0156	ft/ft
Discharge	1,390	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.042	
Water Surface Elevation	1,540.58	ft
Elevation Range	1,536.20 to 1,558.00	
Flow Area	162.3	ft²
Wetted Perimeter	61.04	ft
Top Width	59.88	ft
Actual Depth	4.38	ft
Critical Elevation	1,540.39	ft
Critical Slope	0.0187	ft/ft
Velocity	8.57	ft/s
Velocity Head	1.14	ft
Specific Energy	1,541.72	ft
Froude Number	0.92	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+36.35	0.050
0+36.35	0+90.02	0.040
0+90.02	1+26.94	0.055

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,558.00
0+08.46	1,554.00
0+16.52	1,550.00
0+20.79	1,548.00
0+28.95	1,544.00
0+36.35	1,540.00
0+40.72	1,538.00
0+46.17	1,536.30
0+63.63	1,536.20
0+72.95	1,538.00
0+90.02	1,540.00

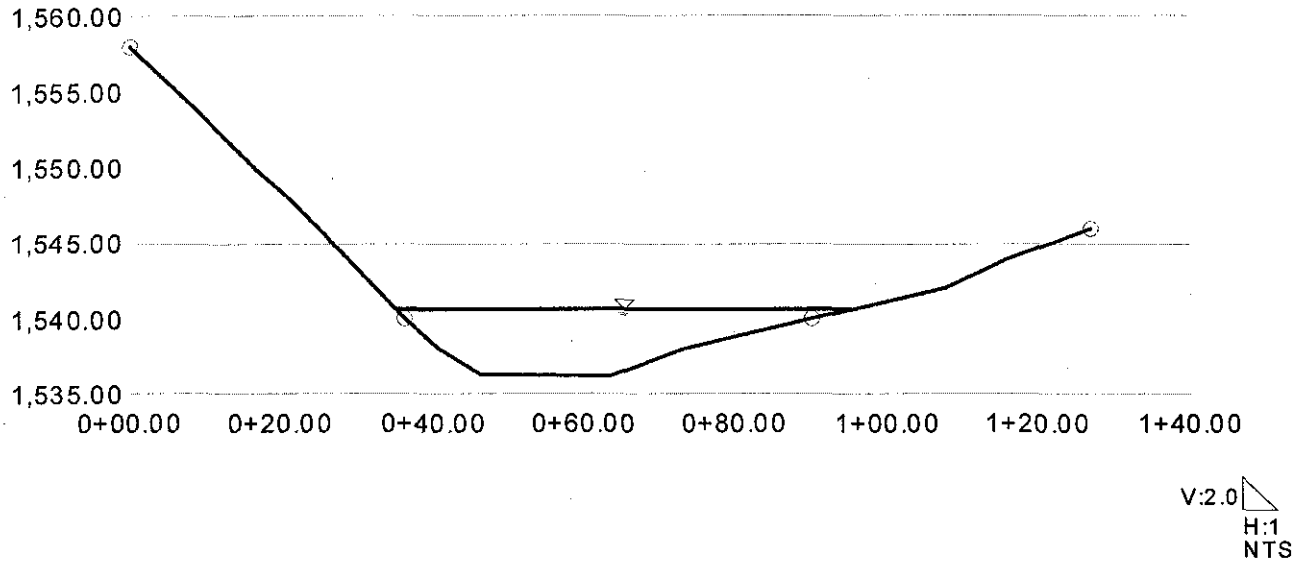
Twin Buttes - Approximate Method Section B-B
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+07.81	1,542.00
1+15.98	1,544.00
1+26.94	1,546.00

Twin Buttes - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.042	
Slope	0.0156	ft/ft
Water Surface Elevation	1,540.58	ft
Elevation Range	1,536.20 to 1,558.00	
Discharge	1,390	cfs



Twin Buttes - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0716	ft/ft
Discharge	1,390	cfs

Options	
Current Roughness Method	*Horton's Method*
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,551.88	ft
Elevation Range	1,542.20 to 1,562.00	
Flow Area	90.1	ft²
Wetted Perimeter	33.32	ft
Top Width	24.93	ft
Actual Depth	9.68	ft
Critical Elevation	1,553.36	ft
Critical Slope	0.0316	ft/ft
Velocity	15.43	ft/s
Velocity Head	3.70	ft
Specific Energy	1,555.58	ft
Froude Number	1.43	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+43.49	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,562.00
0+06.75	1,560.00
0+14.05	1,558.00
0+20.95	1,556.00
0+27.70	1,554.00
0+40.21	1,552.00
0+42.98	1,550.00
0+45.61	1,544.00
0+47.25	1,542.20
0+49.05	1,544.00
0+56.48	1,550.00
0+65.86	1,552.00
0+89.57	1,554.00

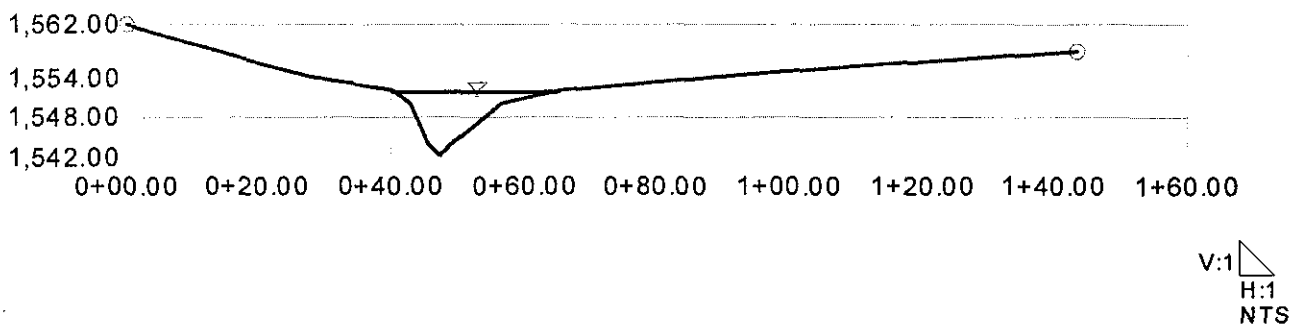
Twin Buttes - Approximate Method Section C-C
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+12.19	1,556.00
1+43.49	1,558.00

Twin Buttes - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0716	ft/ft
Water Surface Elevation	1,551.88	ft
Elevation Range	1,542.20 to 1,562.00	
Discharge	1,390	cfs



Twin Buttes - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0090	ft/ft
Discharge	1,390	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.050	
Water Surface Elevation	1,559.34	ft
Elevation Range	1,554.70 to 1,570.00	
Flow Area	253.4	ft²
Wetted Perimeter	93.35	ft
Top Width	92.63	ft
Actual Depth	4.64	ft
Critical Elevation	1,558.39	ft
Critical Slope	0.0288	ft/ft
Velocity	5.49	ft/s
Velocity Head	0.47	ft
Specific Energy	1,559.81	ft
Froude Number	0.58	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+58.34	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,570.00
0+13.31	1,568.00
0+27.85	1,566.00
0+38.54	1,564.00
0+49.10	1,562.00
0+59.67	1,560.00
0+70.20	1,558.00
1+05.50	1,556.00
1+08.79	1,555.00
1+28.35	1,554.70
1+36.68	1,556.00
1+48.20	1,558.00
1+59.44	1,560.00

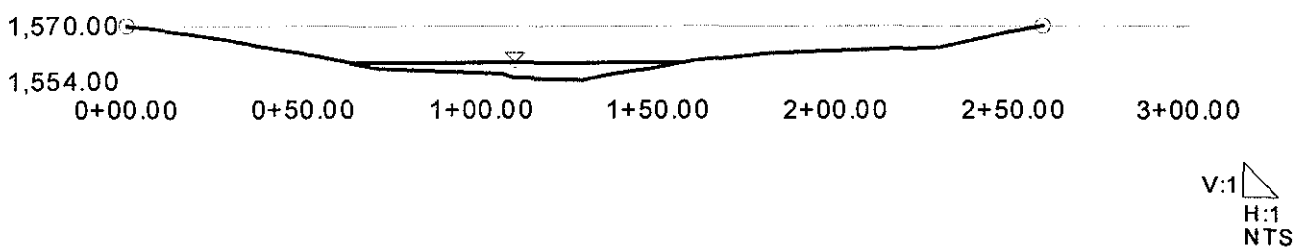
Twin Buttes - Approximate Method Section D-D
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+81.70	1,562.00
2+29.33	1,564.00
2+39.47	1,566.00
2+49.23	1,568.00
2+58.34	1,570.00

Twin Buttes - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.050	
Slope	0.0090	ft/ft
Water Surface Elevation	1,559.34	ft
Elevation Range	1,554.70 to 1,570.00	
Discharge	1,390	cfs



Twin Buttes - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0189	ft/ft
Discharge	1,390	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,567.96	ft
Elevation Range	1,563.10 to 1,590.00	
Flow Area	122.5	ft²
Wetted Perimeter	36.99	ft
Top Width	34.40	ft
Actual Depth	4.86	ft
Critical Elevation	1,568.12	ft
Critical Slope	0.0167	ft/ft
Velocity	11.35	ft/s
Velocity Head	2.00	ft
Specific Energy	1,569.96	ft
Froude Number	1.06	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+52.58	0.050
0+52.58	0+87.10	0.040
0+87.10	1+19.70	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,590.00
0+29.65	1,580.00
0+48.76	1,570.00
0+52.58	1,568.00
0+56.30	1,566.00
0+60.23	1,564.00
0+60.98	1,563.80
0+80.31	1,563.10
0+81.82	1,564.00
0+87.10	1,568.00
0+89.97	1,570.00

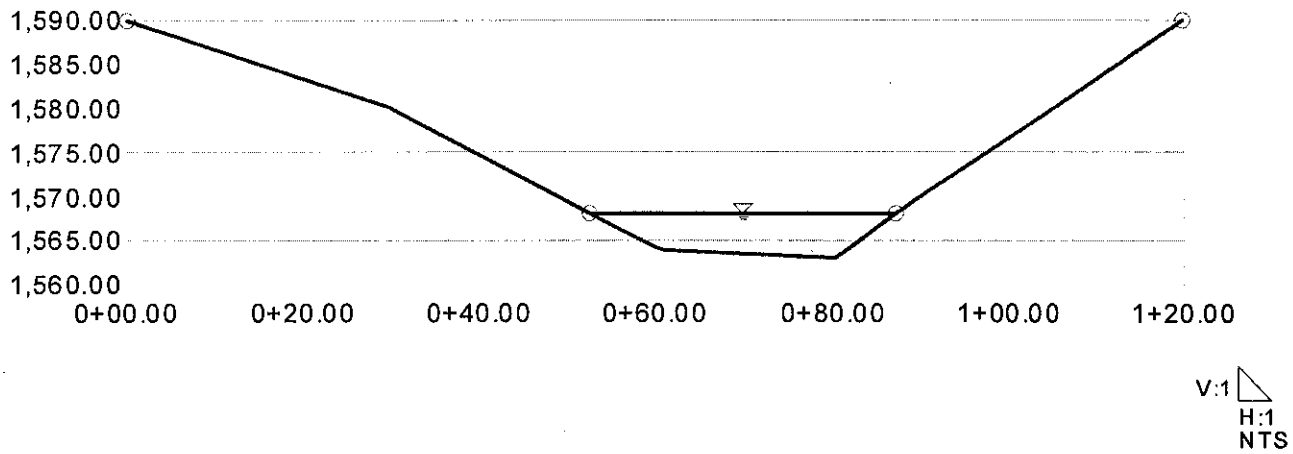
Twin Buttes - Approximate Method Section E-E
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+05.21	1,580.00
1+19.70	1,590.00

Twin Buttes - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0189	ft/ft
Water Surface Elevation	1,567.96	ft
Elevation Range	1,563.10 to 1,590.00	
Discharge	1,390	cfs



Twin Buttes Wash - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0132	ft/ft
Discharge	1,250	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,573.57	ft
Elevation Range	1,568.50 to 1,590.00	
Flow Area	130.5	ft²
Wetted Perimeter	38.79	ft
Top Width	35.15	ft
Actual Depth	5.07	ft
Critical Elevation	1,573.21	ft
Critical Slope	0.0174	ft/ft
Velocity	9.58	ft/s
Velocity Head	1.43	ft
Specific Energy	1,574.99	ft
Froude Number	0.88	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+29.95	0.050
0+29.95	0+66.55	0.040
0+66.55	1+17.29	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,590.00
0+19.00	1,580.00
0+29.95	1,574.00
0+31.38	1,570.00
0+32.94	1,569.00
0+50.21	1,568.50
0+55.03	1,570.00
0+60.55	1,572.00
0+66.55	1,574.00
0+72.59	1,576.00
0+78.05	1,578.00

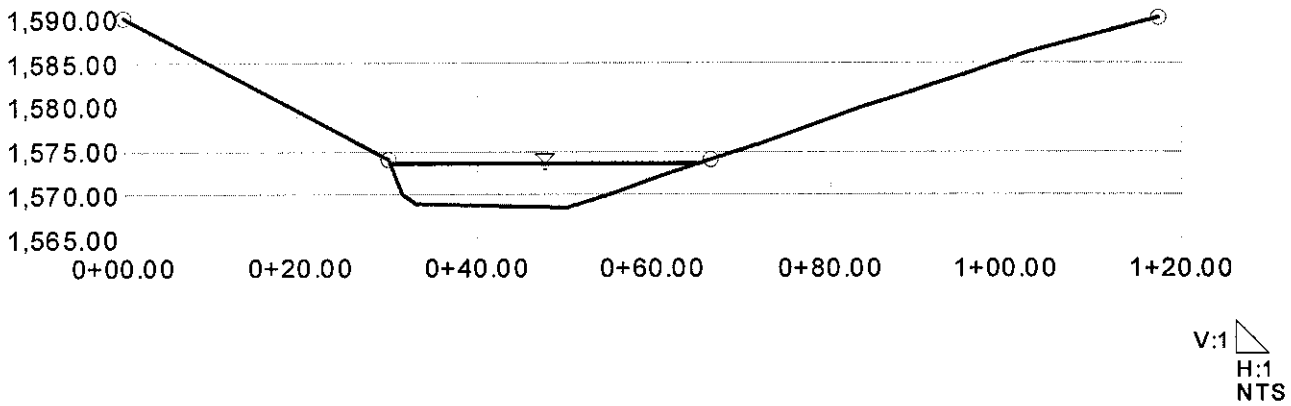
Twin Buttes Wash - Approximate Method Section F-F
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
0+83.67	1,580.00
0+89.85	1,582.00
0+95.97	1,584.00
1+02.51	1,586.00
1+09.97	1,588.00
1+17.29	1,590.00

Twin Buttes Wash - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0132	ft/ft
Water Surface Elevation	1,573.57	ft
Elevation Range	1,568.50 to 1,590.00	
Discharge	1,250	cfs



Twin Buttes Wash - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	0.0114 ft/ft
Discharge	1,250 cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results	
Mannings Coefficient	0.045
Water Surface Elevation	1,586.05 ft
Elevation Range	1,581.40 to 1,600.00
Flow Area	214.5 ft²
Wetted Perimeter	100.02 ft
Top Width	99.16 ft
Actual Depth	4.65 ft
Critical Elevation	1,585.43 ft
Critical Slope	0.0242 ft/ft
Velocity	5.83 ft/s
Velocity Head	0.53 ft
Specific Energy	1,586.58 ft
Froude Number	0.70
Flow Type	Subcritical

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+06.27	0.050
2+06.27	2+54.11	0.040
2+54.11	3+13.82	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,600.00
0+07.47	1,598.00
0+30.92	1,596.00
0+53.60	1,594.00
0+71.13	1,592.00
1+05.77	1,590.00
1+17.17	1,588.00
1+56.20	1,586.00
2+06.27	1,584.00
2+17.79	1,582.00
2+19.20	1,581.70

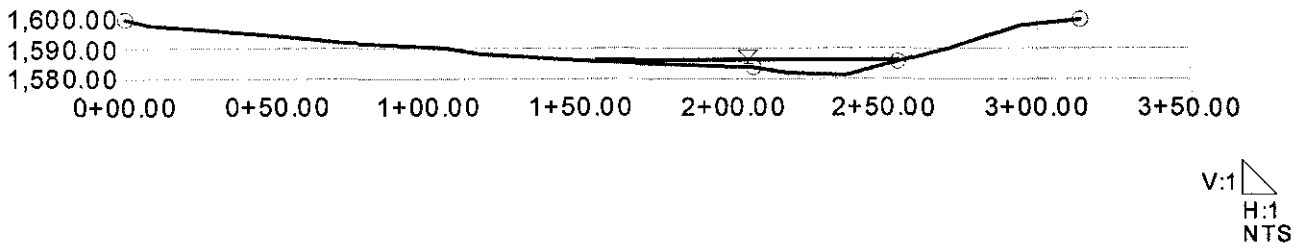
Twin Buttes Wash - Approximate Method Section G-G
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
2+36.95	1,581.40
2+39.65	1,582.00
2+46.59	1,584.00
2+54.11	1,586.00
2+63.63	1,588.00
2+71.39	1,590.00
2+77.15	1,592.00
2+83.03	1,594.00
2+89.02	1,596.00
2+94.66	1,598.00
3+13.82	1,600.00

Twin Buttes Wash - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0114	ft/ft
Water Surface Elevation	1,586.05	ft
Elevation Range	1,581.40 to 1,600.00	
Discharge	1,250	cfs



Twin Buttes Wash - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0146	ft/ft
Discharge	1,250	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,595.30	ft
Elevation Range	1,592.00 to 1,610.00	
Flow Area	162.1	ft²
Wetted Perimeter	72.04	ft
Top Width	71.32	ft
Actual Depth	3.30	ft
Critical Elevation	1,595.13	ft
Critical Slope	0.0183	ft/ft
Velocity	7.71	ft/s
Velocity Head	0.92	ft
Specific Energy	1,596.22	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+99.26	0.050
0+99.26	1+76.43	0.040
1+76.43	2+40.16	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,610.00
0+08.94	1,608.00
0+16.72	1,606.00
0+55.04	1,604.00
0+81.08	1,602.00
0+87.06	1,600.00
0+92.87	1,598.00
0+99.26	1,596.00
1+05.12	1,594.00
1+11.00	1,592.00
1+27.16	1,592.00

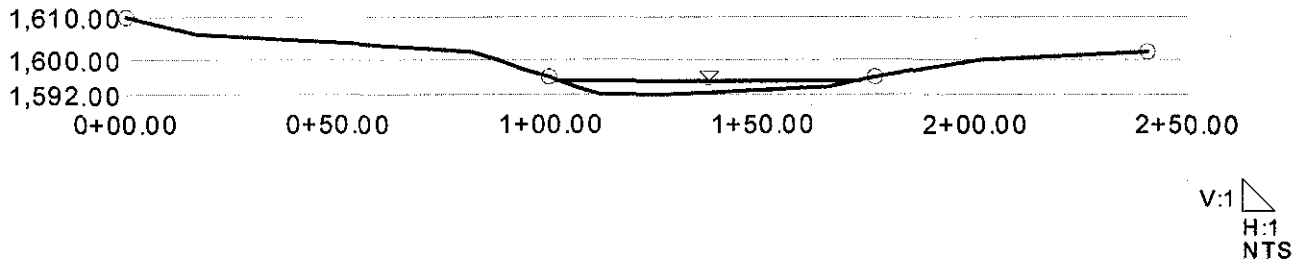
Twin Buttes Wash - Approximate Method Section H-H
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+65.69	1,594.00
1+76.43	1,596.00
1+86.50	1,598.00
2+01.18	1,600.00
2+40.16	1,602.00

Twin Buttes Wash - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0146	ft/ft
Water Surface Elevation	1,595.30	ft
Elevation Range	1,592.00 to 1,610.00	
Discharge	1,250	cfs



Twin Buttes Wash - Approximate Method Section I-I
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0186	ft/ft
Discharge	1,250	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,607.71	ft
Elevation Range	1,604.00 to 1,620.00	
Flow Area	135.0	ft²
Wetted Perimeter	54.68	ft
Top Width	53.91	ft
Actual Depth	3.71	ft
Critical Elevation	1,607.77	ft
Critical Slope	0.0174	ft/ft
Velocity	9.26	ft/s
Velocity Head	1.33	ft
Specific Energy	1,609.04	ft
Froude Number	1.03	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+32.85	0.050
0+32.85	0+89.22	0.040
0+89.22	1+74.38	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,620.00
0+08.32	1,616.00
0+16.20	1,612.00
0+22.12	1,610.00
0+32.85	1,608.00
0+42.05	1,606.00
0+50.41	1,604.00
0+66.39	1,604.00
0+81.32	1,606.00
0+89.22	1,608.00
0+98.88	1,610.00

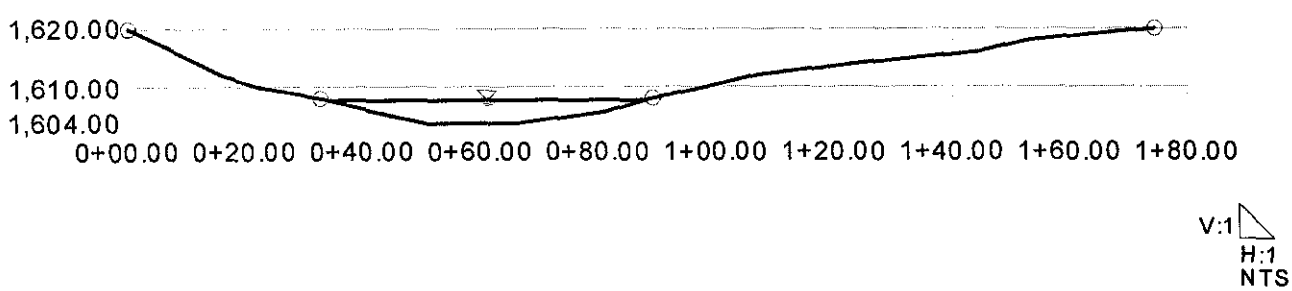
Twin Buttes Wash - Approximate Method Section I-I
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+07.24	1,612.00
1+24.29	1,614.00
1+44.73	1,616.00
1+53.09	1,618.00
1+74.38	1,620.00

Twin Buttes Wash - Approximate Method Section I-I
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0186	ft/ft
Water Surface Elevation	1,607.71	ft
Elevation Range	1,604.00 to 1,620.00	
Discharge	1,250	cfs



Twin Buttes Wash - Approximate Method Section J-J
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0198	ft/ft
Discharge	1,250	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.041	
Water Surface Elevation	1,623.39	ft
Elevation Range	1,621.10 to 1,648.00	
Flow Area	235.3	ft²
Wetted Perimeter	218.88	ft
Top Width	218.38	ft
Actual Depth	2.29	ft
Critical Elevation	1,623.31	ft
Critical Slope	0.0247	ft/ft
Velocity	5.31	ft/s
Velocity Head	0.44	ft
Specific Energy	1,623.83	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
2+62.45	3+32.45	0.050
3+32.45	5+27.70	0.040
5+27.70	5+70.83	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
2+62.45	1,624.00
3+32.45	1,623.00
4+20.54	1,622.00
4+45.32	1,621.90
4+84.81	1,622.00
4+92.52	1,622.30
5+00.88	1,622.00
5+11.03	1,621.10
5+21.32	1,622.00
5+27.70	1,626.00
5+31.36	1,630.00

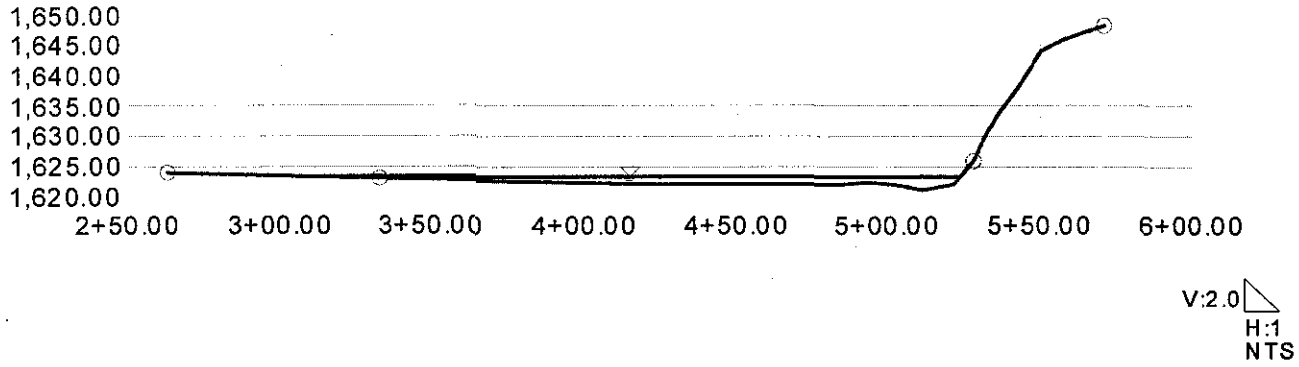
Twin Buttes Wash - Approximate Method Section J-J
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
5+36.56	1,634.00
5+42.23	1,638.00
5+45.19	1,640.00
5+50.27	1,644.00
5+57.59	1,646.00
5+70.83	1,648.00

Twin Buttes Wash - Approximate Method Section J-J
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.041	
Slope	0.0198	ft/ft
Water Surface Elevation	1,623.39	ft
Elevation Range	1,621.10 to 1,648.00	
Discharge	1,250	cfs



Twin Buttes Wash - Approximate Method Section K-K
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section K-K
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0089	ft/ft
Discharge	1,250	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,635.50	ft
Elevation Range	1,632.00 to 1,648.00	
Flow Area	213.2	ft²
Wetted Perimeter	98.50	ft
Top Width	97.73	ft
Actual Depth	3.50	ft
Critical Elevation	1,634.93	ft
Critical Slope	0.0191	ft/ft
Velocity	5.86	ft/s
Velocity Head	0.53	ft
Specific Energy	1,636.03	ft
Froude Number	0.70	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+38.85	0.050
0+38.85	1+46.92	0.040
1+46.92	2+70.72	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,642.00
0+11.87	1,640.00
0+25.84	1,638.00
0+38.85	1,636.00
0+49.75	1,634.00
0+90.21	1,632.00
1+13.22	1,632.00
1+16.66	1,634.00
1+46.92	1,636.00
1+66.51	1,638.00
1+73.12	1,640.00

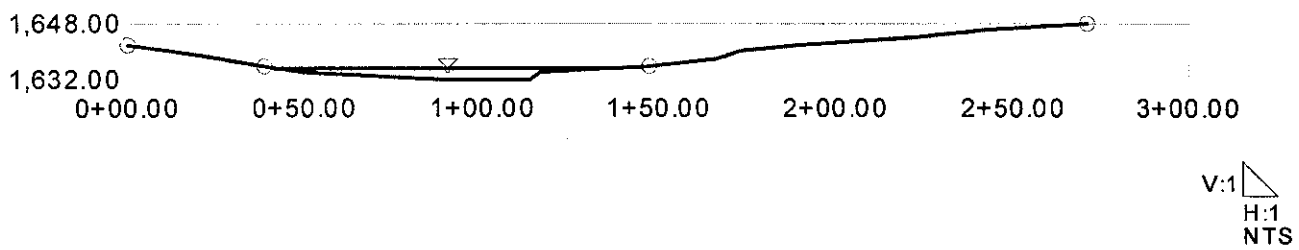
Twin Buttes Wash - Approximate Method Section K-K
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+89.40	1,642.00
2+21.92	1,644.00
2+42.94	1,646.00
2+70.72	1,648.00

Twin Buttes Wash - Approximate Method Section K-K
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section K-K
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0089	ft/ft
Water Surface Elevation	1,635.50	ft
Elevation Range	1,632.00 to 1,648.00	
Discharge	1,250	cfs



Twin Buttes Wash - Approximate Method Section L-L
Worksheet for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section L-L
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0138	ft/ft
Discharge	1,250	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.043	
Water Surface Elevation	1,650.85	ft
Elevation Range	1,648.00 to 1,660.00	
Flow Area	211.8	ft²
Wetted Perimeter	122.58	ft
Top Width	122.34	ft
Actual Depth	2.85	ft
Critical Elevation	1,650.54	ft
Critical Slope	0.0228	ft/ft
Velocity	5.90	ft/s
Velocity Head	0.54	ft
Specific Energy	1,651.39	ft
Froude Number	0.79	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+54.88	0.050
0+54.88	1+47.00	0.040
1+47.00	2+59.67	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,660.00
0+06.31	1,658.00
0+14.86	1,656.00
0+28.04	1,654.00
0+36.59	1,652.00
0+54.88	1,650.00
1+04.01	1,648.00
1+32.70	1,648.00
1+47.00	1,650.00
1+99.96	1,652.00
2+16.11	1,654.00

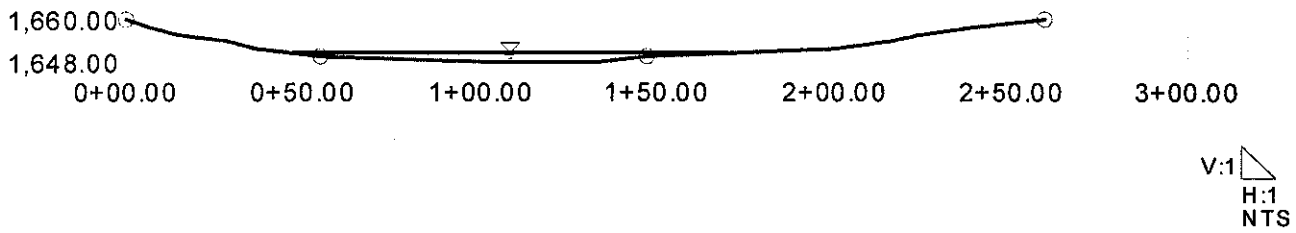
Twin Buttes Wash - Approximate Method Section L-L
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
2+23.79	1,656.00
2+39.45	1,658.00
2+59.67	1,660.00

Twin Buttes Wash - Approximate Method Section L-L
Cross Section for Irregular Channel

Project Description	
Worksheet	Twin Buttes Wash - Approximate Method Section L-L
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.043	
Slope	0.0138	ft/ft
Water Surface Elevation	1,650.85	ft
Elevation Range	1,648.00 to 1,660.00	
Discharge	1,250	cfs



Caterpillar Tank Wash – Approximate Method Reach

Caterpillar Tank Wash - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Caterpillar Tank Wash - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0137	ft/ft
Discharge	1,210	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,527.49	ft
Elevation Range	1,522.00 to 1,544.00	
Flow Area	134.6	ft^2
Wetted Perimeter	45.27	ft
Top Width	43.79	ft
Actual Depth	5.49	ft
Critical Elevation	1,527.26	ft
Critical Slope	0.0170	ft/ft
Velocity	8.99	ft/s
Velocity Head	1.26	ft
Specific Energy	1,528.75	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+20.54	0.050
0+20.54	0+77.70	0.040
0+77.70	1+13.60	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,544.00
0+07.09	1,540.00
0+20.54	1,530.00
0+29.69	1,526.00
0+38.89	1,524.00
0+46.09	1,522.00
0+58.58	1,524.00
0+65.54	1,526.00
0+77.70	1,530.00
0+85.54	1,532.00
0+88.79	1,534.00

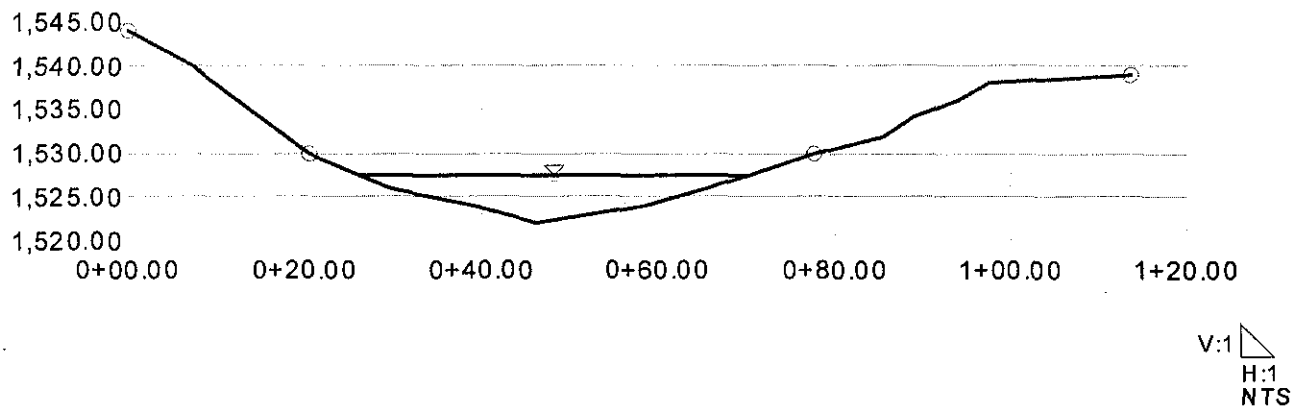
Caterpillar Tank Wash - Approximate Method Section A-A
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
0+94.11	1,536.00
0+97.60	1,538.00
1+13.60	1,538.80

Caterpillar Tank Wash - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Caterpillar Tank Wash - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0137	ft/ft
Water Surface Elevation	1,527.49	ft
Elevation Range	1,522.00 to 1,544.00	
Discharge	1,210	cfs



Caterpillar Tank Wash - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Caterpillar Tank Wash - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0231	ft/ft
Discharge	1,210	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.043	
Water Surface Elevation	1,541.43	ft
Elevation Range	1,538.00 to 1,560.00	
Flow Area	128.3	ft²
Wetted Perimeter	54.11	ft
Top Width	53.29	ft
Actual Depth	3.43	ft
Critical Elevation	1,541.56	ft
Critical Slope	0.0199	ft/ft
Velocity	9.43	ft/s
Velocity Head	1.38	ft
Specific Energy	1,542.81	ft
Froude Number	1.07	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+79.33	0.050
0+79.33	1+19.57	0.040
1+19.57	3+03.11	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,560.00
0+19.03	1,558.00
0+29.05	1,556.00
0+35.39	1,554.00
0+43.92	1,552.00
0+49.20	1,550.00
0+79.33	1,540.00
0+85.41	1,538.00
1+06.56	1,538.00
1+19.57	1,540.00
1+31.78	1,542.00

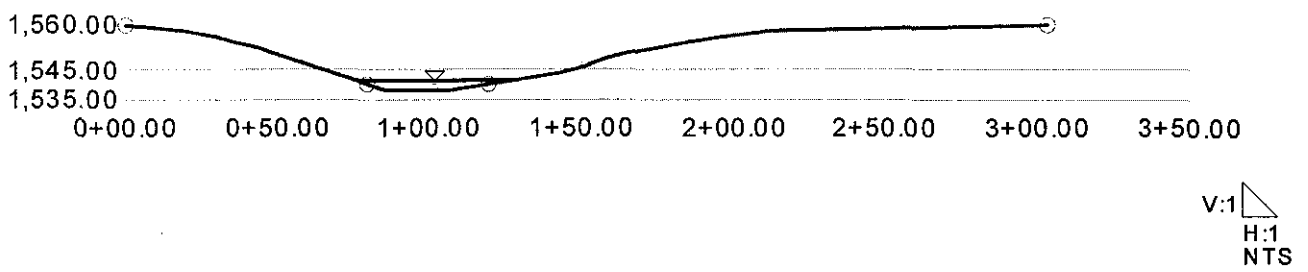
Caterpillar Tank Wash - Approximate Method Section B-B
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
1+43.19	1,544.00
1+50.90	1,546.00
1+56.97	1,548.00
1+63.91	1,550.00
1+74.10	1,552.00
1+84.36	1,554.00
1+96.44	1,556.00
2+12.37	1,558.00
3+03.11	1,560.00

Caterpillar Tank Wash - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Caterpillar Tank Wash - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.043	
Slope	0.0231	ft/ft
Water Surface Elevation	1,541.43	ft
Elevation Range	1,538.00 to 1,560.00	
Discharge	1,210	cfs



Unnamed Wash 4 – Approximate Method Reach

Unnamed Wash 4 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0146	ft/ft
Discharge	1,420	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	922.98	ft
Elevation Range	921.30 to 1,011.70	
Flow Area	271.2	ft²
Wetted Perimeter	214.93	ft
Top Width	214.53	ft
Actual Depth	1.68	ft
Critical Elevation	922.83	ft
Critical Slope	0.0226	ft/ft
Velocity	5.24	ft/s
Velocity Head	0.43	ft
Specific Energy	923.41	ft
Froude Number	0.82	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	2+78.50	0.050
2+78.50	5+09.20	0.040
5+09.20	8+26.50	0.050

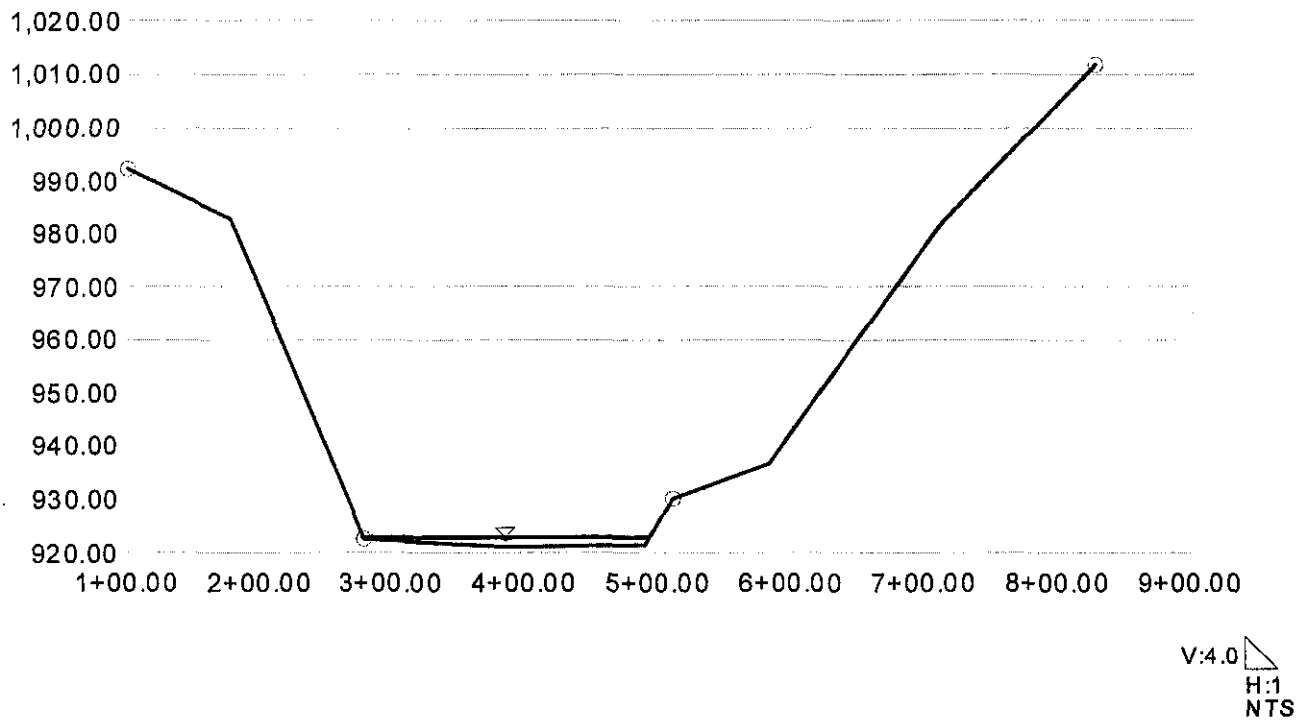
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	992.20
1+77.60	982.80
2+78.50	922.60
3+87.30	921.30
4+89.20	921.60
5+09.20	930.30
5+82.00	936.80
7+10.90	982.00
8+26.50	1,011.70

Unnamed Wash 4 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0146	ft/ft
Water Surface Elevation	922.98	ft
Elevation Range	921.30 to 1,011.70	
Discharge	1,420	*cfs*



Unnamed Wash 4 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0305	ft/ft
Discharge	1,420	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	941.51	ft
Elevation Range	938.10 to 993.10	
Flow Area	147.6	ft²
Wetted Perimeter	81.38	ft
Top Width	80.65	ft
Actual Depth	3.41	ft
Critical Elevation	941.82	ft
Critical Slope	0.0185	ft/ft
Velocity	9.62	ft/s
Velocity Head	1.44	ft
Specific Energy	942.95	ft
Froude Number	1.25	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+43.30	0.050
1+43.30	2+60.70	0.040
2+60.70	4+36.60	0.050

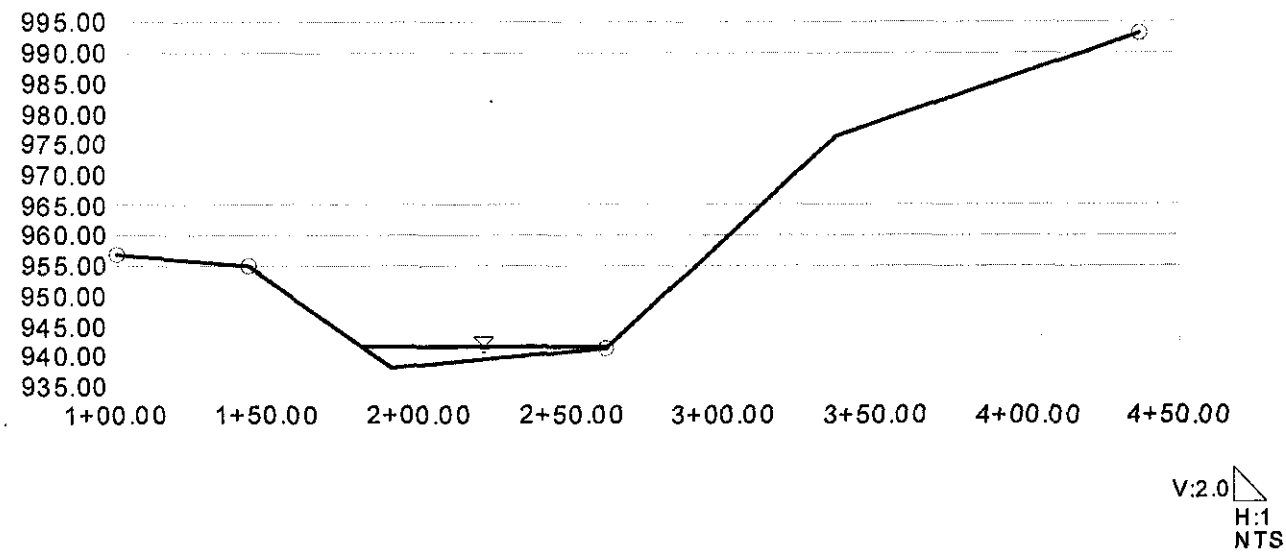
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	956.70
1+43.30	955.00
1+90.20	938.10
2+60.70	941.20
3+36.70	976.20
4+36.60	993.10

Unnamed Wash 4 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.040
Slope	0.0305 ft/ft
Water Surface Elevation	941.51 ft
Elevation Range	938.10 to 993.10
Discharge	1,420 cfs



Unnamed Wash 4 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0186	ft/ft
Discharge	1,420	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	933.88	ft
Elevation Range	930.00 to 977.20	
Flow Area	182.9	ft²
Wetted Perimeter	96.46	ft
Top Width	94.32	ft
Actual Depth	3.88	ft
Critical Elevation	933.85	ft
Critical Slope	0.0193	ft/ft
Velocity	7.76	ft/s
Velocity Head	0.94	ft
Specific Energy	934.82	ft
Froude Number	0.98	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+67.10	0.050
1+67.10	2+99.40	0.040
2+99.40	5+06.90	0.050

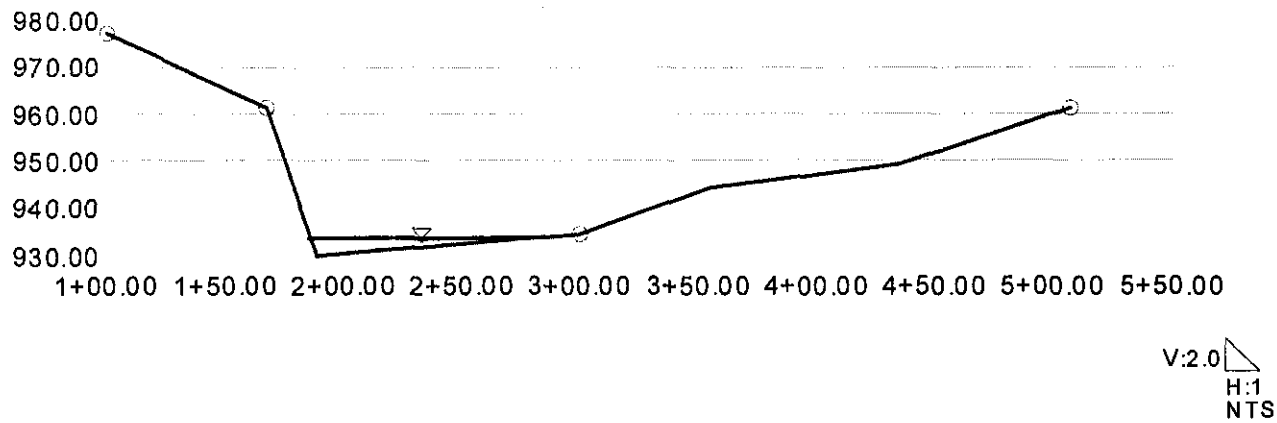
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	977.20
1+67.10	961.20
1+88.30	930.00
2+99.40	934.70
3+55.00	944.30
4+35.40	949.20
5+06.90	961.40

Unnamed Wash 4 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0186	ft/ft
Water Surface Elevation	933.88	ft
Elevation Range	930.00 to 977.20	
Discharge	1,420	cfs



Unnamed Wash 4 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0185	ft/ft
Discharge	1,420	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	937.00	ft
Elevation Range	934.00 to 976.30	
Flow Area	162.2	ft²
Wetted Perimeter	71.12	ft
Top Width	70.25	ft
Actual Depth	3.00	ft
Critical Elevation	937.03	ft
Critical Slope	0.0179	ft/ft
Velocity	8.75	ft/s
Velocity Head	1.19	ft
Specific Energy	938.19	ft
Froude Number	1.02	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	1+56.90	0.050
1+56.90	3+21.00	0.040
3+21.00	4+70.60	0.050

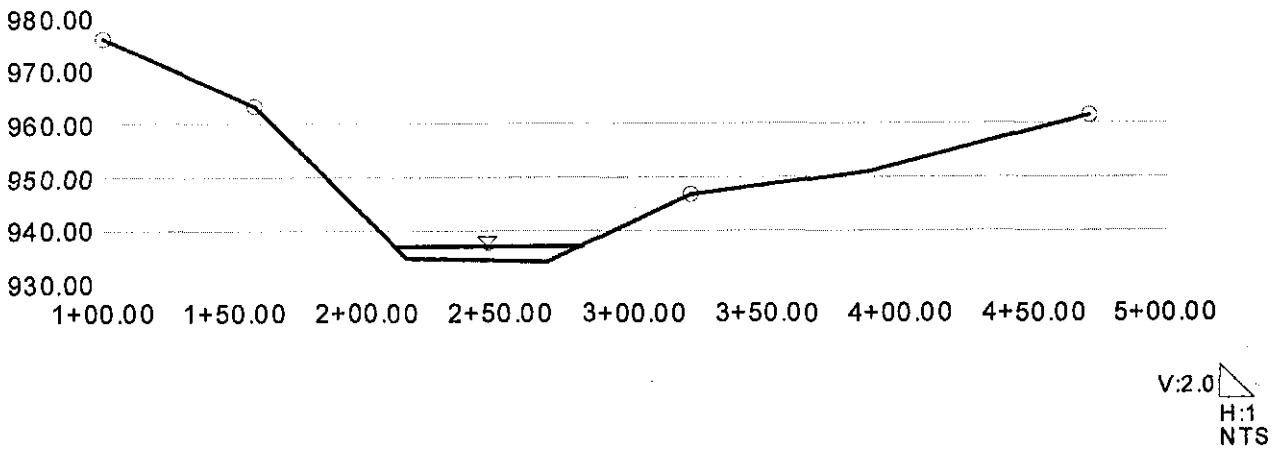
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	976.30
1+56.90	963.40
2+14.40	934.80
2+67.60	934.00
3+21.00	946.70
3+88.30	951.10
4+70.60	961.50

Unnamed Wash 4 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0185	ft/ft
Water Surface Elevation	937.00	ft
Elevation Range	934.00 to 976.30	
Discharge	1,420	cfs



Unnamed Wash 4 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0178	ft/ft
Discharge	1,420	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.041	
Water Surface Elevation	967.67	ft
Elevation Range	963.40 to 990.10	
Flow Area	150.4	ft²
Wetted Perimeter	55.29	ft
Top Width	53.62	ft
Actual Depth	4.27	ft
Critical Elevation	967.66	ft
Critical Slope	0.0180	ft/ft
Velocity	9.44	ft/s
Velocity Head	1.39	ft
Specific Energy	969.06	ft
Froude Number	0.99	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	2+05.10	0.050
2+05.10	2+59.30	0.040
2+59.30	4+03.50	0.050

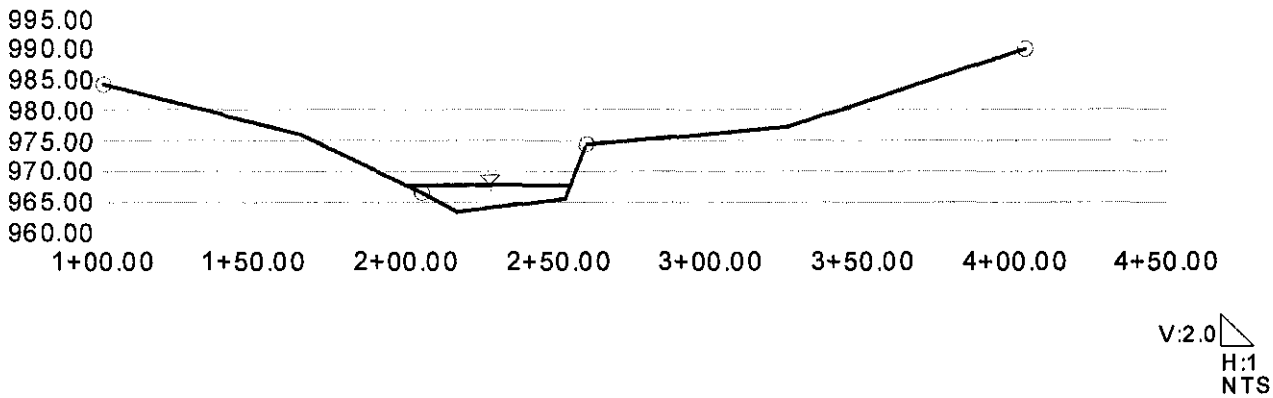
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	984.30
1+65.10	975.90
2+05.10	966.60
2+16.70	963.40
2+52.40	965.50
2+59.30	974.30
3+25.00	977.40
4+03.50	990.10

Unnamed Wash 4 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.041
Slope	0.0178 ft/ft
Water Surface Elevation	967.67 ft
Elevation Range	963.40 to 990.10
Discharge	1,420 cfs



Unnamed Wash 4 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005300	ft/ft
Discharge	772.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,317.07	ft
Elevation Range	1,313.82 to 1,318.88	
Flow Area	379.4	ft²
Wetted Perimeter	487.30	ft
Top Width	487.15	ft
Actual Depth	3.25	ft
Critical Elevation	1,316.53	ft
Critical Slope	0.034603	ft/ft
Velocity	2.03	ft/s
Velocity Head	0.06	ft
Specific Energy	1,317.13	ft
Froude Number	0.41	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	11+19.02	0.045

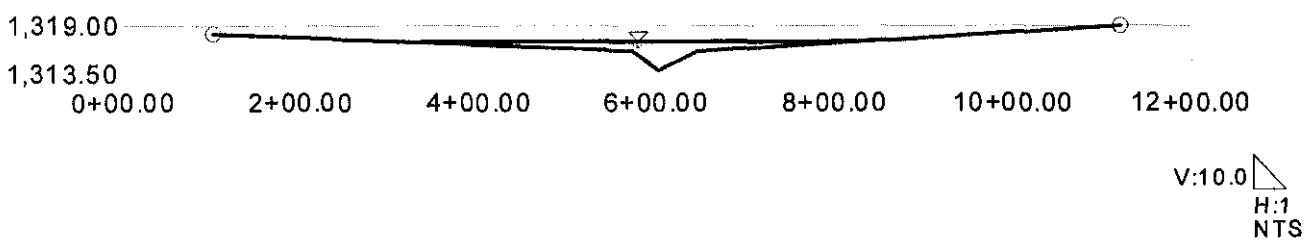
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,318.12
5+72.03	1,316.00
6+00.89	1,313.82
6+45.30	1,316.00
11+19.02	1,318.88

Unnamed Wash 4 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section F-F
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.005300	ft/ft
Water Surface Elevation	1,317.07	ft
Elevation Range	1,313.82 to 1,318.88	
Discharge	772.00	cfs



Unnamed Wash 4 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.008200	ft/ft
Discharge	772.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,322.80	ft
Elevation Range	1,321.64 to 1,326.00	
Flow Area	315.6	ft²
Wetted Perimeter	426.39	ft
Top Width	426.38	ft
Actual Depth	1.16	ft
Critical Elevation	1,322.46	ft
Critical Slope	0.036274	ft/ft
Velocity	2.45	ft/s
Velocity Head	0.09	ft
Specific Energy	1,322.89	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	12+39.80	0.045

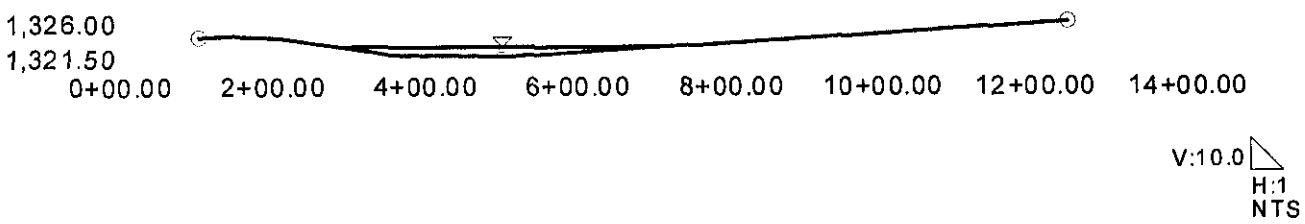
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,324.00
1+47.63	1,324.30
2+03.16	1,324.00
3+49.46	1,321.84
5+05.89	1,321.64
6+66.35	1,322.54
9+20.07	1,324.00
12+39.80	1,326.00

Unnamed Wash 4 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.008200	ft/ft
Water Surface Elevation	1,322.80	ft
Elevation Range	1,321.64 to 1,326.00	
Discharge	772.00	cfs



Unnamed Wash 4 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.007600	ft/ft
Discharge	772.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,329.15	ft
Elevation Range	1,327.18 to 1,344.00	
Flow Area	292.5	ft²
Wetted Perimeter	333.27	ft
Top Width	332.76	ft
Actual Depth	1.97	ft
Critical Elevation	1,328.73	ft
Critical Slope	0.033903	ft/ft
Velocity	2.64	ft/s
Velocity Head	0.11	ft
Specific Energy	1,329.26	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
1+00.00	5+29.80	0.045

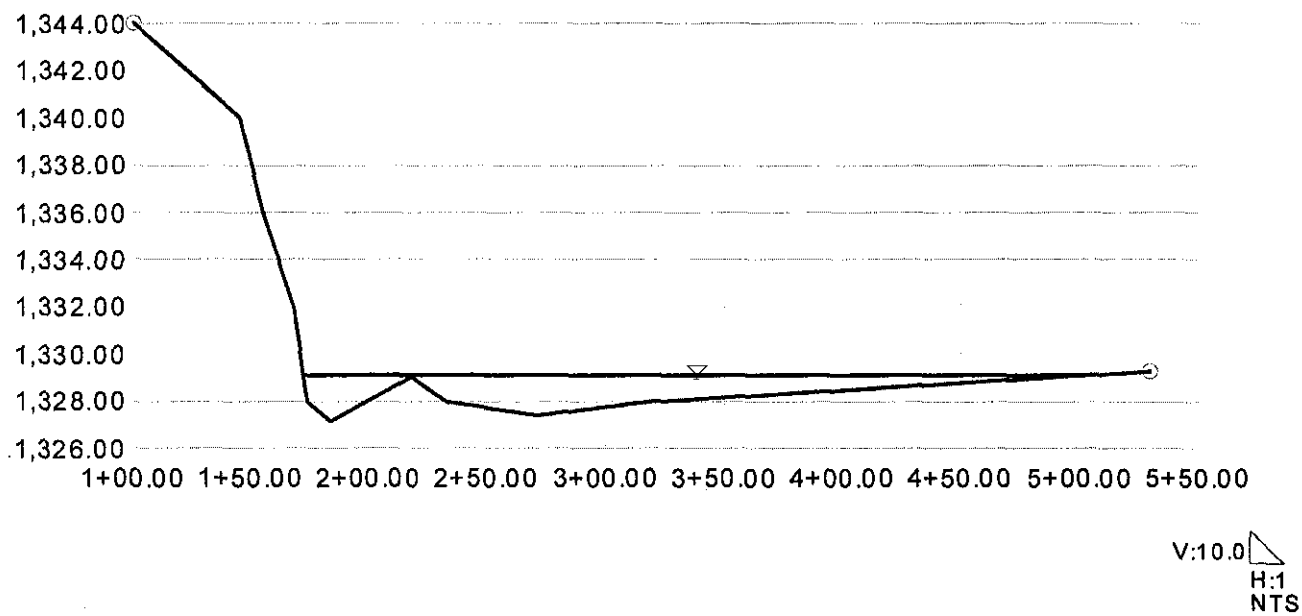
Natural Channel Points

Station (ft)	Elevation (ft)
1+00.00	1,344.00
1+45.27	1,340.00
1+54.59	1,336.00
1+67.95	1,332.00
1+73.48	1,328.00
1+83.28	1,327.18
1+98.63	1,328.00
2+17.94	1,329.08
2+32.66	1,328.00
2+71.01	1,327.42
3+18.53	1,328.00
5+29.80	1,329.31

Unnamed Wash 4 - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.007600	ft/ft
Water Surface Elevation	1,329.15	ft
Elevation Range	1,327.18 to 1,344.00	
Discharge	772.00	cfs



Unnamed Wash 4 - Approximate Method Section I-I
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.009200	ft/ft
Discharge	689.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,333.16	ft
Elevation Range	1,329.87 to 1,356.00	
Flow Area	225.9	ft²
Wetted Perimeter	238.96	ft
Top Width	238.45	ft
Actual Depth	3.29	ft
Critical Elevation	1,332.75	ft
Critical Slope	0.032421	ft/ft
Velocity	3.05	ft/s
Velocity Head	0.14	ft
Specific Energy	1,333.31	ft
Froude Number	0.55	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
1+00.00	5+54.76	0.045

Natural Channel Points	
Station (ft)	Elevation (ft)
1+00.00	1,356.00
2+15.14	1,352.00
2+26.83	1,348.00
2+38.17	1,344.00
2+43.59	1,340.00
2+52.25	1,336.00
2+66.28	1,332.00
2+83.40	1,329.87
3+01.87	1,332.00
3+17.58	1,333.22

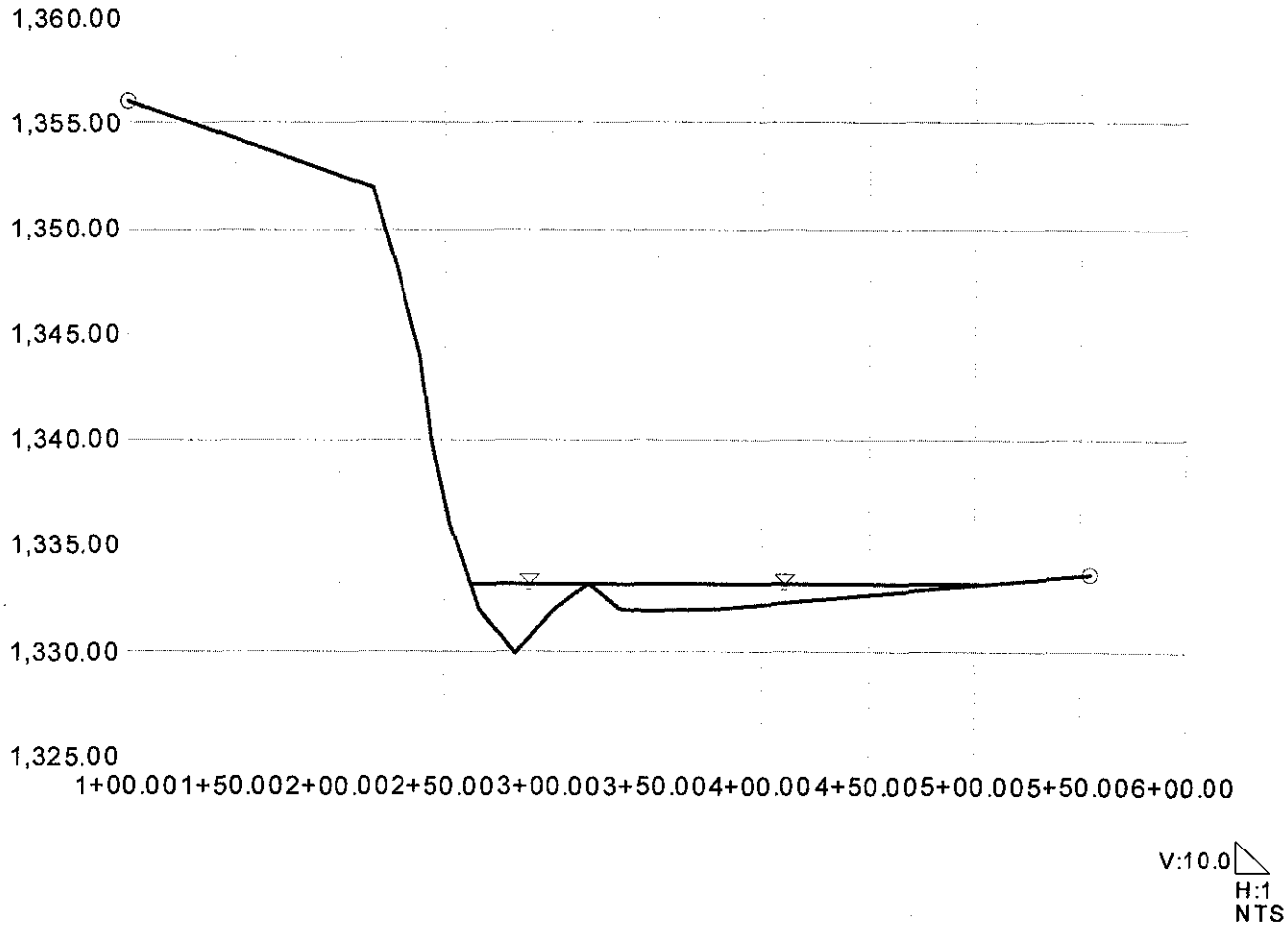
Unnamed Wash 4 - Approximate Method Section I-I
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
3+32.69	1,332.00
3+44.74	1,331.92
3+78.60	1,332.00
5+54.76	1,333.66

Unnamed Wash 4 - Approximate Method Section I-I
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.009200	ft/ft
Water Surface Elevation	1,333.16	ft
Elevation Range	1,329.87 to 1,356.00	
Discharge	689.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.009200	ft/ft
Discharge	689.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	100.70	ft
Elevation Range	96.90 to 103.30	
Flow Area	113.8	ft²
Wetted Perimeter	43.03	ft
Top Width	41.79	ft
Actual Depth	3.80	ft
Critical Elevation	99.89	ft
Critical Slope	0.023454	ft/ft
Velocity	6.06	ft/s
Velocity Head	0.57	ft
Specific Energy	101.27	ft
Froude Number	0.65	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+83.00	0.045

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	103.30
0+15.00	99.00
0+24.00	97.00
0+42.00	96.90
0+52.00	101.20
0+83.00	102.80

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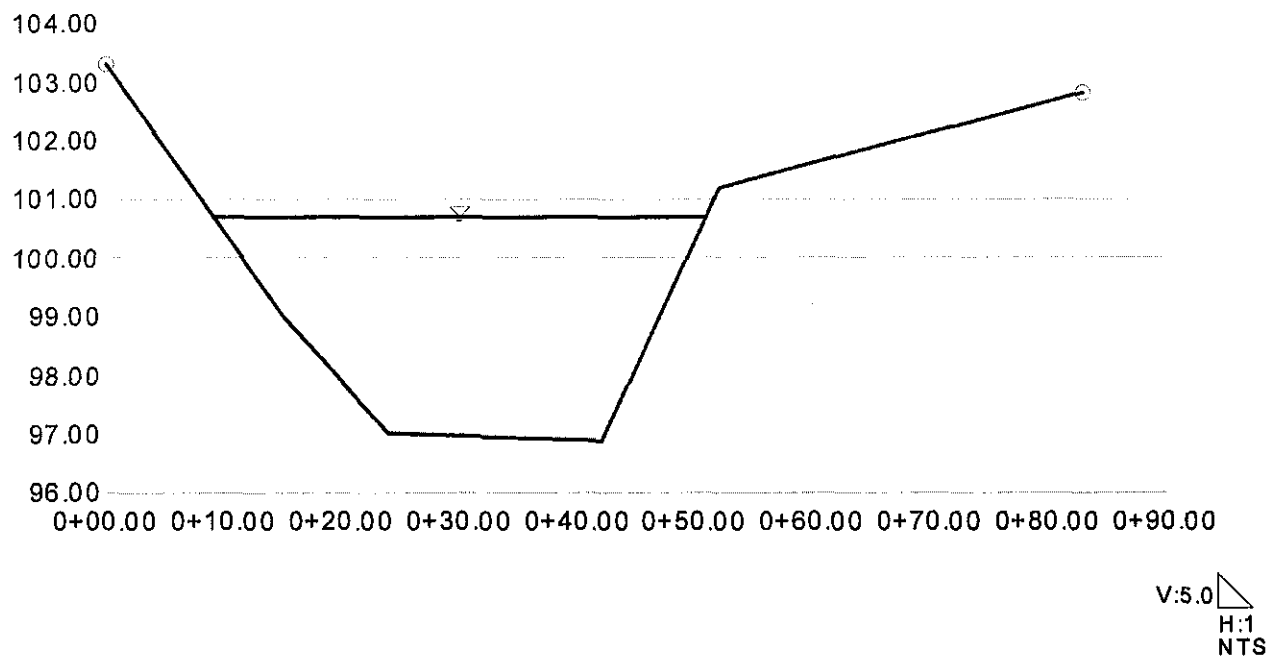
Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	*Unnamed Wash 4 - Approximate Method Section J-J*
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.009200	ft/ft
Water Surface Elevation	100.70	ft
Elevation Range	96.90 to 103.30	
Discharge	689.00	cfs



Unnamed Wash 4 - Approximate Method Section K-K
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section K-K
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.012000	ft/ft
Discharge	689.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,335.91	ft
Elevation Range	1,332.00 to 1,340.00	
Flow Area	122.5	ft²
Wetted Perimeter	63.19	ft
Top Width	62.67	ft
Actual Depth	3.91	ft
Critical Elevation	1,335.41	ft
Critical Slope	0.024980	ft/ft
Velocity	5.62	ft/s
Velocity Head	0.49	ft
Specific Energy	1,336.40	ft
Froude Number	0.71	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+89.78	0.045

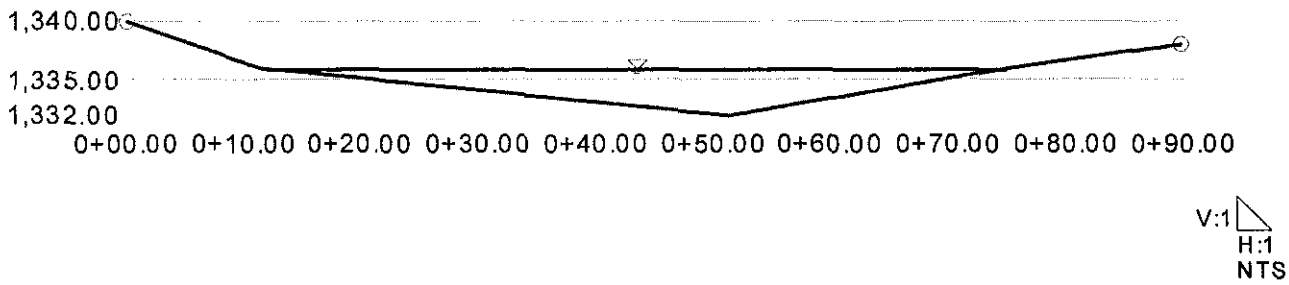
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,340.00
0+11.15	1,336.00
0+51.42	1,332.00
0+75.27	1,336.00
0+89.78	1,338.00

Unnamed Wash 4 - Approximate Method Section K-K
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 4 - Approximate Method Section K-K
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.012000	ft/ft
Water Surface Elevation	1,335.91	ft
Elevation Range	1,332.00 to 1,340.00	
Discharge	689.00	cfs



Tributary 1 to Unnamed Wash 4 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 4 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.002820	ft/ft
Discharge	772.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.038	
Water Surface Elevation	101.60	ft
Elevation Range	96.20 to 101.67	
Flow Area	283.9	ft²
Wetted Perimeter	192.02	ft
Top Width	190.28	ft
Actual Depth	5.40	ft
Critical Elevation	99.94	ft
Critical Slope	0.016448	ft/ft
Velocity	2.72	ft/s
Velocity Head	0.11	ft
Specific Energy	101.71	ft
Froude Number	0.39	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.7951881 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+50.00	0.035
1+50.00	1+97.00	0.045

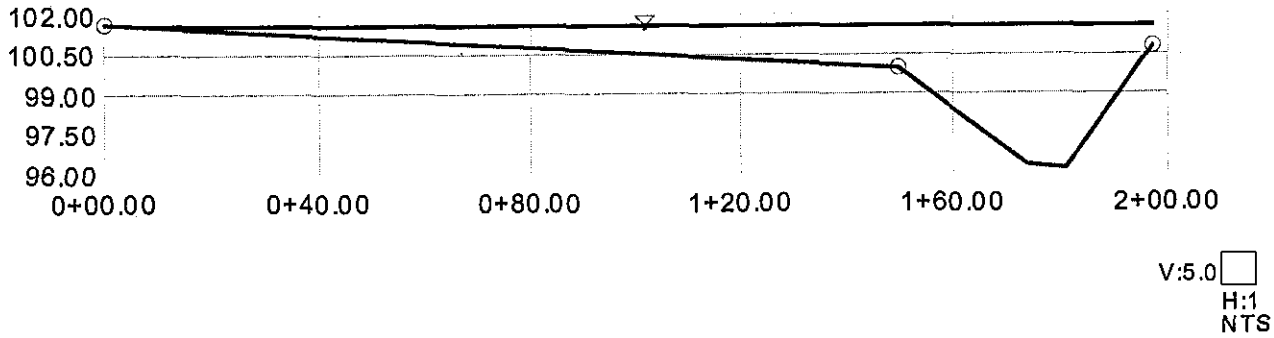
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	101.67
1+50.00	100.00
1+74.00	96.30
1+81.00	96.20
1+97.00	100.80

Tributary 1 to Unnamed Wash 4 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 4 - Approximate Method Section A-A
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.038	
Slope	0.002820	ft/ft
Water Surface Elevation	101.60	ft
Elevation Range	96.20 to 101.67	
Discharge	772.00	cfs



Tributary 1 to Unnamed Wash 4 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 4 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.002820	ft/ft
Discharge	772.00	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.038	
Water Surface Elevation	102.07	ft
Elevation Range	98.00 to 102.60	
Flow Area	272.0	ft²
Wetted Perimeter	169.63	ft
Top Width	168.45	ft
Actual Depth	4.07	ft
Critical Elevation	101.00	ft
Critical Slope	0.020056	ft/ft
Velocity	2.84	ft/s
Velocity Head	0.13	ft
Specific Energy	102.20	ft
Froude Number	0.39	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.77051627 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+50.00	0.035
1+50.00	1+99.00	0.045

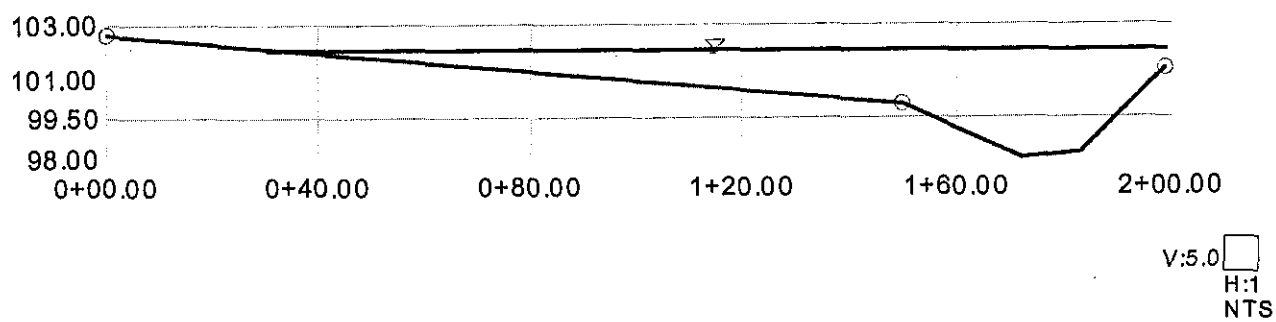
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	102.60
1+50.00	100.00
1+72.00	98.00
1+83.00	98.20
1+99.00	101.30

Tributary 1 to Unnamed Wash 4 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 4 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.038	
Slope	0.002820	ft/ft
Water Surface Elevation	102.07	ft
Elevation Range	98.00 to 102.60	
Discharge	772.00	cfs



Unnamed Wash 5 – Approximate Method Reach

Unnamed Wash 5 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0044	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,347.27	ft
Elevation Range	1,342.90 to 1,360.00	
Flow Area	315.9	ft²
Wetted Perimeter	145.52	ft
Top Width	145.24	ft
Actual Depth	4.37	ft
Critical Elevation	1,346.05	ft
Critical Slope	0.0255	ft/ft
Velocity	3.67	ft/s
Velocity Head	0.21	ft
Specific Energy	1,347.48	ft
Froude Number	0.44	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+46.96	0.050
0+46.96	2+16.73	0.045
2+16.73	2+82.94	0.050

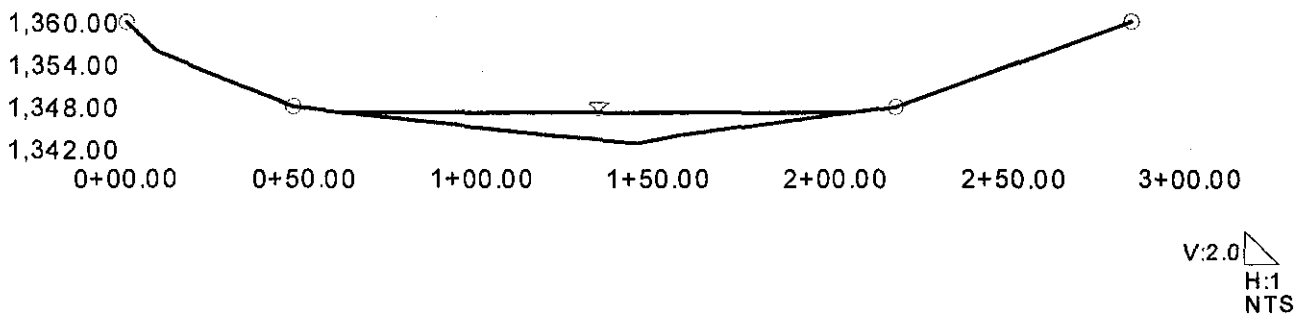
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,360.00
0+08.19	1,356.00
0+27.60	1,352.00
0+46.96	1,348.00
1+19.46	1,344.00
1+44.00	1,342.90
1+55.50	1,344.00
2+16.73	1,348.00
2+82.94	1,360.00

Unnamed Wash 5 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0044	ft/ft
Water Surface Elevation	1,347.27	ft
Elevation Range	1,342.90 to 1,360.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0128	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,353.16	ft
Elevation Range	1,350.70 to 1,360.00	
Flow Area	223.4	ft²
Wetted Perimeter	136.29	ft
Top Width	136.09	ft
Actual Depth	2.46	ft
Critical Elevation	1,352.81	ft
Critical Slope	0.0267	ft/ft
Velocity	5.19	ft/s
Velocity Head	0.42	ft
Specific Energy	1,353.58	ft
Froude Number	0.71	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+47.23	0.050
0+47.23	2+29.25	0.045
2+29.25	2+46.36	0.050

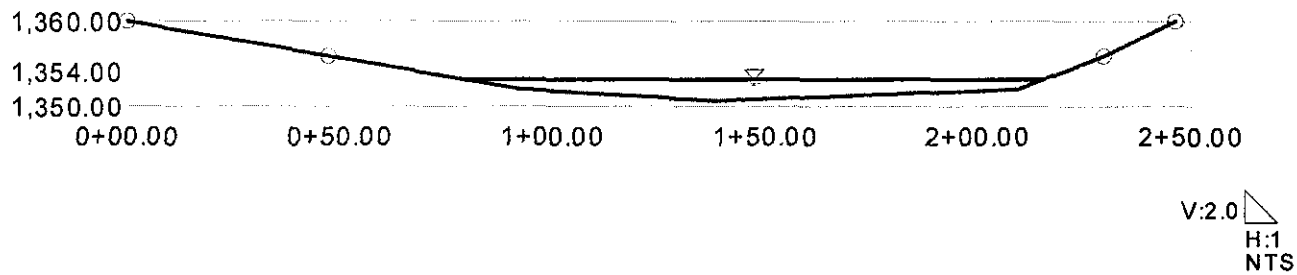
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,360.00
0+47.23	1,356.00
0+92.18	1,352.00
1+37.94	1,350.70
2+09.48	1,352.00
2+29.25	1,356.00
2+46.36	1,360.00

Unnamed Wash 5 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0128	ft/ft
Water Surface Elevation	1,353.16	ft
Elevation Range	1,350.70 to 1,360.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0070	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.046	
Water Surface Elevation	1,364.52	ft
Elevation Range	1,361.90 to 1,376.00	
Flow Area	343.4	ft²
Wetted Perimeter	248.06	ft
Top Width	247.99	ft
Actual Depth	2.62	ft
Critical Elevation	1,363.90	ft
Critical Slope	0.0304	ft/ft
Velocity	3.38	ft/s
Velocity Head	0.18	ft
Specific Energy	1,364.69	ft
Froude Number	0.51	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	3+08.95	0.050
3+08.95	5+22.72	0.045
5+22.72	6+04.96	0.050

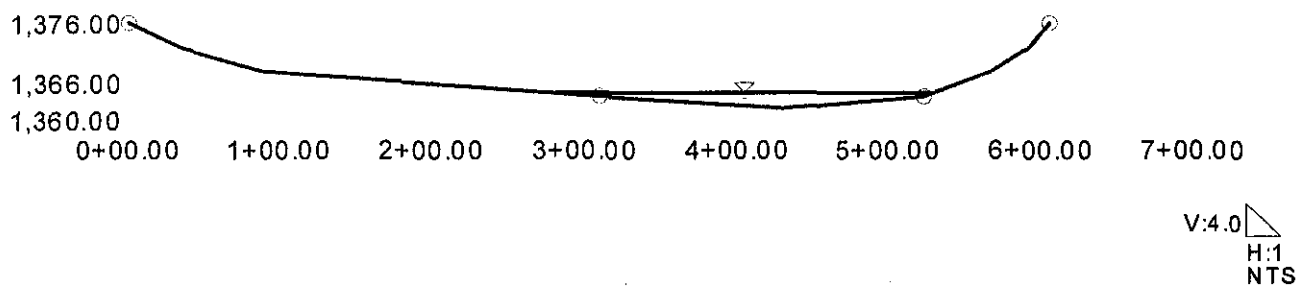
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,376.00
0+34.15	1,372.00
0+87.58	1,368.00
3+08.95	1,364.00
4+29.75	1,361.90
5+22.72	1,364.00
5+67.12	1,368.00
5+91.30	1,372.00
6+04.96	1,376.00

Unnamed Wash 5 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.046	
Slope	0.0070	ft/ft
Water Surface Elevation	1,364.52	ft
Elevation Range	1,361.90 to 1,376.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0089	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,378.11	ft
Elevation Range	1,374.40 to 1,392.00	
Flow Area	226.9	ft²
Wetted Perimeter	107.89	ft
Top Width	107.59	ft
Actual Depth	3.71	ft
Critical Elevation	1,377.40	ft
Critical Slope	0.0248	ft/ft
Velocity	5.11	ft/s
Velocity Head	0.41	ft
Specific Energy	1,378.51	ft
Froude Number	0.62	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+04.20	0.050
1+04.20	2+53.43	0.045
2+53.43	2+89.26	0.050

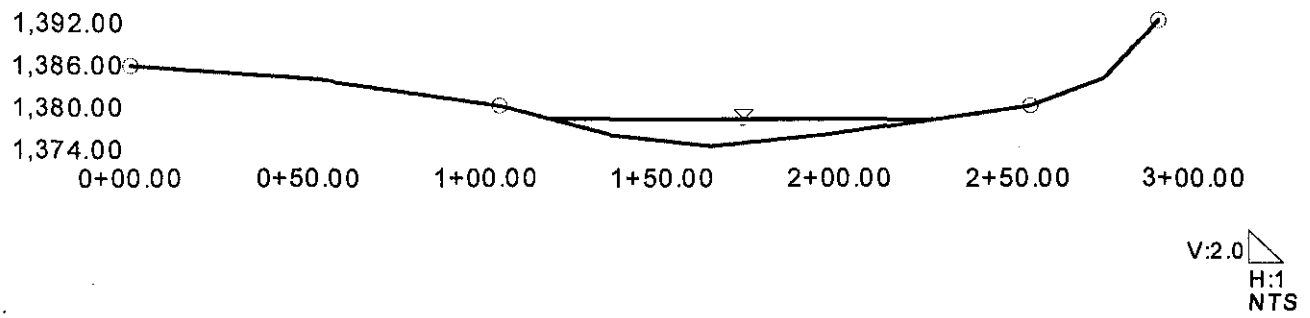
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,385.90
0+52.19	1,384.00
1+04.20	1,380.00
1+34.76	1,376.00
1+63.35	1,374.40
1+96.04	1,376.00
2+53.43	1,380.00
2+73.88	1,384.00
2+89.26	1,392.00

Unnamed Wash 5 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0089	ft/ft
Water Surface Elevation	1,378.11	ft
Elevation Range	1,374.40 to 1,392.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0118	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.047	
Water Surface Elevation	1,389.66	ft
Elevation Range	1,386.40 to 1,404.00	
Flow Area	268.1	ft²
Wetted Perimeter	191.20	ft
Top Width	190.57	ft
Actual Depth	3.26	ft
Critical Elevation	1,389.25	ft
Critical Slope	0.0308	ft/ft
Velocity	4.33	ft/s
Velocity Head	0.29	ft
Specific Energy	1,389.95	ft
Froude Number	0.64	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+58.24	0.050
1+58.24	2+87.93	0.045
2+87.93	3+72.59	0.050

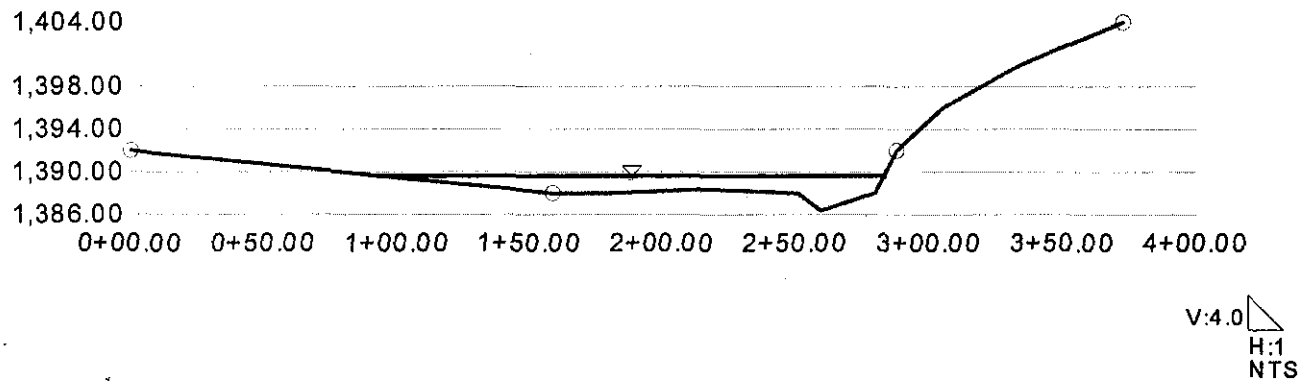
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,392.00
1+58.24	1,388.00
1+80.93	1,388.00
2+17.51	1,388.40
2+50.83	1,388.00
2+59.05	1,386.40
2+79.83	1,388.00
2+87.93	1,392.00
3+04.98	1,396.00
3+34.04	1,400.00
3+72.59	1,404.00

Unnamed Wash 5 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.047	
Slope	0.0118	ft/ft
Water Surface Elevation	1,389.66	ft
Elevation Range	1,386.40 to 1,404.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0082	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,402.08	ft
Elevation Range	1,397.90 to 1,412.00	
Flow Area	237.0	ft²
Wetted Perimeter	113.16	ft
Top Width	112.84	ft
Actual Depth	4.18	ft
Critical Elevation	1,401.29	ft
Critical Slope	0.0248	ft/ft
Velocity	4.89	ft/s
Velocity Head	0.37	ft
Specific Energy	1,402.45	ft
Froude Number	0.60	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+64.17	0.045
1+64.17	2+42.25	0.050

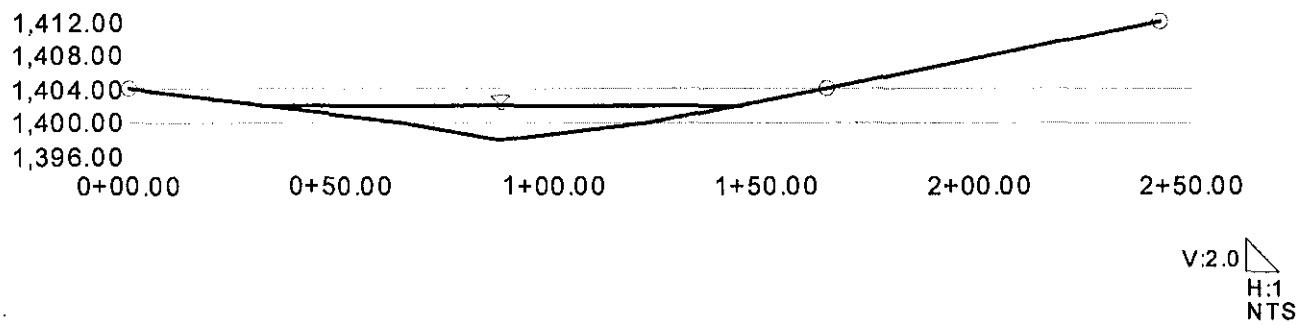
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,404.00
0+64.35	1,400.00
0+86.50	1,397.90
1+21.64	1,400.00
1+64.17	1,404.00
2+01.57	1,408.00
2+42.25	1,412.00

Unnamed Wash 5 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0082	ft/ft
Water Surface Elevation	1,402.08	ft
Elevation Range	1,397.90 to 1,412.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0124	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,411.70	ft
Elevation Range	1,407.30 to 1,416.00	
Flow Area	147.6	ft²
Wetted Perimeter	47.26	ft
Top Width	45.54	ft
Actual Depth	4.40	ft
Critical Elevation	1,411.11	ft
Critical Slope	0.0218	ft/ft
Velocity	7.86	ft/s
Velocity Head	0.96	ft
Specific Energy	1,412.66	ft
Froude Number	0.77	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+11.72	0.050
0+11.72	0+58.60	0.045
0+58.60	0+96.64	0.050

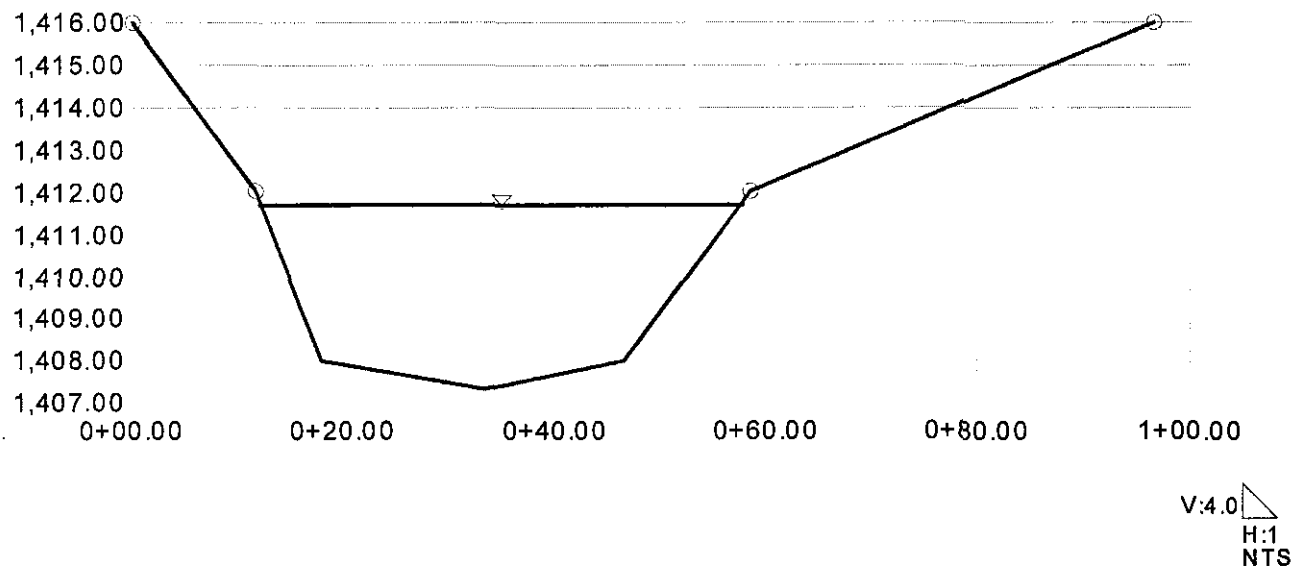
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,416.00
0+11.72	1,412.00
0+18.01	1,408.00
0+33.24	1,407.30
0+46.74	1,408.00
0+58.60	1,412.00
0+96.64	1,416.00

Unnamed Wash 5 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	*Unnamed Wash 5 - Approximate Method Section G-G*
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	*0.0124*	ft/ft
Water Surface Elevation	1,411.70	ft
Elevation Range	1,407.30 to 1,416.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0118	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.048	
Water Surface Elevation	1,419.97	ft
Elevation Range	1,415.03 to 1,421.70	
Flow Area	314.2	ft²
Wetted Perimeter	269.51	ft
Top Width	268.76	ft
Actual Depth	4.94	ft
Critical Elevation	1,418.77	ft
Critical Slope	0.0276	ft/ft
Velocity	3.69	ft/s
Velocity Head	0.21	ft
Specific Energy	1,420.18	ft
Froude Number	0.60	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+37.63	0.050
2+37.63	3+22.90	0.045
3+22.90	3+50.88	0.050

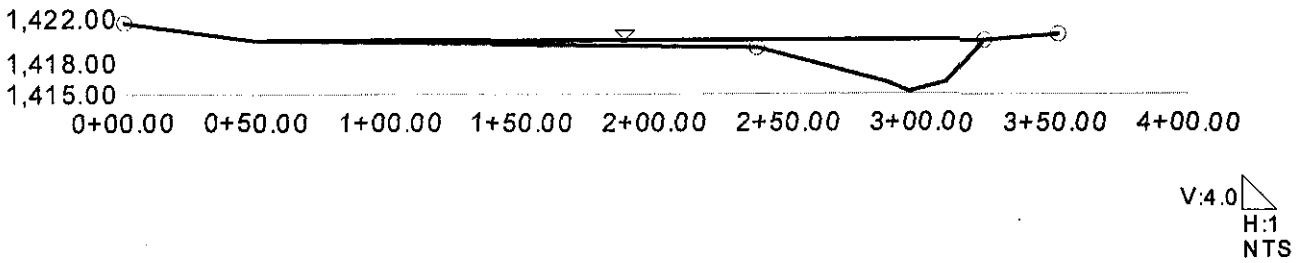
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,421.70
0+45.65	1,420.00
2+37.63	1,419.20
2+85.89	1,416.00
2+94.92	1,415.03
3+08.87	1,416.00
3+22.90	1,420.00
3+50.88	1,420.60

Unnamed Wash 5 - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.048	
Slope	0.0118	ft/ft
Water Surface Elevation	1,419.97	ft
Elevation Range	1,415.03 to 1,421.70	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section I-I
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0151	ft/ft
Discharge	1,160	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,434.22	ft
Elevation Range	1,431.30 to 1,440.00	
Flow Area	184.5	ft²
Wetted Perimeter	95.72	ft
Top Width	95.44	ft
Actual Depth	2.92	ft
Critical Elevation	1,433.90	ft
Critical Slope	0.0246	ft/ft
Velocity	6.29	ft/s
Velocity Head	0.61	ft
Specific Energy	1,434.83	ft
Froude Number	0.80	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+28.79	0.045
1+28.79	2+82.21	0.050

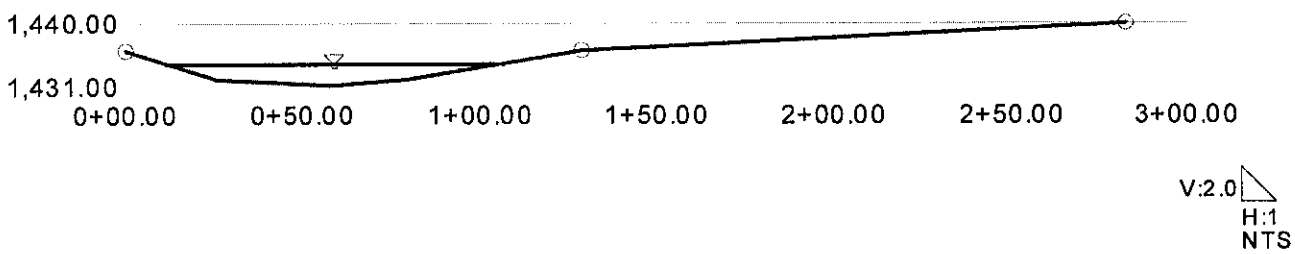
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,436.00
0+25.49	1,432.00
0+58.45	1,431.30
0+79.30	1,432.00
1+28.79	1,436.00
2+82.21	1,440.00

Unnamed Wash 5 - Approximate Method Section I-I
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0151	ft/ft
Water Surface Elevation	1,434.22	ft
Elevation Range	1,431.30 to 1,440.00	
Discharge	1,160	cfs



Unnamed Wash 5 - Approximate Method Section J-J
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0151	ft/ft
Discharge	880	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,448.87	ft
Elevation Range	1,445.40 to 1,460.00	
Flow Area	147.3	ft²
Wetted Perimeter	82.39	ft
Top Width	82.00	ft
Actual Depth	3.47	ft
Critical Elevation	1,448.55	ft
Critical Slope	0.0253	ft/ft
Velocity	5.98	ft/s
Velocity Head	0.55	ft
Specific Energy	1,449.43	ft
Froude Number	0.79	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+30.62	0.070
1+30.62	2+76.51	0.045
2+76.51	3+47.42	0.070

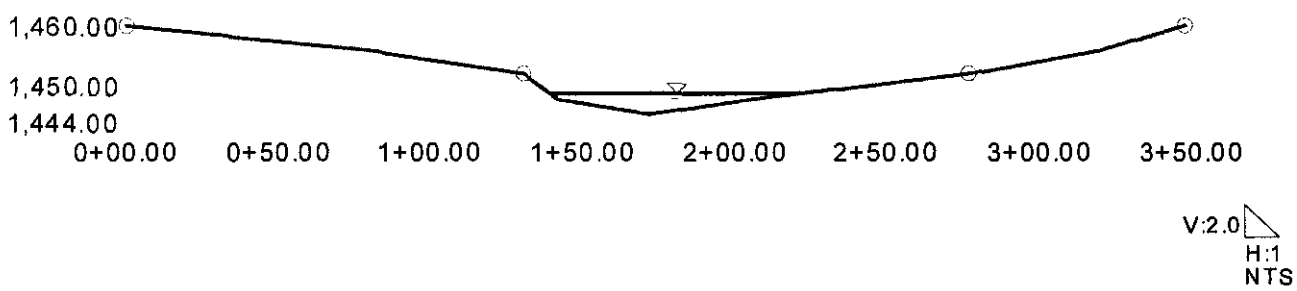
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,460.00
0+79.86	1,456.00
1+30.62	1,452.00
1+41.81	1,448.00
1+71.64	1,445.40
2+05.93	1,448.00
2+76.51	1,452.00
3+19.66	1,456.00
3+47.42	1,460.00

Unnamed Wash 5 - Approximate Method Section J-J
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0151	ft/ft
Water Surface Elevation	1,448.87	ft
Elevation Range	1,445.40 to 1,460.00	
Discharge	880	cfs



Unnamed Wash 5 - Approximate Method Section K-K
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section K-K
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0191	ft/ft
Discharge	880	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,463.17	ft
Elevation Range	1,459.90 to 1,480.00	
Flow Area	134.0	ft²
Wetted Perimeter	77.65	ft
Top Width	77.36	ft
Actual Depth	3.27	ft
Critical Elevation	1,463.00	ft
Critical Slope	0.0251	ft/ft
Velocity	6.57	ft/s
Velocity Head	0.67	ft
Specific Energy	1,463.84	ft
Froude Number	0.88	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+97.13	0.070
0+97.13	1+92.84	0.045
1+92.84	3+15.51	0.070

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,480.00
0+31.91	1,476.00
0+50.63	1,472.00
0+71.83	1,468.00
0+97.13	1,464.00
1+37.13	1,460.00
1+39.27	1,459.90
1+44.02	1,460.00
1+92.84	1,464.00
2+23.12	1,468.00
2+43.30	1,472.00

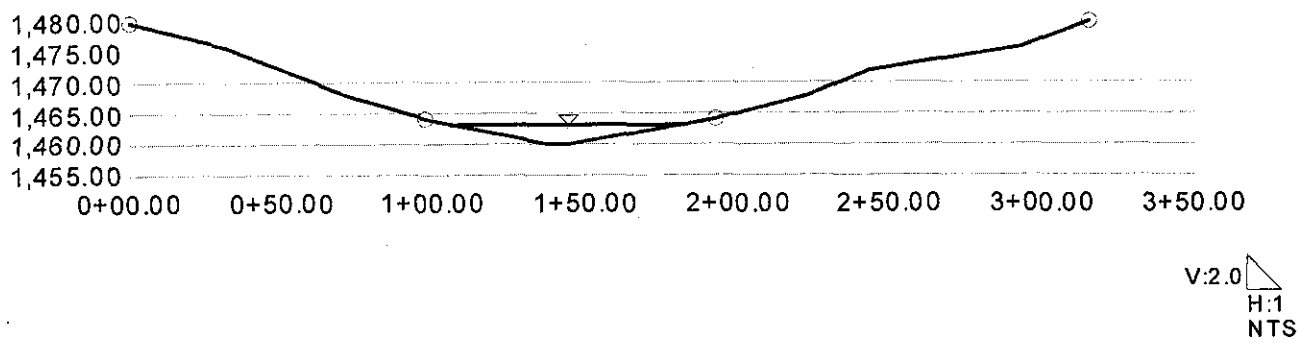
Unnamed Wash 5 - Approximate Method Section K-K
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
2+93.18	1,476.00
3+15.51	1,480.00

Unnamed Wash 5 - Approximate Method Section K-K
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section K-K
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0191	ft/ft
Water Surface Elevation	1,463.17	ft
Elevation Range	1,459.90 to 1,480.00	
Discharge	880	cfs



Unnamed Wash 5 - Approximate Method Section L-L
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section L-L
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0172	ft/ft
Discharge	880	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,484.54	ft
Elevation Range	1,481.80 to 1,516.00	
Flow Area	157.1	ft²
Wetted Perimeter	106.78	ft
Top Width	106.45	ft
Actual Depth	2.74	ft
Critical Elevation	1,484.32	ft
Critical Slope	0.0269	ft/ft
Velocity	5.60	ft/s
Velocity Head	0.49	ft
Specific Energy	1,485.03	ft
Froude Number	0.81	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+43.13	0.070
1+43.13	3+31.70	0.045
3+31.70	5+17.41	0.070

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,500.00
0+45.74	1,496.00
0+89.36	1,492.00
1+43.13	1,488.00
2+32.68	1,484.00
3+03.03	1,481.80
3+26.28	1,484.00
3+31.70	1,488.00
3+42.51	1,492.00
3+53.80	1,496.00
3+75.33	1,500.00

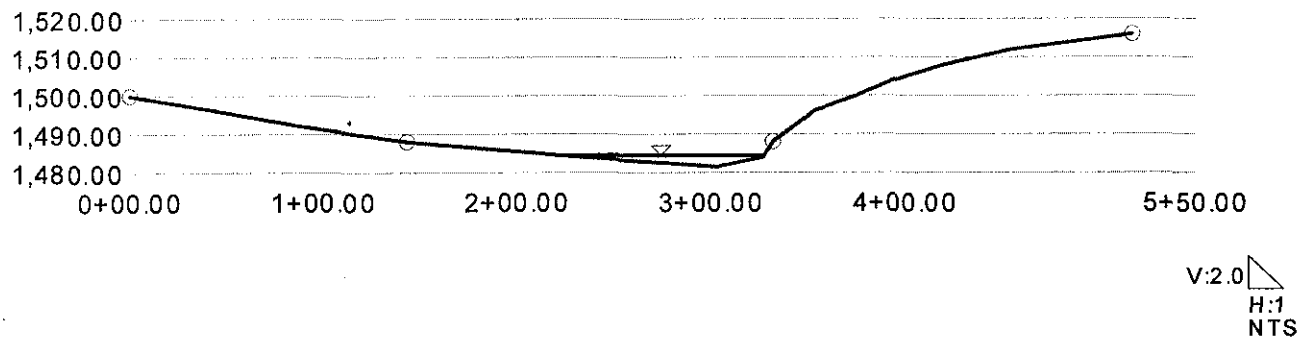
Unnamed Wash 5 - Approximate Method Section L-L
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
3+94.66	1,504.00
4+20.12	1,508.00
4+56.21	1,512.00
5+17.41	1,516.00

Unnamed Wash 5 - Approximate Method Section L-L
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section L-L
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0172	ft/ft
Water Surface Elevation	1,484.54	ft
Elevation Range	1,481.80 to 1,516.00	
Discharge	880	cfs



Unnamed Wash 5 - Approximate Method Section M-M
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section M-M
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0027	ft/ft
Discharge	880	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,498.83	ft
Elevation Range	1,493.90 to 1,520.00	
Flow Area	284.1	ft²
Wetted Perimeter	117.17	ft
Top Width	116.69	ft
Actual Depth	4.93	ft
Critical Elevation	1,497.15	ft
Critical Slope	0.0253	ft/ft
Velocity	3.10	ft/s
Velocity Head	0.15	ft
Specific Energy	1,498.98	ft
Froude Number	0.35	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	3+00.03	0.070
3+00.03	4+45.04	0.045
4+45.04	7+23.74	0.070

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,520.00
1+37.36	1,516.00
1+89.13	1,512.00
2+25.75	1,508.00
2+69.53	1,504.00
3+00.03	1,500.00
3+70.72	1,496.00
3+95.34	1,493.90
4+19.07	1,496.00
4+45.04	1,500.00
4+86.20	1,504.00

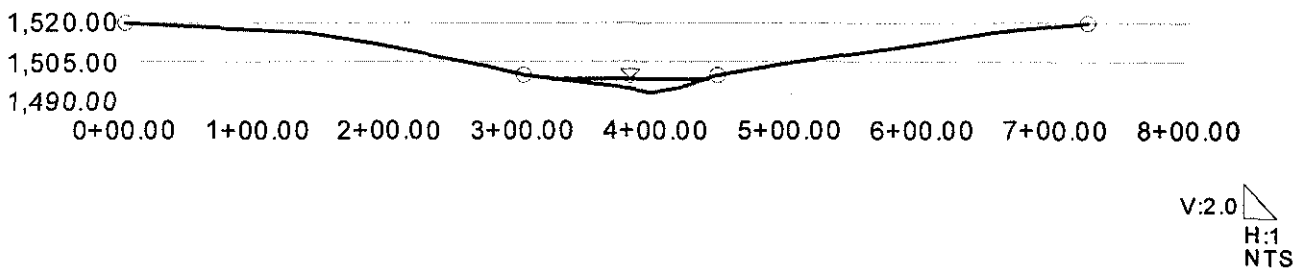
Unnamed Wash 5 - Approximate Method Section M-M
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
5+43.93	1,508.00
5+98.13	1,512.00
6+51.67	1,516.00
7+23.74	1,520.00

Unnamed Wash 5 - Approximate Method Section M-M
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section M-M
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0027	ft/ft
Water Surface Elevation	1,498.83	ft
Elevation Range	1,493.90 to 1,520.00	
Discharge	880	cfs



Unnamed Wash 5 - Approximate Method Section N-N
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section N-N
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0152	ft/ft
Discharge	1,630	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.049	
Water Surface Elevation	1,532.91	ft
Elevation Range	1,528.80 to 1,550.50	
Flow Area	255.2	ft²
Wetted Perimeter	114.85	ft
Top Width	114.53	ft
Actual Depth	4.11	ft
Critical Elevation	1,532.47	ft
Critical Slope	0.0280	ft/ft
Velocity	6.39	ft/s
Velocity Head	0.63	ft
Specific Energy	1,533.55	ft
Froude Number	0.75	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+47.67	0.070
2+47.67	3+46.36	0.045
3+46.36	5+85.42	0.070

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,550.50
0+97.57	1,548.00
1+40.77	1,544.00
1+67.08	1,540.00
2+10.16	1,536.00
2+47.67	1,532.00
3+03.27	1,528.80
3+46.36	1,532.00
3+78.29	1,536.00
4+59.25	1,540.00
5+21.97	1,544.00

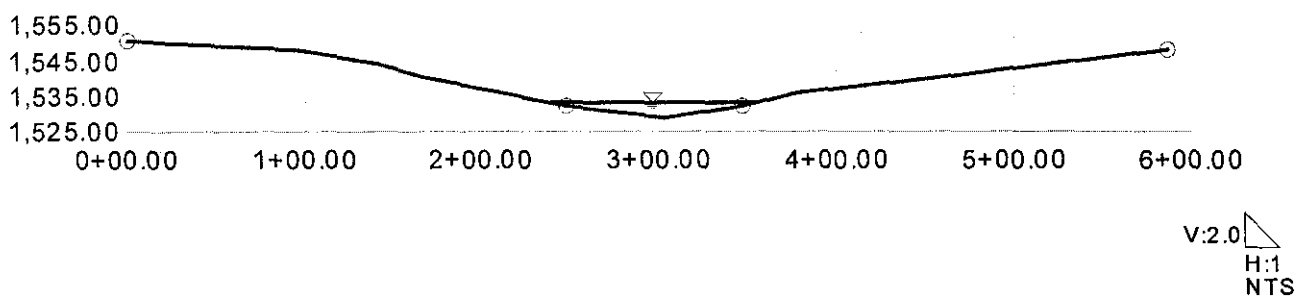
Unnamed Wash 5 - Approximate Method Section N-N
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
5+85.42	1,548.00

Unnamed Wash 5 - Approximate Method Section N-N
Cross Section for Irregular Channel

Project Description	
Worksheet	*Unnamed Wash 5 - Approximate Method Section N-N*
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.049	
Slope	0.0152	ft/ft
Water Surface Elevation	1,532.91	ft
Elevation Range	1,528.80 to 1,550.50	
Discharge	1,630	cfs



Unnamed Wash 5 - Approximate Method Section O-O
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section O-O
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0177	ft/ft
Discharge	1,630	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,546.25	ft
Elevation Range	1,543.01 to 1,556.00	
Flow Area	269.3	ft²
Wetted Perimeter	166.53	ft
Top Width	166.40	ft
Actual Depth	3.24	ft
Critical Elevation	1,546.03	ft
Critical Slope	0.0258	ft/ft
Velocity	6.05	ft/s
Velocity Head	0.57	ft
Specific Energy	1,546.82	ft
Froude Number	0.84	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+75.18	0.070
1+75.18	4+31.70	0.045
4+31.70	6+15.18	0.070

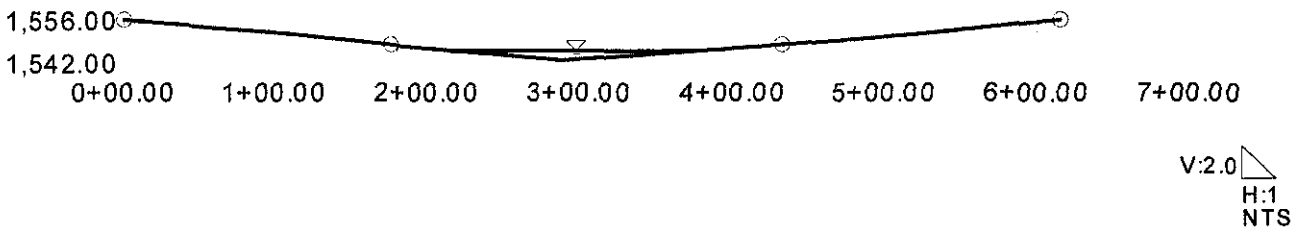
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,556.00
1+07.41	1,552.00
1+75.18	1,548.00
2+88.45	1,543.01
4+31.70	1,548.00
5+25.70	1,552.00
6+15.18	1,556.00

Unnamed Wash 5 - Approximate Method Section O-O
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section O-O
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0177	ft/ft
Water Surface Elevation	1,546.25	ft
Elevation Range	1,543.01 to 1,556.00	
Discharge	1,630	cfs



Unnamed Wash 5 - Approximate Method Section P-P
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section P-P
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0027	ft/ft
Discharge	1,630	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.053	
Water Surface Elevation	1,561.67	ft
Elevation Range	1,558.50 to 1,572.00	
Flow Area	719.2	ft²
Wetted Perimeter	369.80	ft
Top Width	369.71	ft
Actual Depth	3.17	ft
Critical Elevation	1,560.34	ft
Critical Slope	0.0409	ft/ft
Velocity	2.27	ft/s
Velocity Head	0.08	ft
Specific Energy	1,561.75	ft
Froude Number	0.29	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+00.28	0.070
2+00.28	4+59.54	0.045
4+59.54	6+25.46	0.070

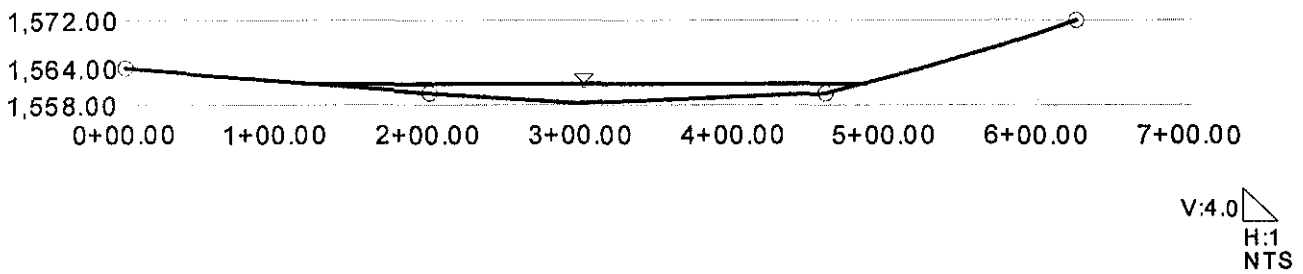
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,564.00
2+00.28	1,560.00
2+96.55	1,558.50
4+59.54	1,560.00
5+24.04	1,564.00
5+77.28	1,568.00
6+25.46	1,572.00

Unnamed Wash 5 - Approximate Method Section P-P
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section P-P
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.053	
Slope	0.0027	ft/ft
Water Surface Elevation	1,561.67	ft
Elevation Range	1,558.50 to 1,572.00	
Discharge	1,630	cfs



Unnamed Wash 5 - Approximate Method Section Q-Q
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section Q-Q
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0075	ft/ft
Discharge	1,630	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,566.48	ft
Elevation Range	1,563.20 to 1,576.00	
Flow Area	424.4	ft²
Wetted Perimeter	272.73	ft
Top Width	272.64	ft
Actual Depth	3.28	ft
Critical Elevation	1,565.80	ft
Critical Slope	0.0276	ft/ft
Velocity	3.84	ft/s
Velocity Head	0.23	ft
Specific Energy	1,566.71	ft
Froude Number	0.54	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	3+95.96	0.070
3+95.96	8+03.20	0.045
8+03.20	10+82.47	0.070

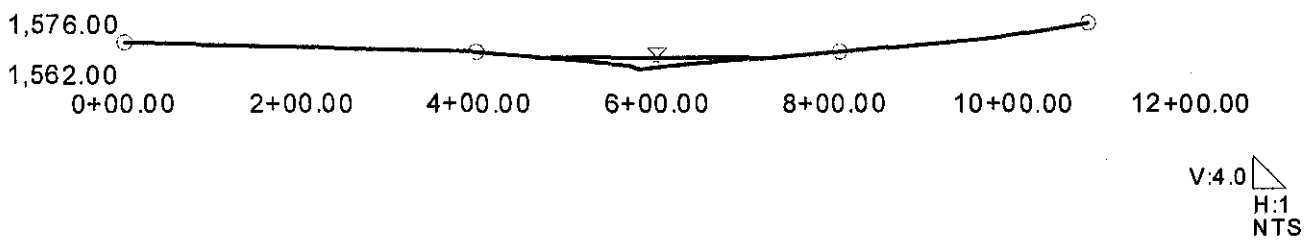
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,570.50
3+95.96	1,568.00
5+65.07	1,564.00
5+78.72	1,563.20
6+17.46	1,564.00
8+03.20	1,568.00
9+73.46	1,572.00
10+82.47	1,576.00

Unnamed Wash 5 - Approximate Method Section Q-Q
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section Q-Q
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0075	ft/ft
Water Surface Elevation	1,566.48	ft
Elevation Range	1,563.20 to 1,576.00	
Discharge	1,630	cfs



Unnamed Wash 5 - Approximate Method Section R-R
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section R-R
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0085	ft/ft
Discharge	1,630	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.045	
Water Surface Elevation	1,570.15	ft
Elevation Range	1,567.80 to 1,580.00	
Flow Area	487.7	ft²
Wetted Perimeter	424.04	ft
Top Width	424.01	ft
Actual Depth	2.35	ft
Critical Elevation	1,569.66	ft
Critical Slope	0.0305	ft/ft
Velocity	3.34	ft/s
Velocity Head	0.17	ft
Specific Energy	1,570.32	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	4+27.43	0.070
4+27.43	11+93.34	0.045
11+93.34	14+31.33	0.070

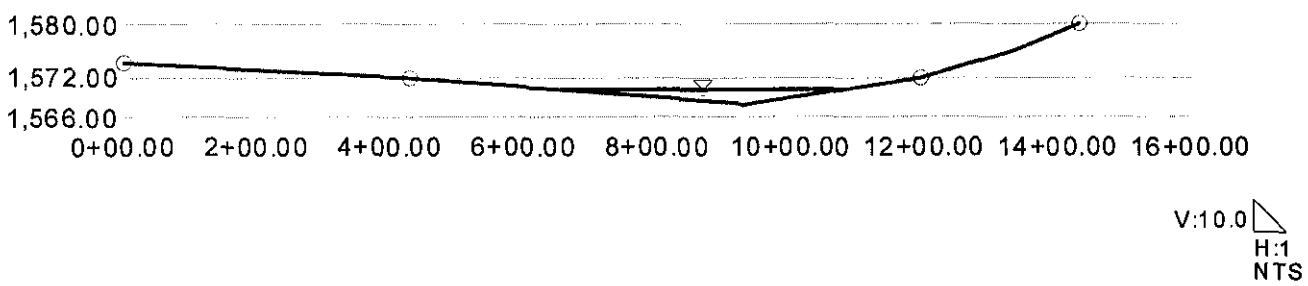
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,574.30
4+27.43	1,572.00
9+16.62	1,568.00
9+26.70	1,567.80
9+44.25	1,568.00
11+93.34	1,572.00
13+32.63	1,576.00
14+31.33	1,580.00

Unnamed Wash 5 - Approximate Method Section R-R
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 5 - Approximate Method Section R-R
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.045	
Slope	0.0085	ft/ft
Water Surface Elevation	1,570.15	ft
Elevation Range	1,567.80 to 1,580.00	
Discharge	1,630	cfs



Unnamed Wash 6 – Approximate Method Reach

Unnamed Wash 6 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0124	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,333.53	ft
Elevation Range	1,329.50 to 1,340.00	
Flow Area	201.0	ft²
Wetted Perimeter	94.01	ft
Top Width	93.50	ft
Actual Depth	4.03	ft
Critical Elevation	1,333.22	ft
Critical Slope	0.0187	ft/ft
Velocity	6.87	ft/s
Velocity Head	0.73	ft
Specific Energy	1,334.26	ft
Froude Number	0.83	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+11.48	0.050
0+11.48	1+52.23	0.040
1+52.23	1+69.50	0.050

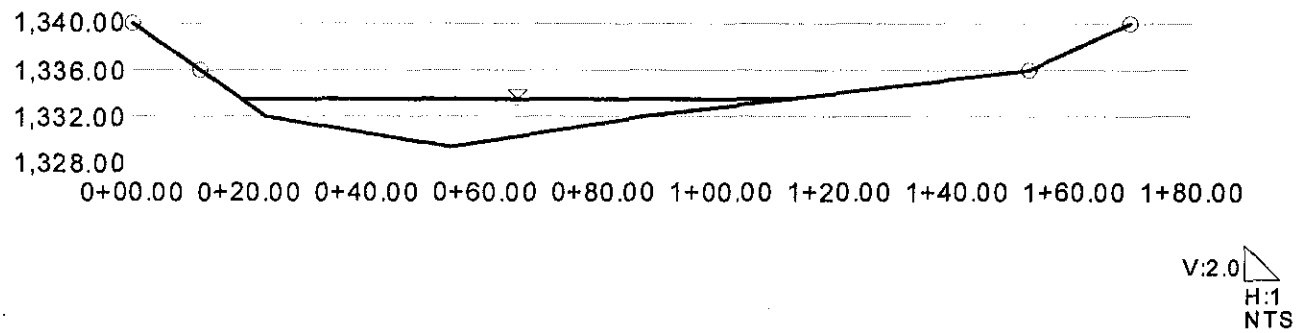
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,340.00
0+11.48	1,336.00
0+22.77	1,332.00
0+54.09	1,329.50
0+86.93	1,332.00
1+52.23	1,336.00
1+69.50	1,340.00

Unnamed Wash 6 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0124	ft/ft
Water Surface Elevation	1,333.53	ft
Elevation Range	1,329.50 to 1,340.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0199	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,351.81	ft
Elevation Range	1,348.60 to 1,380.00	
Flow Area	192.3	ft²
Wetted Perimeter	120.04	ft
Top Width	119.86	ft
Actual Depth	3.21	ft
Critical Elevation	1,351.81	ft
Critical Slope	0.0200	ft/ft
Velocity	7.18	ft/s
Velocity Head	0.80	ft
Specific Energy	1,352.61	ft
Froude Number	1.00	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+89.90	0.050
0+89.90	2+16.89	0.040
2+16.89	2+74.32	0.050

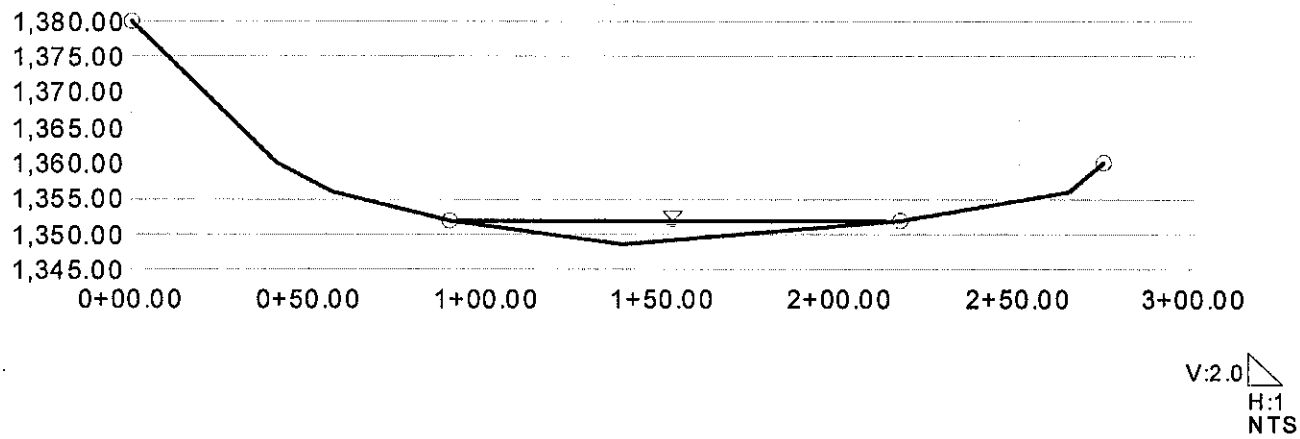
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,380.00
0+41.06	1,360.00
0+56.88	1,356.00
0+89.90	1,352.00
1+38.40	1,348.60
2+16.89	1,352.00
2+64.14	1,356.00
2+74.32	1,360.00

Unnamed Wash 6 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0199	ft/ft
Water Surface Elevation	1,351.81	ft
Elevation Range	1,348.60 to 1,380.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0275	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,375.35	ft
Elevation Range	1,372.50 to 1,408.00	
Flow Area	176.9	ft²
Wetted Perimeter	124.19	ft
Top Width	124.01	ft
Actual Depth	2.85	ft
Critical Elevation	1,375.52	ft
Critical Slope	0.0204	ft/ft
Velocity	7.80	ft/s
Velocity Head	0.95	ft
Specific Energy	1,376.30	ft
Froude Number	1.15	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+27.11	0.050
1+27.11	2+79.22	0.040
2+79.22	4+32.76	0.050

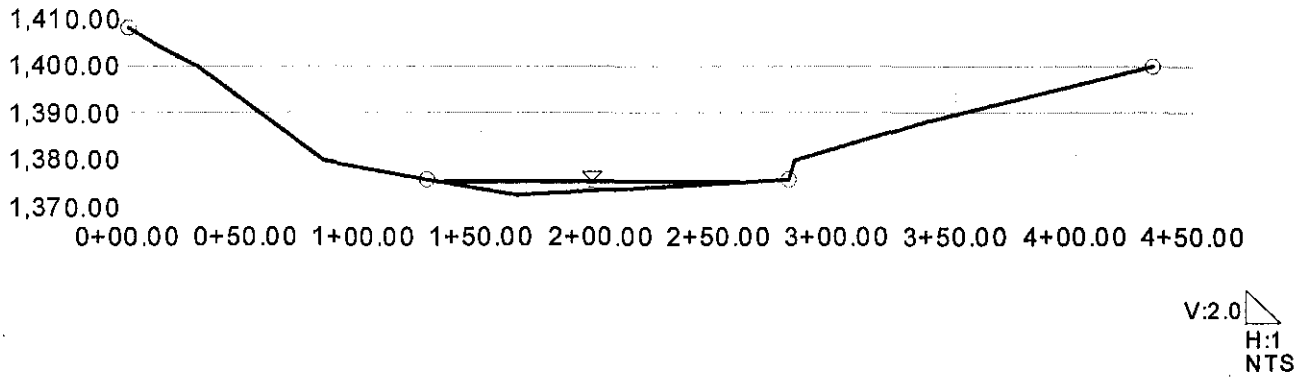
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,408.00
0+12.88	1,404.00
0+29.26	1,400.00
0+82.55	1,380.00
1+27.11	1,376.00
1+64.05	1,372.50
2+79.22	1,376.00
2+82.18	1,380.00
3+36.82	1,388.00
4+32.76	1,400.00

Unnamed Wash 6 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0275	ft/ft
Water Surface Elevation	1,375.35	ft
Elevation Range	1,372.50 to 1,408.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0123	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,397.40	ft
Elevation Range	1,393.90 to 1,412.00	
Flow Area	206.3	ft²
Wetted Perimeter	99.72	ft
Top Width	99.26	ft
Actual Depth	3.50	ft
Critical Elevation	1,397.10	ft
Critical Slope	0.0190	ft/ft
Velocity	6.69	ft/s
Velocity Head	0.70	ft
Specific Energy	1,398.09	ft
Froude Number	0.82	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+07.34	0.050
1+07.34	2+45.67	0.040
2+45.67	3+18.08	0.050

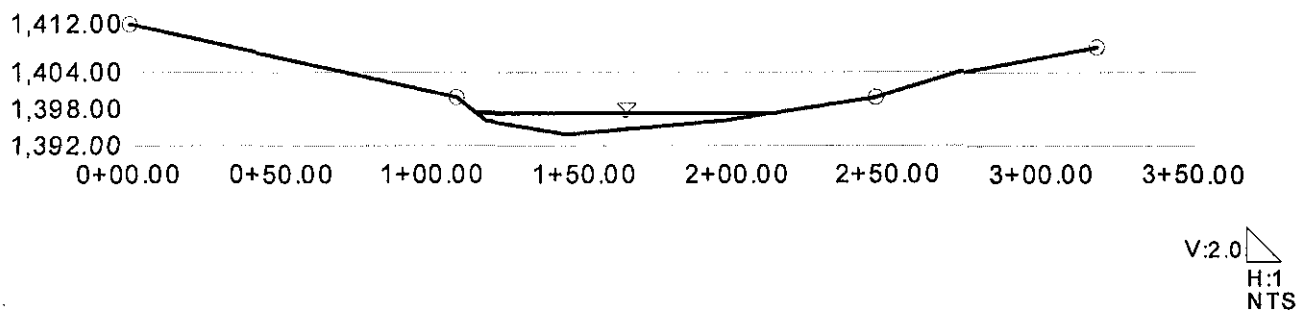
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,412.00
1+07.34	1,400.00
1+16.75	1,396.00
1+43.89	1,393.90
1+95.00	1,396.00
2+45.67	1,400.00
2+72.80	1,404.00
3+18.08	1,408.00

Unnamed Wash 6 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0123	ft/ft
Water Surface Elevation	1,397.40	ft
Elevation Range	1,393.90 to 1,412.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0165	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,410.96	ft
Elevation Range	1,406.80 to 1,420.00	
Flow Area	150.8	ft²
Wetted Perimeter	56.81	ft
Top Width	55.98	ft
Actual Depth	4.16	ft
Critical Elevation	1,410.92	ft
Critical Slope	0.0171	ft/ft
Velocity	9.15	ft/s
Velocity Head	1.30	ft
Specific Energy	1,412.26	ft
Froude Number	0.98	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+62.33	0.050
0+62.33	1+26.50	0.040
1+26.50	1+60.26	0.050

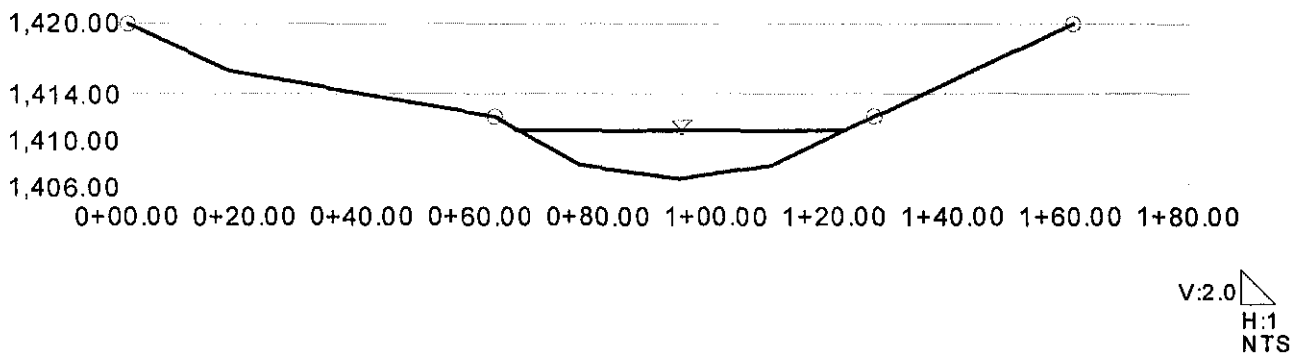
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,420.00
0+17.09	1,416.00
0+62.33	1,412.00
0+76.91	1,408.00
0+93.81	1,406.80
1+09.62	1,408.00
1+26.50	1,412.00
1+60.26	1,420.00

Unnamed Wash 6 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0165	ft/ft
Water Surface Elevation	1,410.96	ft
Elevation Range	1,406.80 to 1,420.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0071	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,325.43	ft
Elevation Range	1,323.60 to 1,332.00	
Flow Area	386.8	ft²
Wetted Perimeter	317.80	ft
Top Width	317.77	ft
Actual Depth	1.83	ft
Critical Elevation	1,324.97	ft
Critical Slope	0.0239	ft/ft
Velocity	3.57	ft/s
Velocity Head	0.20	ft
Specific Energy	1,325.63	ft
Froude Number	0.57	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
3+87.20	9+49.80	0.040
9+49.80	10+21.55	0.050

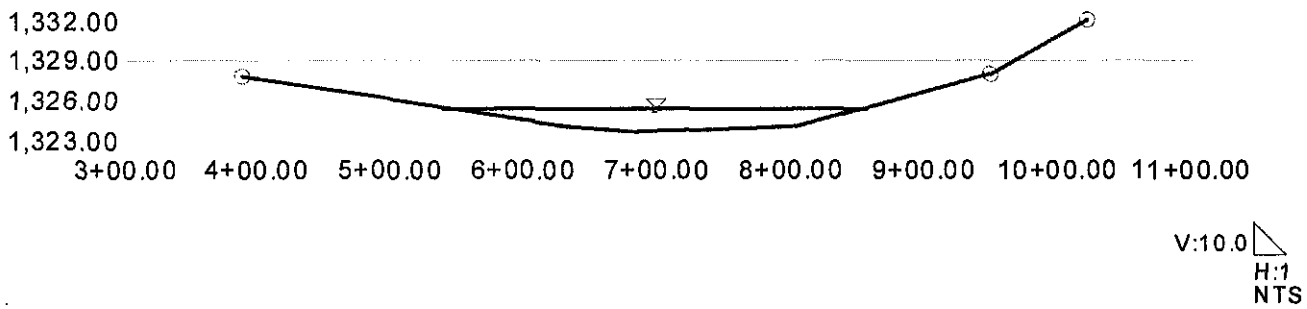
Natural Channel Points

Station (ft)	Elevation (ft)
3+87.20	1,327.80
6+30.06	1,324.00
6+82.63	1,323.60
8+04.54	1,324.00
9+49.80	1,328.00
10+21.55	1,332.00

Unnamed Wash 6 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0071	ft/ft
Water Surface Elevation	1,325.43	ft
Elevation Range	1,323.60 to 1,332.00	
Discharge	1,380	cfs



Unnamed Wash 6- Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0062	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,430.90	ft
Elevation Range	1,427.60 to 1,436.00	
Flow Area	294.4	ft²
Wetted Perimeter	145.07	ft
Top Width	144.87	ft
Actual Depth	3.30	ft
Critical Elevation	1,430.13	ft
Critical Slope	0.0200	ft/ft
Velocity	4.69	ft/s
Velocity Head	0.34	ft
Specific Energy	1,431.24	ft
Froude Number	0.58	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+99.22	0.050
0+99.22	2+79.59	0.040
2+79.59	8+79.92	0.050

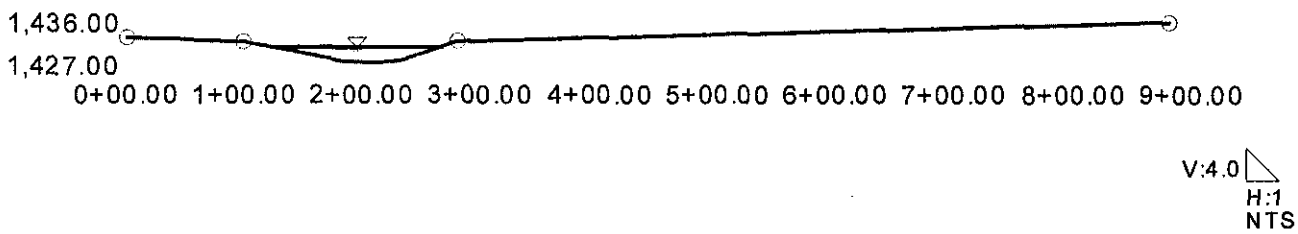
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,432.70
0+99.22	1,432.00
1+82.01	1,428.00
2+07.46	1,427.60
2+32.91	1,428.00
2+79.59	1,432.00
8+79.92	1,436.00

Unnamed Wash 6 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section G-G
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0062	ft/ft
Water Surface Elevation	1,430.90	ft
Elevation Range	1,427.60 to 1,436.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0079	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,434.50	ft
Elevation Range	1,430.85 to 1,440.00	
Flow Area	288.0	ft²
Wetted Perimeter	165.22	ft
Top Width	165.04	ft
Actual Depth	3.65	ft
Critical Elevation	1,433.93	ft
Critical Slope	0.0206	ft/ft
Velocity	4.79	ft/s
Velocity Head	0.36	ft
Specific Energy	1,434.86	ft
Froude Number	0.64	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+05.67	0.050
2+05.67	4+42.75	0.040
4+42.75	7+37.50	0.050

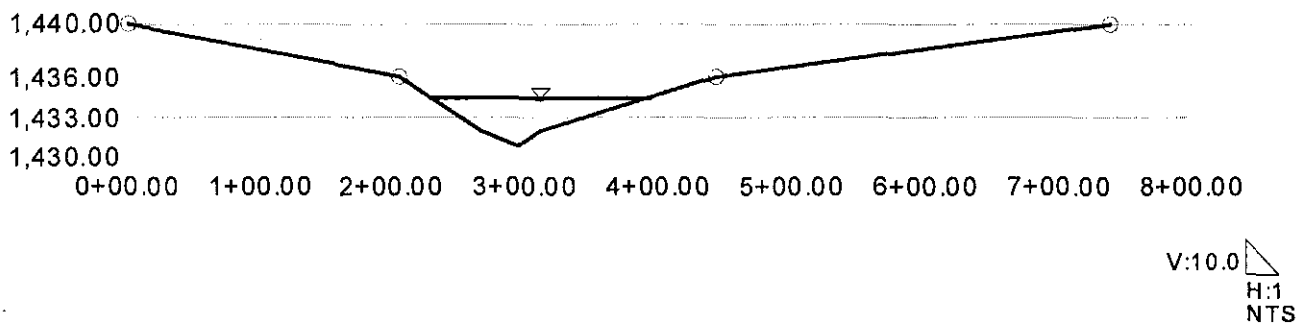
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,440.00
2+05.67	1,436.00
2+66.60	1,432.00
2+93.18	1,430.85
3+11.21	1,432.00
4+42.75	1,436.00
7+37.50	1,440.00

Unnamed Wash 6 - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0079	ft/ft
Water Surface Elevation	1,434.50	ft
Elevation Range	1,430.85 to 1,440.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section I-I
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0199	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.043	
Water Surface Elevation	1,453.19	ft
Elevation Range	1,451.40 to 1,456.00	
Flow Area	335.1	ft²
Wetted Perimeter	428.63	ft
Top Width	428.53	ft
Actual Depth	1.79	ft
Critical Elevation	1,453.08	ft
Critical Slope	0.0304	ft/ft
Velocity	4.12	ft/s
Velocity Head	0.26	ft
Specific Energy	1,453.46	ft
Froude Number	0.82	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+91.51	0.050
0+91.51	2+32.94	0.040
2+32.94	2+79.16	0.050
2+79.16	3+32.60	0.040
3+32.60	4+02.79	0.050
4+02.79	5+29.95	0.040
5+29.95	7+52.18	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,454.00
0+91.51	1,452.00
2+32.94	1,452.00
2+79.16	1,453.10

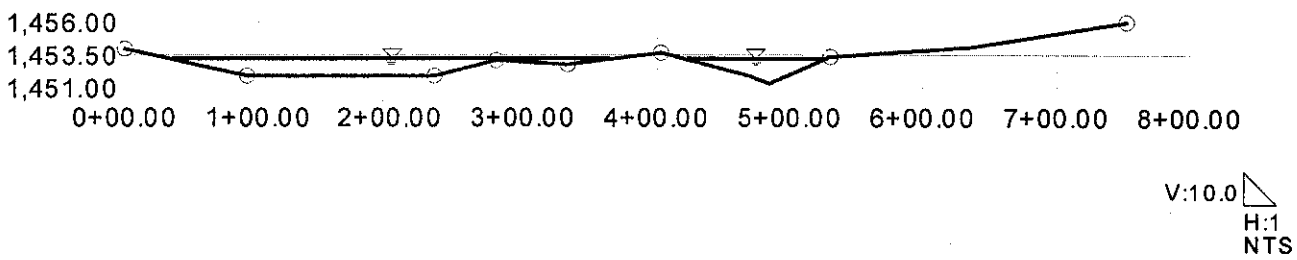
Unnamed Wash 6 - Approximate Method Section I-I
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
3+32.60	1,452.80
4+02.79	1,453.70
4+69.63	1,452.00
4+83.13	1,451.40
4+96.68	1,452.00
5+29.95	1,453.40
6+35.14	1,454.10
7+52.18	1,456.00

Unnamed Wash 6 - Approximate Method Section I-I
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.043	
Slope	0.0199	ft/ft
Water Surface Elevation	1,453.19	ft
Elevation Range	1,451.40 to 1,456.00	
Discharge	1,380	cfs



Unnamed Wash 6 - Approximate Method Section J-J
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0273	ft/ft
Discharge	1,380	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,474.16	ft
Elevation Range	1,470.70 to 1,484.00	
Flow Area	159.2	ft²
Wetted Perimeter	94.81	ft
Top Width	94.54	ft
Actual Depth	3.46	ft
Critical Elevation	1,474.39	ft
Critical Slope	0.0193	ft/ft
Velocity	8.67	ft/s
Velocity Head	1.17	ft
Specific Energy	1,475.33	ft
Froude Number	1.18	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+35.01	0.050
0+35.01	1+81.94	0.040
1+81.94	2+43.61	0.050

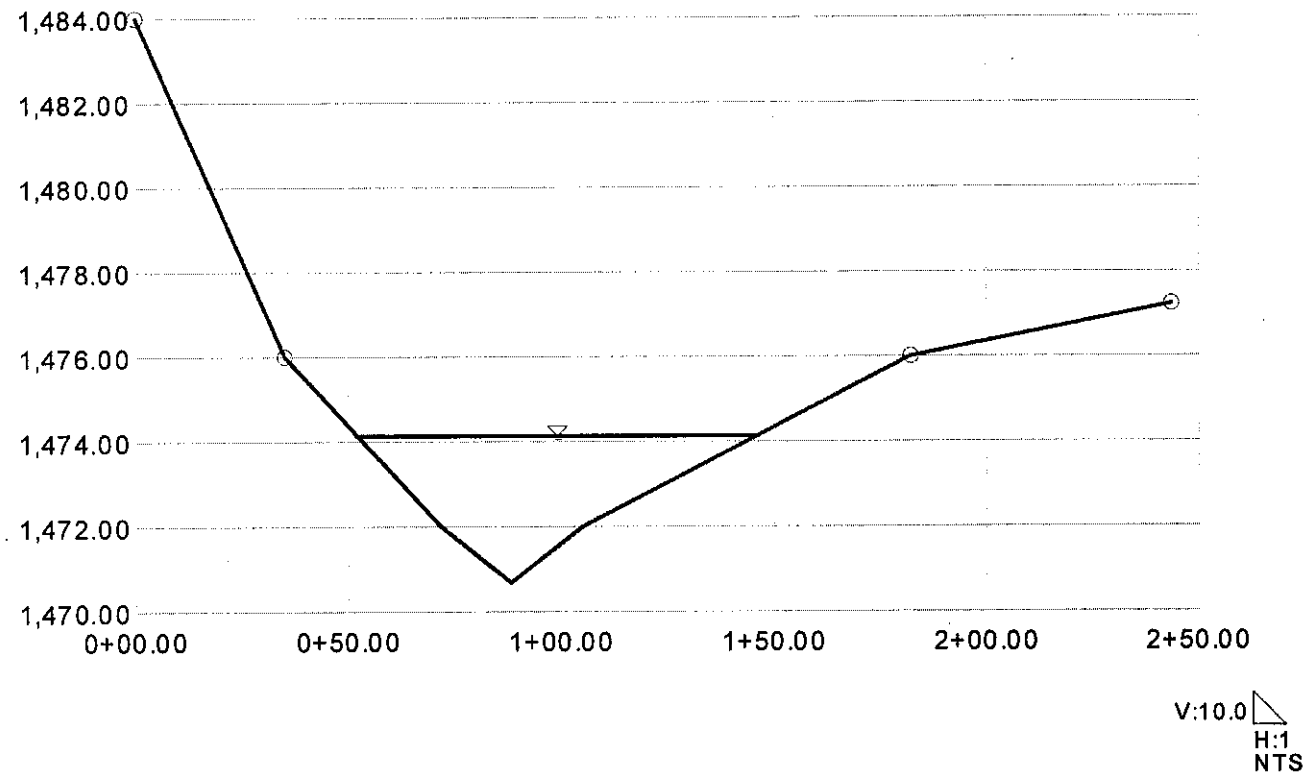
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,484.00
0+35.01	1,476.00
0+71.74	1,472.00
0+88.17	1,470.70
1+04.67	1,472.00
1+81.94	1,476.00
2+43.61	1,477.22

Unnamed Wash 6 - Approximate Method Section J-J
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 6 - Approximate Method Section J-J
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0273	ft/ft
Water Surface Elevation	1,474.16	ft
Elevation Range	1,470.70 to 1,484.00	
Discharge	1,380	cfs



Unnamed Wash 7 – Approximate Method Reach

Unnamed Wash 7 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0063	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,313.04	ft
Elevation Range	1,307.90 to 1,340.00	
Flow Area	331.3	ft²
Wetted Perimeter	133.57	ft
Top Width	133.04	ft
Actual Depth	5.14	ft
Critical Elevation	1,311.87	ft
Critical Slope	0.0176	ft/ft
Velocity	5.40	ft/s
Velocity Head	0.45	ft
Specific Energy	1,313.49	ft
Froude Number	0.60	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+71.23	0.050
0+71.23	3+31.19	0.040
3+31.19	4+01.25	0.050

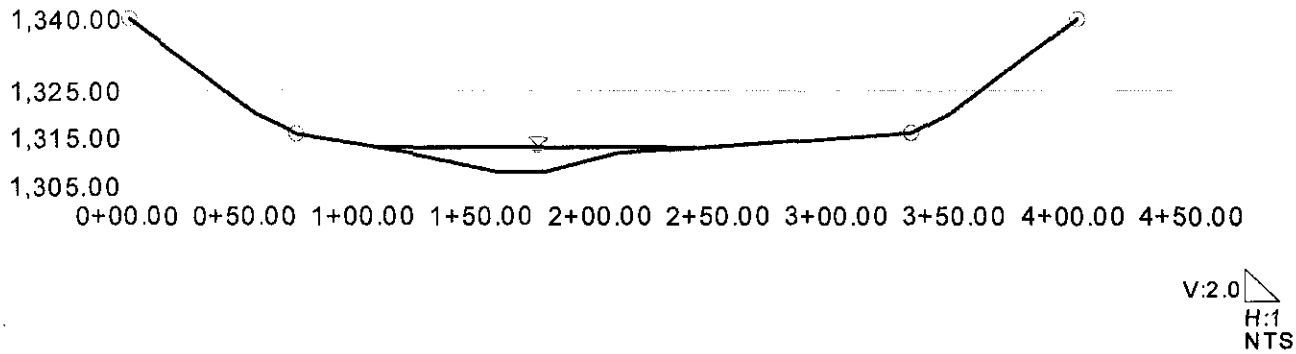
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,340.00
0+53.63	1,320.00
0+71.23	1,316.00
1+18.88	1,312.00
1+55.78	1,308.00
1+67.73	1,307.90
1+74.93	1,308.00
2+07.28	1,312.00
3+31.19	1,316.00
3+47.41	1,320.00
4+01.25	1,340.00

Unnamed Wash 7 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0063	ft/ft
Water Surface Elevation	1,313.04	ft
Elevation Range	1,307.90 to 1,340.00	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0178	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,327.80	ft
Elevation Range	1,323.40 to 1,360.00	
Flow Area	204.3	ft²
Wetted Perimeter	86.97	ft
Top Width	85.58	ft
Actual Depth	4.40	ft
Critical Elevation	1,327.80	ft
Critical Slope	0.0178	ft/ft
Velocity	8.76	ft/s
Velocity Head	1.19	ft
Specific Energy	1,328.99	ft
Froude Number	1.00	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+47.66	0.050
0+47.66	1+53.18	0.040
1+53.18	2+52.81	0.050

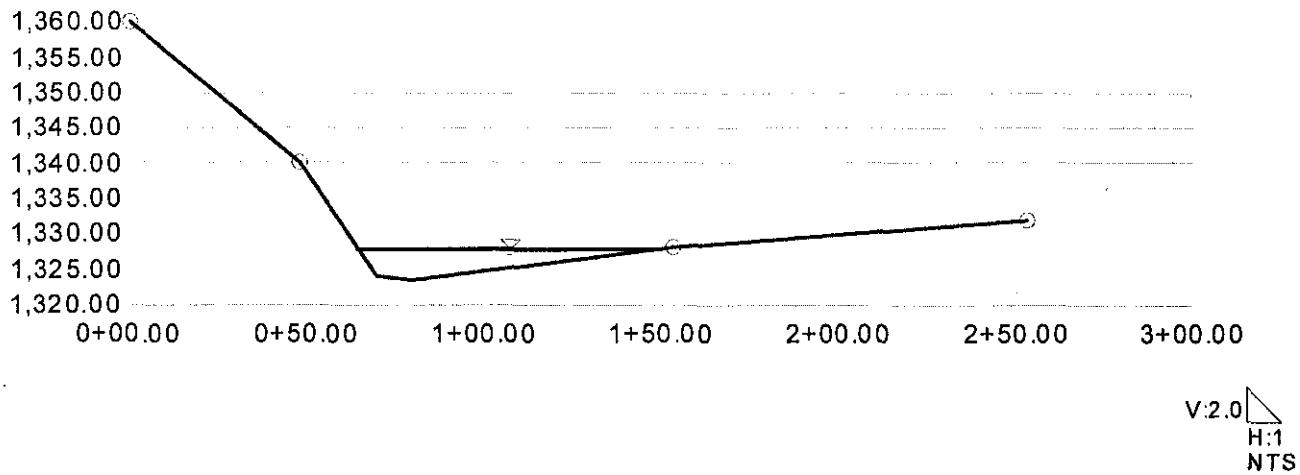
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,360.00
0+47.66	1,340.00
0+69.58	1,324.00
0+79.51	1,323.40
0+88.56	1,324.00
1+53.18	1,328.00
2+52.81	1,332.00

Unnamed Wash 7 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0178	ft/ft
Water Surface Elevation	1,327.80	ft
Elevation Range	1,323.40 to 1,360.00	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0157	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.042	
Water Surface Elevation	1,349.16	ft
Elevation Range	1,344.40 to 1,360.00	
Flow Area	223.5	ft²
Wetted Perimeter	91.43	ft
Top Width	90.86	ft
Actual Depth	4.76	ft
Critical Elevation	1,348.96	ft
Critical Slope	0.0197	ft/ft
Velocity	8.01	ft/s
Velocity Head	1.00	ft
Specific Energy	1,350.15	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+55.91	0.050
0+55.91	1+27.79	0.040
1+27.79	2+21.98	0.050

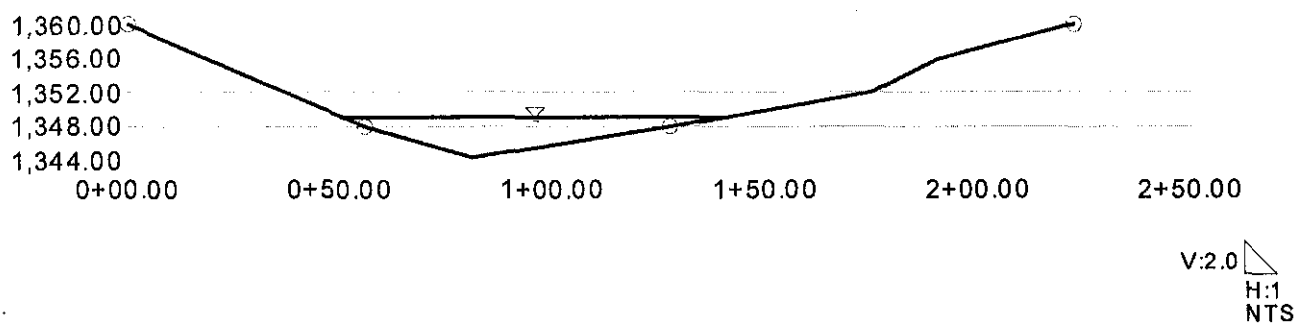
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,360.00
0+55.91	1,348.00
0+80.84	1,344.40
1+27.79	1,348.00
1+74.78	1,352.00
1+90.52	1,356.00
2+21.98	1,360.00

Unnamed Wash 7 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.042	
Slope	0.0157	ft/ft
Water Surface Elevation	1,349.16	ft
Elevation Range	1,344.40 to 1,360.00	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0146	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,363.41	ft
Elevation Range	1,358.00 to 1,369.70	
Flow Area	180.2	ft²
Wetted Perimeter	54.77	ft
Top Width	53.15	ft
Actual Depth	5.41	ft
Critical Elevation	1,363.28	ft
Critical Slope	0.0163	ft/ft
Velocity	9.93	ft/s
Velocity Head	1.53	ft
Specific Energy	1,364.94	ft
Froude Number	0.95	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+92.14	0.050
1+92.14	2+48.76	0.040
2+48.76	3+90.31	0.050

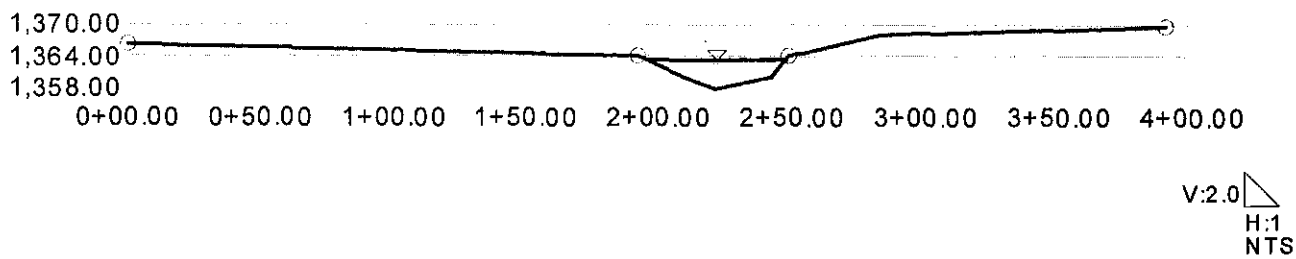
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,366.30
1+92.14	1,364.00
2+09.01	1,360.00
2+20.67	1,358.00
2+42.14	1,360.00
2+48.76	1,364.00
2+82.96	1,368.00
3+90.31	1,369.70

Unnamed Wash 7 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0146	ft/ft
Water Surface Elevation	1,363.41	ft
Elevation Range	1,358.00 to 1,369.70	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0093	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,371.17	ft
Elevation Range	1,369.10 to 1,374.80	
Flow Area	462.5	ft²
Wetted Perimeter	411.78	ft
Top Width	411.73	ft
Actual Depth	2.07	ft
Critical Elevation	1,370.84	ft
Critical Slope	0.0242	ft/ft
Velocity	3.87	ft/s
Velocity Head	0.23	ft
Specific Energy	1,371.40	ft
Froude Number	0.64	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	3+03.50	0.050
3+03.50	8+13.16	0.040
8+13.16	9+67.79	0.050

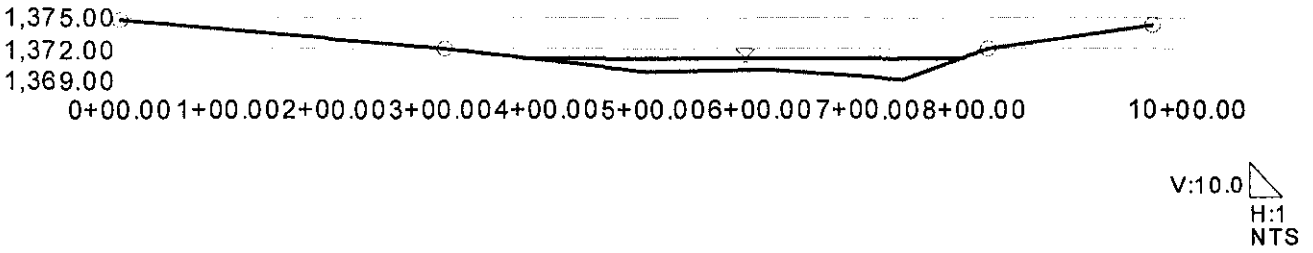
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,374.80
3+03.50	1,372.00
4+92.92	1,369.90
6+07.46	1,370.10
7+34.07	1,369.10
8+13.16	1,372.00
9+67.79	1,374.20

Unnamed Wash 7 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0093	ft/ft
Water Surface Elevation	1,371.17	ft
Elevation Range	1,369.10 to 1,374.80	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0083	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,381.13	ft
Elevation Range	1,378.80 to 1,392.00	
Flow Area	420.1	ft²
Wetted Perimeter	297.36	ft
Top Width	297.28	ft
Actual Depth	2.33	ft
Critical Elevation	1,380.70	ft
Critical Slope	0.0225	ft/ft
Velocity	4.26	ft/s
Velocity Head	0.28	ft
Specific Energy	1,381.42	ft
Froude Number	0.63	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+07.42	0.050
1+07.42	4+85.73	0.040
4+85.73	6+11.38	0.050

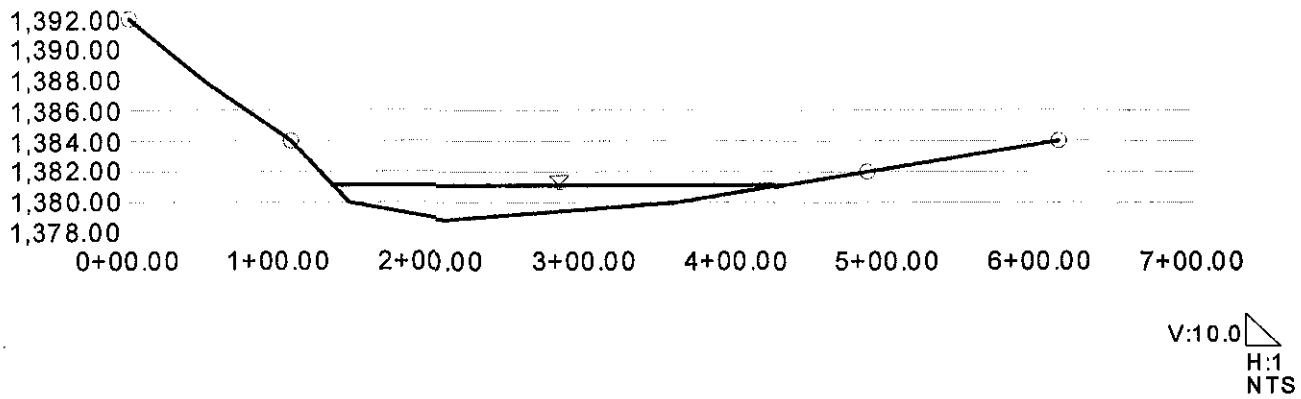
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,392.00
0+50.37	1,388.00
1+07.42	1,384.00
1+44.61	1,380.00
2+06.78	1,378.80
3+60.07	1,380.00
4+85.73	1,382.00
6+11.38	1,384.00

Unnamed Wash 7 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0083	ft/ft
Water Surface Elevation	1,381.13	ft
Elevation Range	1,378.80 to 1,392.00	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0118	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,396.02	ft
Elevation Range	1,392.60 to 1,412.00	
Flow Area	310.3	ft²
Wetted Perimeter	181.27	ft
Top Width	181.14	ft
Actual Depth	3.42	ft
Critical Elevation	1,395.69	ft
Critical Slope	0.0202	ft/ft
Velocity	5.77	ft/s
Velocity Head	0.52	ft
Specific Energy	1,396.54	ft
Froude Number	0.78	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+33.40	0.050
2+33.40	4+14.01	0.040
4+14.01	6+61.45	0.050

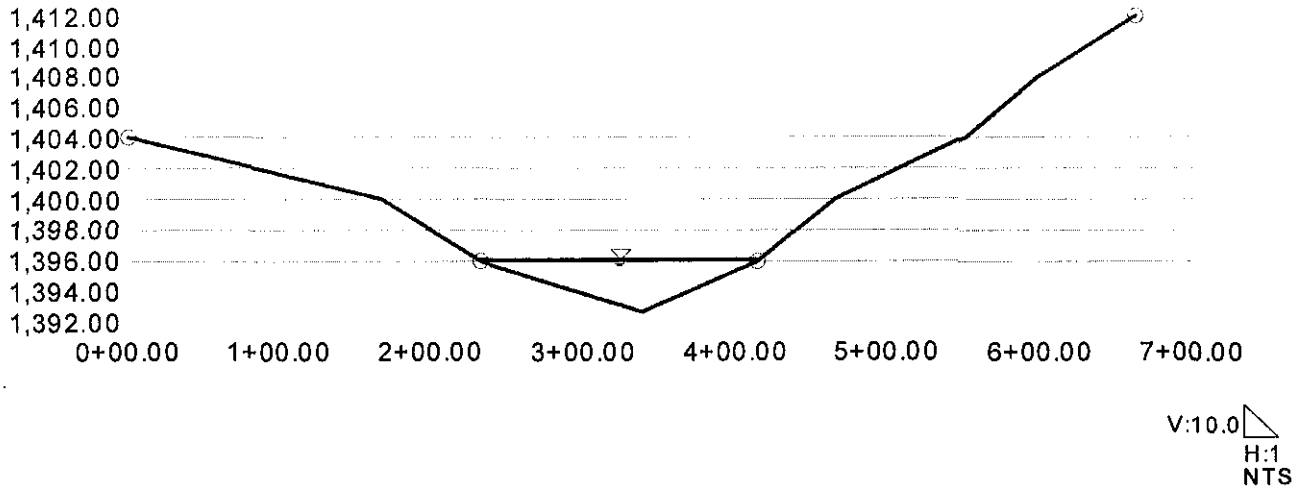
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,404.00
1+66.18	1,400.00
2+33.40	1,396.00
3+38.04	1,392.60
4+14.01	1,396.00
4+65.50	1,400.00
5+50.83	1,404.00
5+97.11	1,408.00
6+61.45	1,412.00

Unnamed Wash 7 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0118	ft/ft
Water Surface Elevation	1,396.02	ft
Elevation Range	1,392.60 to 1,412.00	
Discharge	1,790	cfs



Unnamed Wash 7 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0089	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.042	
Water Surface Elevation	1,405.27	ft
Elevation Range	1,402.10 to 1,420.00	
Flow Area	360.6	ft²
Wetted Perimeter	195.47	ft
Top Width	195.35	ft
Actual Depth	3.17	ft
Critical Elevation	1,404.73	ft
Critical Slope	0.0231	ft/ft
Velocity	4.96	ft/s
Velocity Head	0.38	ft
Specific Energy	1,405.66	ft
Froude Number	0.64	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	4+36.73	0.050
4+36.73	5+85.60	0.040
5+85.60	8+45.54	0.050

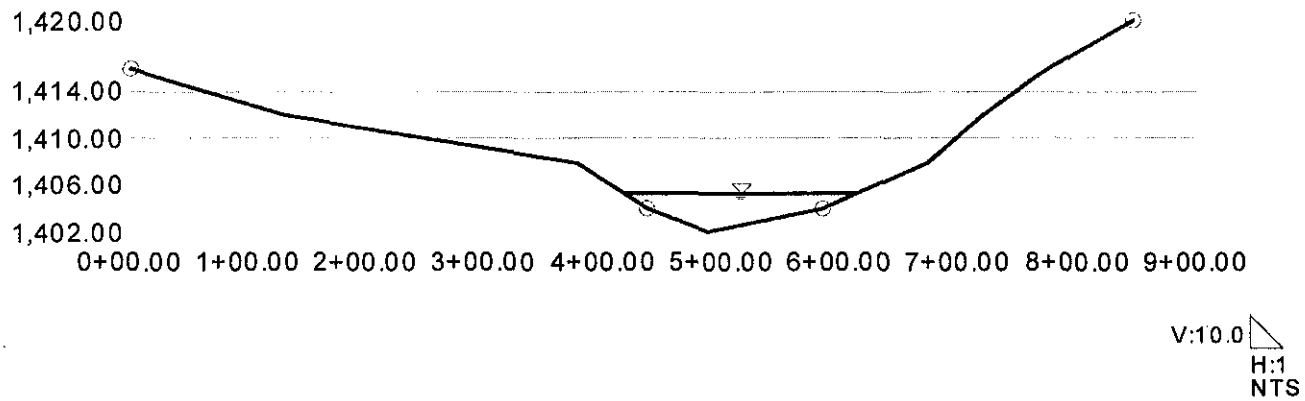
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,416.00
1+29.63	1,412.00
3+78.24	1,408.00
4+36.73	1,404.00
4+86.92	1,402.10
5+85.60	1,404.00
6+73.06	1,408.00
7+20.26	1,412.00
7+74.91	1,416.00
8+45.54	1,420.00

Unnamed Wash 7 - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 7 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.042	
Slope	0.0089	ft/ft
Water Surface Elevation	1,405.27	ft
Elevation Range	1,402.10 to 1,420.00	
Discharge	1,790	cfs



Tributary 1 to Unnamed Wash 7 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 7 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0154	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,357.65	ft
Elevation Range	1,352.05 to 1,376.00	
Flow Area	183.7	ft²
Wetted Perimeter	59.80	ft
Top Width	58.62	ft
Actual Depth	5.60	ft
Critical Elevation	1,357.58	ft
Critical Slope	0.0164	ft/ft
Velocity	9.74	ft/s
Velocity Head	1.48	ft
Specific Energy	1,359.12	ft
Froude Number	0.97	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+55.87	0.050
1+55.87	2+29.10	0.040
2+29.10	4+13.69	0.050

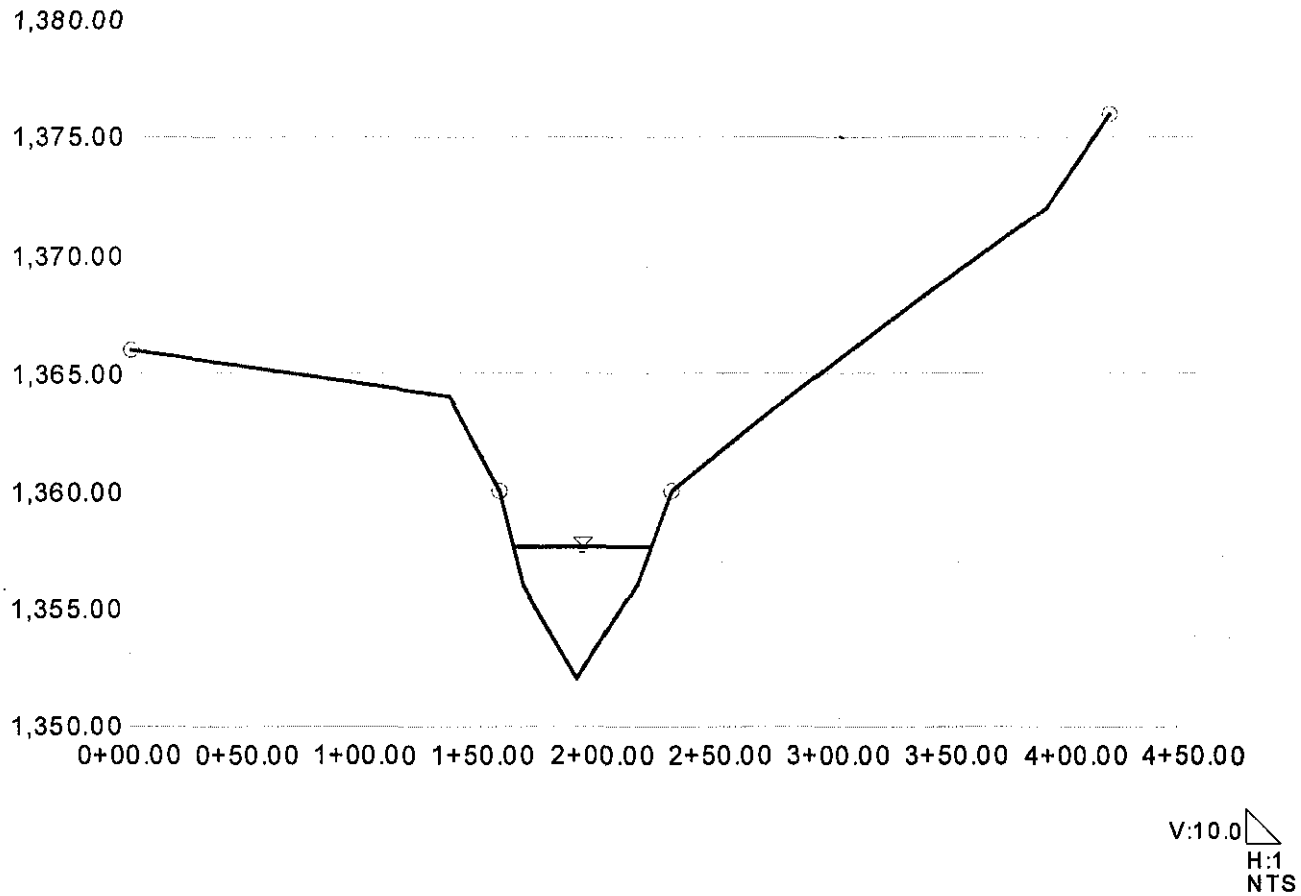
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,366.00
1+34.86	1,364.00
1+55.87	1,360.00
1+65.65	1,356.00
1+88.61	1,352.05
2+14.02	1,356.00
2+29.10	1,360.00
2+78.95	1,364.00
3+31.12	1,368.00
3+86.14	1,372.00
4+13.69	1,376.00

Tributary 1 to Unnamed Wash 7 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 7 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0154	ft/ft
Water Surface Elevation	1,357.65	ft
Elevation Range	1,352.05 to 1,376.00	
Discharge	1,790	cfs



Tributary 1 to Unnamed Wash 7 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 7 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0135	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,370.69	ft
Elevation Range	1,368.61 to 1,378.00	
Flow Area	349.2	ft²
Wetted Perimeter	269.78	ft
Top Width	269.74	ft
Actual Depth	2.08	ft
Critical Elevation	1,370.46	ft
Critical Slope	0.0221	ft/ft
Velocity	5.13	ft/s
Velocity Head	0.41	ft
Specific Energy	1,371.09	ft
Froude Number	0.79	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+71.64	0.050
1+71.64	5+59.54	0.040
5+59.54	8+34.88	0.050

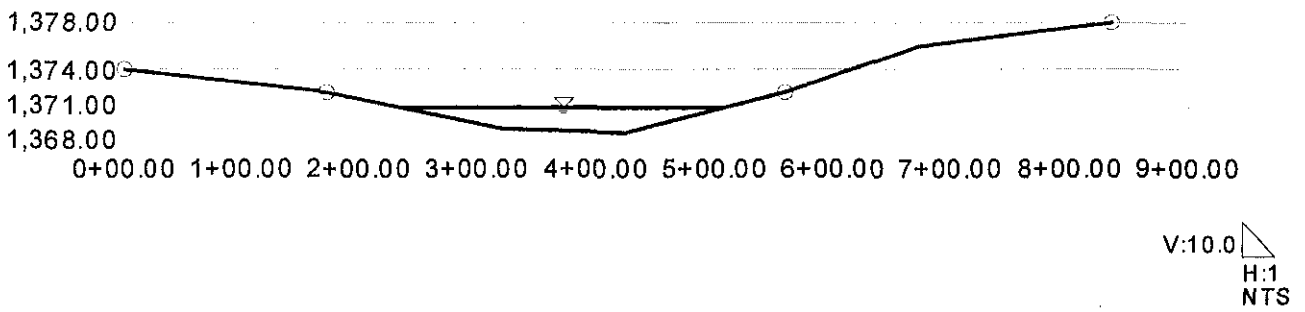
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,374.00
1+71.64	1,372.00
3+20.77	1,369.02
4+24.56	1,368.61
5+59.54	1,372.00
6+73.69	1,376.00
8+34.88	1,378.00

Tributary 1 to Unnamed Wash 7 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 7 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0135	ft/ft
Water Surface Elevation	1,370.69	ft
Elevation Range	1,368.61 to 1,378.00	
Discharge	1,790	cfs



Tributary 1 to Unnamed Wash 7 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 7 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0049	ft/ft
Discharge	1,790	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,386.08	ft
Elevation Range	1,381.82 to 1,396.00	
Flow Area	368.3	ft²
Wetted Perimeter	143.87	ft
Top Width	143.54	ft
Actual Depth	4.26	ft
Critical Elevation	1,385.05	ft
Critical Slope	0.0190	ft/ft
Velocity	4.86	ft/s
Velocity Head	0.37	ft
Specific Energy	1,386.45	ft
Froude Number	0.54	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+91.61	0.050
0+91.61	2+72.80	0.040
2+72.80	6+26.61	0.050

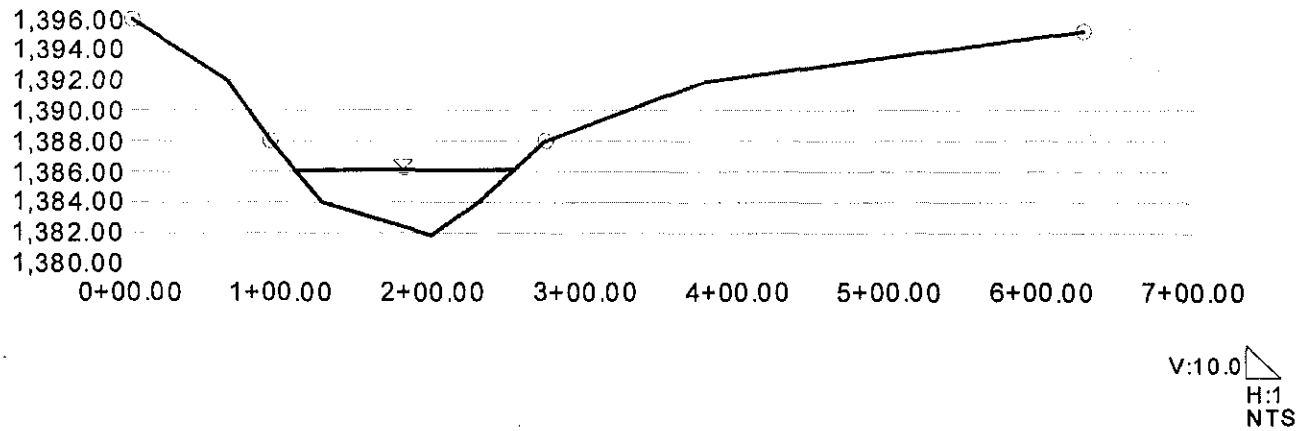
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,396.00
0+64.48	1,392.00
0+91.61	1,388.00
1+25.94	1,384.00
1+97.96	1,381.82
2+28.61	1,384.00
2+72.80	1,388.00
3+78.79	1,392.00
6+26.61	1,395.29

Tributary 1 to Unnamed Wash 7 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Tributary 1 to Unnamed Wash 7 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0049	ft/ft
Water Surface Elevation	1,386.08	ft
Elevation Range	1,381.82 to 1,396.00	
Discharge	1,790	cfs



Unnamed Wash 8 – Approximate Method Reach

Unnamed Wash 8 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0194	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,290.62	ft
Elevation Range	1,288.00 to 1,300.00	
Flow Area	175.5	ft²
Wetted Perimeter	123.18	ft
Top Width	123.00	ft
Actual Depth	2.62	ft
Critical Elevation	1,290.59	ft
Critical Slope	0.0208	ft/ft
Velocity	6.55	ft/s
Velocity Head	0.67	ft
Specific Energy	1,291.29	ft
Froude Number	0.97	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+19.28	0.050
0+19.28	2+01.10	0.040
2+01.10	3+00.15	0.050

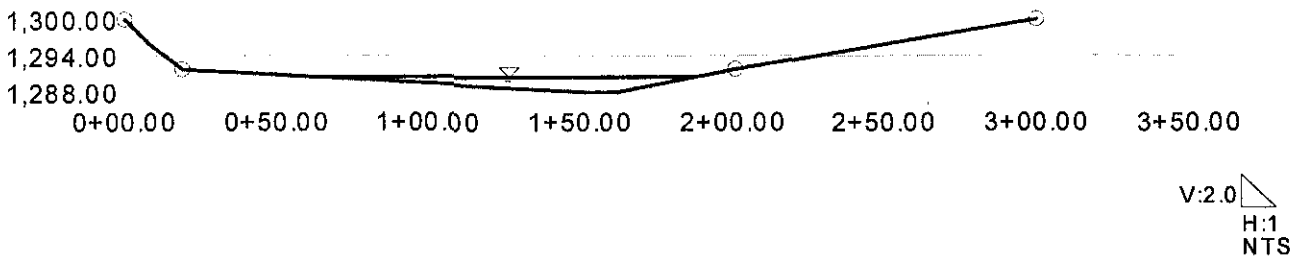
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,300.00
0+08.46	1,296.00
0+19.28	1,292.00
1+51.62	1,288.00
1+59.70	1,288.00
1+62.36	1,288.00
2+01.10	1,292.00
2+49.86	1,296.00
3+00.15	1,300.00

Unnamed Wash 8 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0194	ft/ft
Water Surface Elevation	1,290.62	ft
Elevation Range	1,288.00 to 1,300.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0146	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,310.98	ft
Elevation Range	1,307.30 to 1,324.00	
Flow Area	162.4	ft²
Wetted Perimeter	81.97	ft
Top Width	81.20	ft
Actual Depth	3.68	ft
Critical Elevation	1,310.78	ft
Critical Slope	0.0191	ft/ft
Velocity	7.08	ft/s
Velocity Head	0.78	ft
Specific Energy	1,311.75	ft
Froude Number	0.88	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+30.69	0.050
0+30.69	1+32.06	0.040
1+32.06	1+84.12	0.050

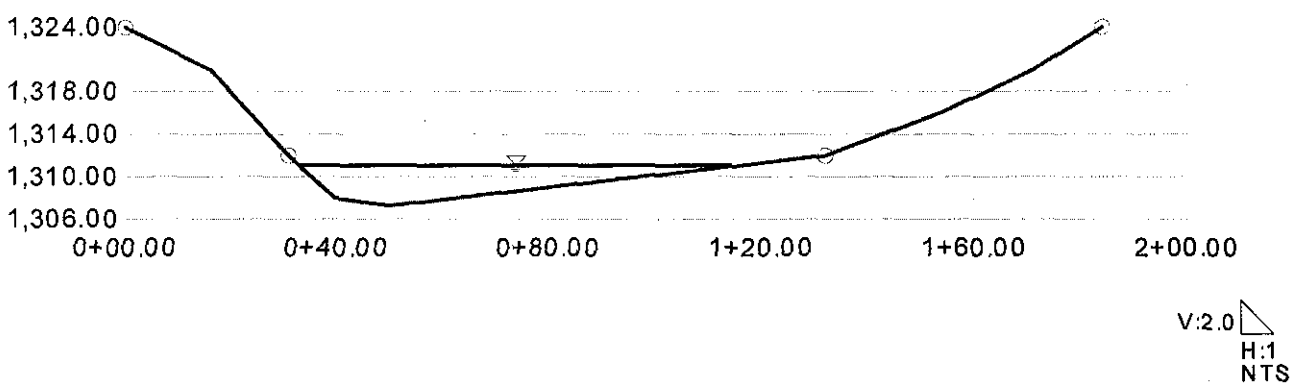
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,324.00
0+16.27	1,320.00
0+30.69	1,312.00
0+39.58	1,308.00
0+49.56	1,307.30
0+62.23	1,308.00
1+32.06	1,312.00
1+53.77	1,316.00
1+70.96	1,320.00
1+84.12	1,324.00

Unnamed Wash 8 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0146	ft/ft
Water Surface Elevation	1,310.98	ft
Elevation Range	1,307.30 to 1,324.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0150	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,325.53	ft
Elevation Range	1,321.50 to 1,348.00	
Flow Area	154.5	ft²
Wetted Perimeter	73.81	ft
Top Width	73.28	ft
Actual Depth	4.03	ft
Critical Elevation	1,325.36	ft
Critical Slope	0.0186	ft/ft
Velocity	7.44	ft/s
Velocity Head	0.86	ft
Specific Energy	1,326.39	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+91.82	0.050
0+91.82	2+37.31	0.040
2+37.31	2+79.09	0.050

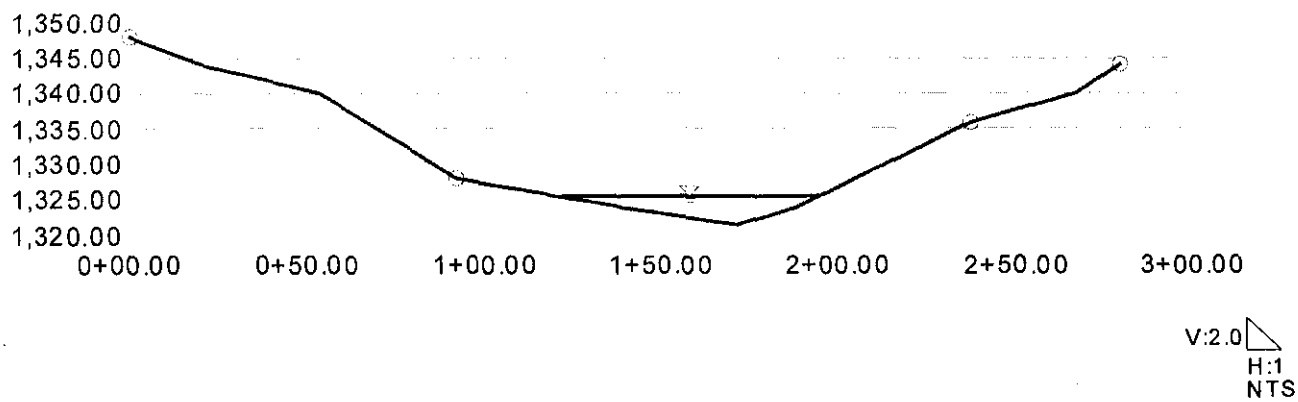
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,348.00
0+19.70	1,344.00
0+53.59	1,340.00
0+78.82	1,332.00
0+91.82	1,328.00
1+39.14	1,324.00
1+71.08	1,321.50
1+88.12	1,324.00
2+37.31	1,336.00
2+66.31	1,340.00
2+79.09	1,344.00

Unnamed Wash 8 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0150	ft/ft
Water Surface Elevation	1,325.53	ft
Elevation Range	1,321.50 to 1,348.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0117	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,338.57	ft
Elevation Range	1,334.60 to 1,348.00	
Flow Area	166.2	ft²
Wetted Perimeter	73.55	ft
Top Width	72.79	ft
Actual Depth	3.97	ft
Critical Elevation	1,338.21	ft
Critical Slope	0.0185	ft/ft
Velocity	6.92	ft/s
Velocity Head	0.74	ft
Specific Energy	1,339.31	ft
Froude Number	0.81	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+29.20	0.050
0+29.20	1+22.13	0.040
1+22.13	1+75.12	0.050

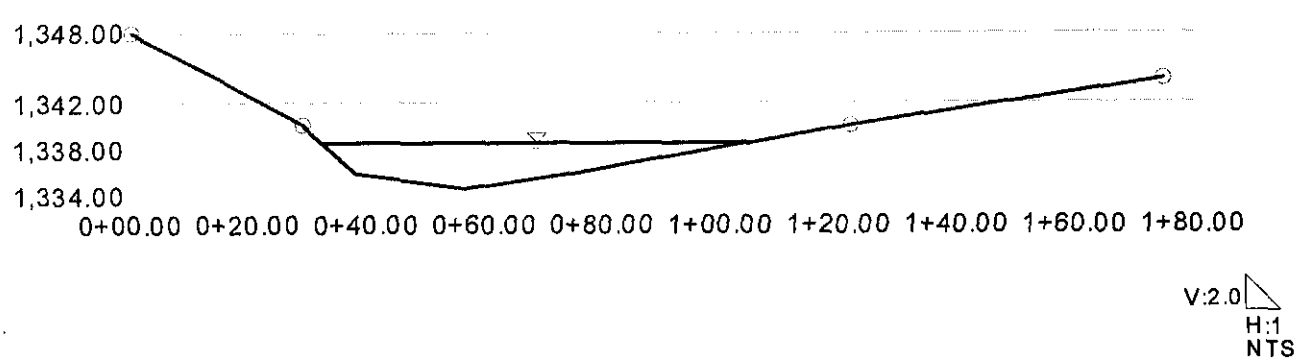
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,348.00
0+15.11	1,344.00
0+29.20	1,340.00
0+38.23	1,336.00
0+56.53	1,334.60
0+74.84	1,336.00
1+22.13	1,340.00
1+75.12	1,344.00

Unnamed Wash 8 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	*Channel Depth*

Section Data		
Mannings Coefficient	0.040	
Slope	0.0117	ft/ft
Water Surface Elevation	1,338.57	ft
Elevation Range	1,334.60 to 1,348.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0118	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,349.52	ft
Elevation Range	1,346.10 to 1,356.00	
Flow Area	177.5	ft²
Wetted Perimeter	87.26	ft
Top Width	86.93	ft
Actual Depth	3.42	ft
Critical Elevation	1,349.19	ft
Critical Slope	0.0192	ft/ft
Velocity	6.48	ft/s
Velocity Head	0.65	ft
Specific Energy	1,350.17	ft
Froude Number	0.80	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+28.58	0.050
2+28.58	3+50.93	0.040
3+50.93	4+74.28	0.050

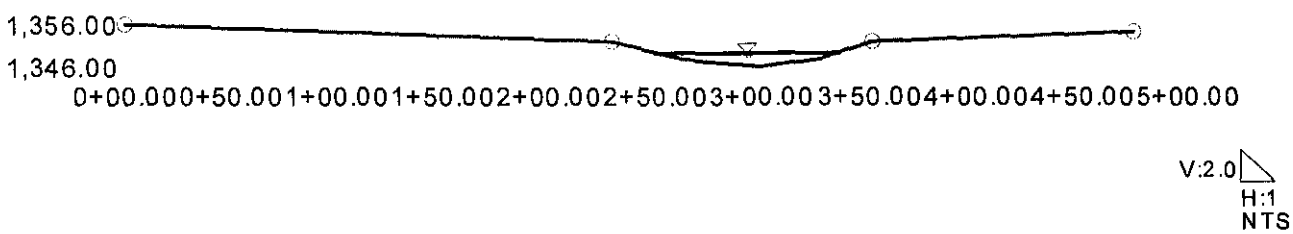
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,356.00
2+28.58	1,352.00
2+61.75	1,348.00
2+98.32	1,346.10
3+27.03	1,348.00
3+50.93	1,352.00
4+74.28	1,354.40

Unnamed Wash 8 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0118	ft/ft
Water Surface Elevation	1,349.52	ft
Elevation Range	1,346.10 to 1,356.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0102	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,357.56	ft
Elevation Range	1,355.60 to 1,360.00	
Flow Area	308.5	ft²
Wetted Perimeter	311.53	ft
Top Width	311.50	ft
Actual Depth	1.96	ft
Critical Elevation	1,357.25	ft
Critical Slope	0.0247	ft/ft
Velocity	3.73	ft/s
Velocity Head	0.22	ft
Specific Energy	1,357.77	ft
Froude Number	0.66	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+85.00	0.050
1+85.00	6+43.47	0.040
6+43.47	10+89.20	0.050

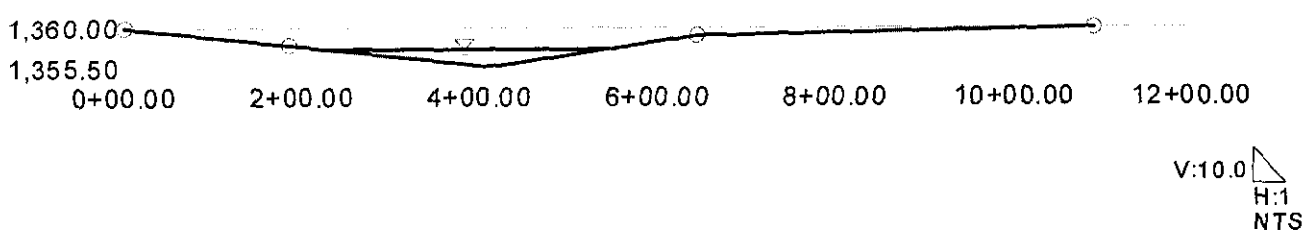
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,360.00
1+85.00	1,358.01
3+72.06	1,356.00
4+04.05	1,355.60
4+39.85	1,356.00
6+43.47	1,359.20
10+89.20	1,360.00

Unnamed Wash 8 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0102	ft/ft
Water Surface Elevation	1,357.56	ft
Elevation Range	1,355.60 to 1,360.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0067	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,366.25	ft
Elevation Range	1,363.70 to 1,372.00	
Flow Area	311.6	ft²
Wetted Perimeter	233.11	ft
Top Width	233.05	ft
Actual Depth	2.55	ft
Critical Elevation	1,365.70	ft
Critical Slope	0.0229	ft/ft
Velocity	3.69	ft/s
Velocity Head	0.21	ft
Specific Energy	1,366.46	ft
Froude Number	0.56	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	3+84.37	0.040
3+84.37	8+20.62	0.050

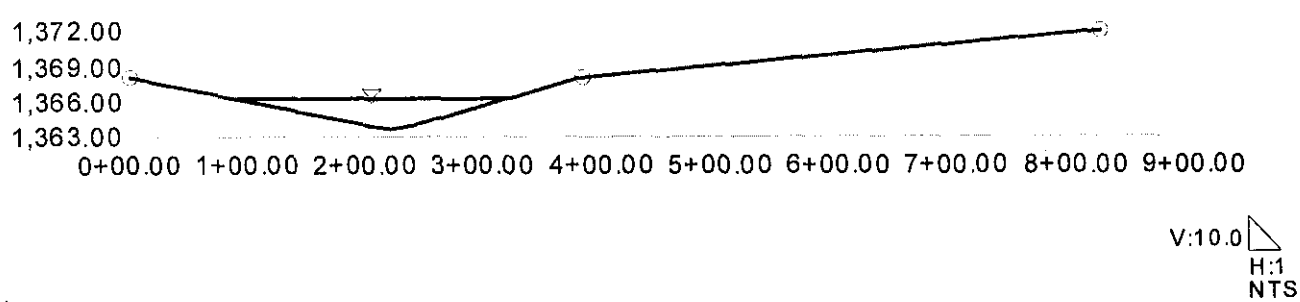
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,368.00
2+01.29	1,364.00
2+20.62	1,363.70
2+40.42	1,364.00
3+84.37	1,368.00
8+20.62	1,372.00

Unnamed Wash 8 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section G-G
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0067	ft/ft
Water Surface Elevation	1,366.25	ft
Elevation Range	1,363.70 to 1,372.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0062	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,371.54	ft
Elevation Range	1,369.70 to 1,376.00	
Flow Area	416.3	ft²
Wetted Perimeter	453.70	ft
Top Width	453.68	ft
Actual Depth	1.84	ft
Critical Elevation	1,371.10	ft
Critical Slope	0.0263	ft/ft
Velocity	2.76	ft/s
Velocity Head	0.12	ft
Specific Energy	1,371.65	ft
Froude Number	0.51	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+79.25	0.050
2+79.25	8+47.78	0.040
8+47.78	14+62.17	0.050

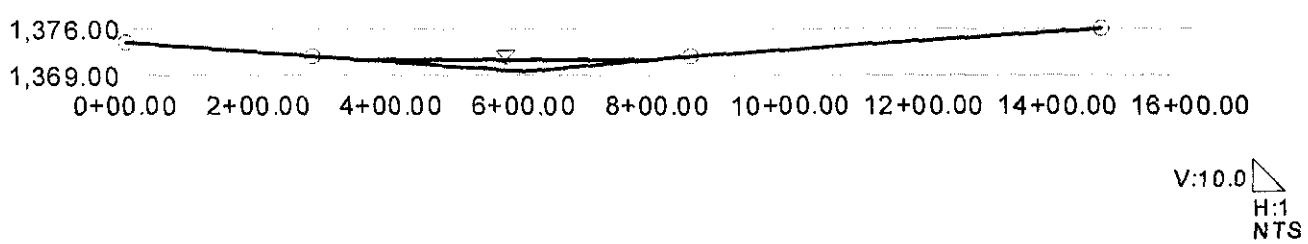
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,374.00
2+79.25	1,372.00
5+97.90	1,369.70
8+47.78	1,372.00
14+62.17	1,376.00

Unnamed Wash 8 - Approximate Method Section H-H
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0062	ft/ft
Water Surface Elevation	1,371.54	ft
Elevation Range	1,369.70 to 1,376.00	
Discharge	1,150	cfs



Unnamed Wash 8 - Approximate Method Section I-I
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0061	ft/ft
Discharge	1,150	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.042	
Water Surface Elevation	1,376.27	ft
Elevation Range	1,374.50 to 1,378.00	
Flow Area	456.4	ft²
Wetted Perimeter	527.50	ft
Top Width	527.49	ft
Actual Depth	1.77	ft
Critical Elevation	1,375.81	ft
Critical Slope	0.0293	ft/ft
Velocity	2.52	ft/s
Velocity Head	0.10	ft
Specific Energy	1,376.37	ft
Froude Number	0.48	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+88.48	0.050
0+88.48	5+24.11	0.040
5+24.11	6+85.71	0.050

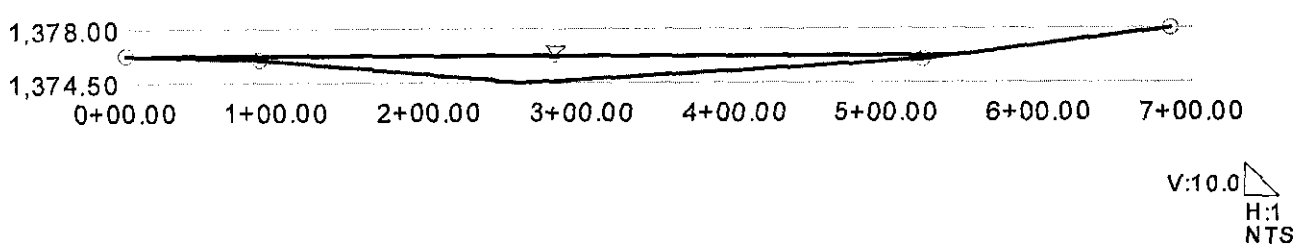
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,376.34
0+88.48	1,376.00
2+60.28	1,374.50
5+24.11	1,376.00
6+85.71	1,378.00

Unnamed Wash 8 - Approximate Method Section I-I
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 8 - Approximate Method Section I-I
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.042	
Slope	0.0061	ft/ft
Water Surface Elevation	1,376.27	ft
Elevation Range	1,374.50 to 1,378.00	
Discharge	1,150	cfs



Unnamed Wash 9 – Approximate Method Reach

Unnamed Wash 9 - Approximate Method Section A-A
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0171	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,293.54	ft
Elevation Range	1,290.20 to 1,304.00	
Flow Area	143.8	ft²
Wetted Perimeter	69.93	ft
Top Width	69.50	ft
Actual Depth	3.34	ft
Critical Elevation	1,293.48	ft
Critical Slope	0.0186	ft/ft
Velocity	7.86	ft/s
Velocity Head	0.96	ft
Specific Energy	1,294.50	ft
Froude Number	0.96	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+24.07	0.050
0+24.07	1+18.26	0.040
1+18.26	2+13.15	0.050

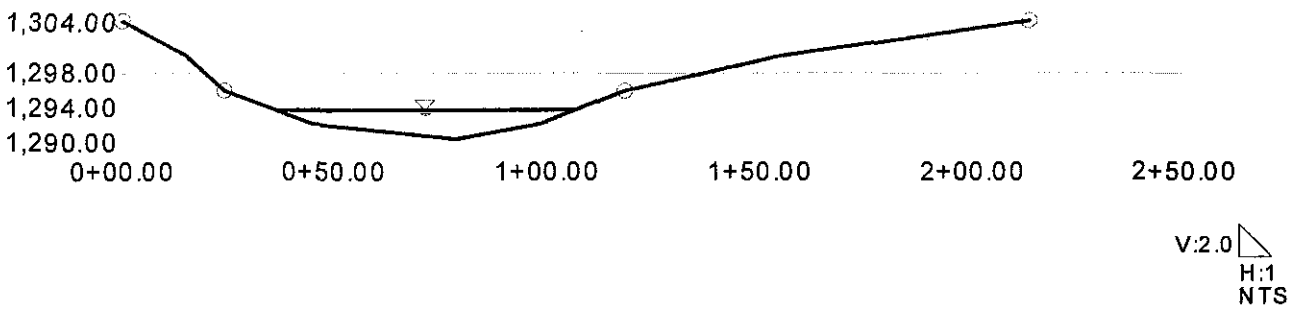
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,304.00
0+14.90	1,300.00
0+24.07	1,296.00
0+44.32	1,292.00
0+78.57	1,290.20
0+98.33	1,292.00
1+18.26	1,296.00
1+55.39	1,300.00
2+13.15	1,304.00

Unnamed Wash 9 - Approximate Method Section A-A
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section A-A
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0171	ft/ft
Water Surface Elevation	1,293.54	ft
Elevation Range	1,290.20 to 1,304.00	
Discharge	1,130	cfs



Unnamed Wash 9 - Approximate Method Section B-B
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0258	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,311.72	ft
Elevation Range	1,309.00 to 1,332.00	
Flow Area	154.4	ft^2
Wetted Perimeter	113.61	ft
Top Width	113.40	ft
Actual Depth	2.72	ft
Critical Elevation	1,311.83	ft
Critical Slope	0.0208	ft/ft
Velocity	7.32	ft/s
Velocity Head	0.83	ft
Specific Energy	1,312.56	ft
Froude Number	1.11	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+43.79	0.050
0+43.79	1+68.74	0.040
1+68.74	2+38.29	0.050

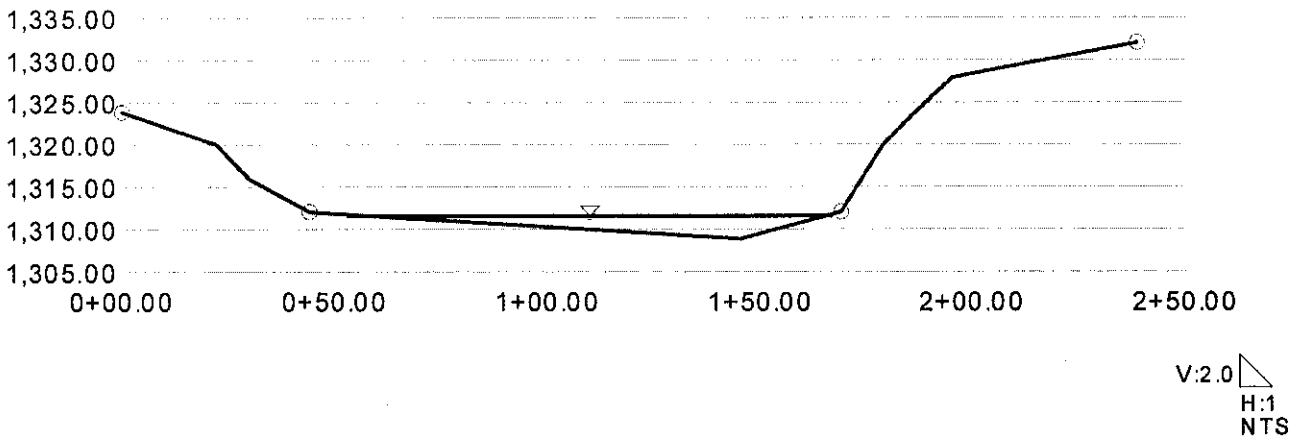
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,324.00
0+22.17	1,320.00
0+30.02	1,316.00
0+43.79	1,312.00
1+45.43	1,309.00
1+68.74	1,312.00
1+79.00	1,320.00
1+86.45	1,324.00
1+95.21	1,328.00
2+38.29	1,332.00

Unnamed Wash 9 - Approximate Method Section B-B
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section B-B
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0258	ft/ft
Water Surface Elevation	1,311.72	ft
Elevation Range	1,309.00 to 1,332.00	
Discharge	1,130	cfs



Unnamed Wash 9 - Approximate Method Section C-C
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0114	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,330.60	ft
Elevation Range	1,327.10 to 1,340.00	
Flow Area	193.5	ft²
Wetted Perimeter	108.31	ft
Top Width	108.07	ft
Actual Depth	3.50	ft
Critical Elevation	1,330.24	ft
Critical Slope	0.0199	ft/ft
Velocity	5.84	ft/s
Velocity Head	0.53	ft
Specific Energy	1,331.13	ft
Froude Number	0.77	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+60.77	0.050
1+60.77	3+10.81	0.040
3+10.81	5+54.38	0.050

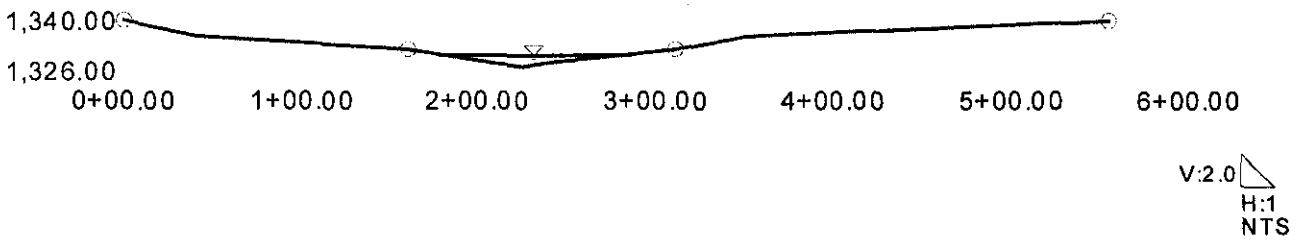
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,340.00
0+40.62	1,336.00
1+60.77	1,332.00
2+07.64	1,328.00
2+24.82	1,327.10
2+38.06	1,328.00
3+10.81	1,332.00
3+50.74	1,336.00
5+54.38	1,340.00

Unnamed Wash 9 - Approximate Method Section C-C
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section C-C
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0114	ft/ft
Water Surface Elevation	1,330.60	ft
Elevation Range	1,327.10 to 1,340.00	
Discharge	1,130	cfs



© Haestad Methods, Inc.

Unnamed Wash 9 - Approximate Method Section D-D
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0195	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,348.06	ft
Elevation Range	1,345.70 to 1,359.20	
Flow Area	193.3	ft²
Wetted Perimeter	161.24	ft
Top Width	161.12	ft
Actual Depth	2.36	ft
Critical Elevation	1,348.01	ft
Critical Slope	0.0223	ft/ft
Velocity	5.85	ft/s
Velocity Head	0.53	ft
Specific Energy	1,348.59	ft
Froude Number	0.94	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	2+08.24	0.050
2+08.24	3+68.53	0.040
3+68.53	5+72.95	0.050

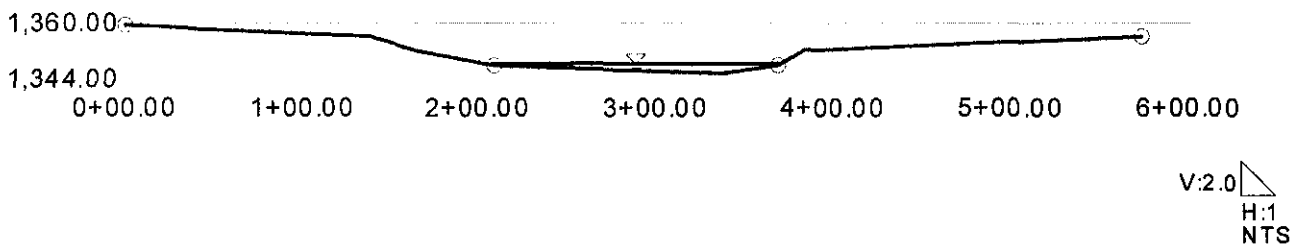
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,359.20
1+37.10	1,356.00
1+63.75	1,352.00
2+08.24	1,348.00
3+36.70	1,345.70
3+68.53	1,348.00
3+83.74	1,352.00
5+72.95	1,356.00

Unnamed Wash 9 - Approximate Method Section D-D
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section D-D
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0195	ft/ft
Water Surface Elevation	1,348.06	ft
Elevation Range	1,345.70 to 1,359.20	
Discharge	1,130	cfs



Unnamed Wash 9 - Approximate Method Section E-E
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0161	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,364.12	ft
Elevation Range	1,360.70 to 1,380.00	
Flow Area	167.5	ft²
Wetted Perimeter	96.99	ft
Top Width	96.69	ft
Actual Depth	3.42	ft
Critical Elevation	1,363.99	ft
Critical Slope	0.0201	ft/ft
Velocity	6.75	ft/s
Velocity Head	0.71	ft
Specific Energy	1,364.83	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+86.00	0.050
1+86.00	2+80.61	0.040
2+80.61	3+90.75	0.050

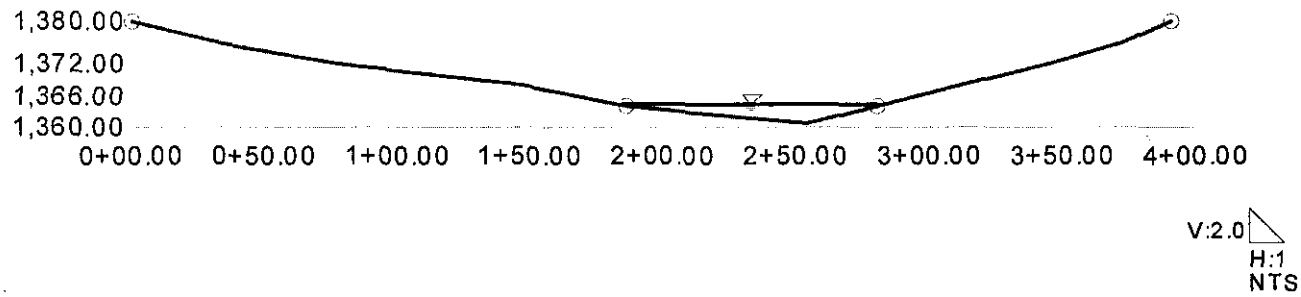
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,380.00
0+32.94	1,376.00
0+77.56	1,372.00
1+46.89	1,368.00
1+86.00	1,364.00
2+54.16	1,360.70
2+80.61	1,364.00
3+11.28	1,368.00
3+44.88	1,372.00
3+72.57	1,376.00
3+90.75	1,380.00

Unnamed Wash 9 - Approximate Method Section E-E
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section E-E
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0161	ft/ft
Water Surface Elevation	1,364.12	ft
Elevation Range	1,360.70 to 1,380.00	
Discharge	1,130	cfs



Unnamed Wash 9 - Approximate Method Section F-F
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0147	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,378.52	ft
Elevation Range	1,375.40 to 1,400.00	
Flow Area	162.9	ft²
Wetted Perimeter	85.23	ft
Top Width	84.93	ft
Actual Depth	3.12	ft
Critical Elevation	1,378.34	ft
Critical Slope	0.0192	ft/ft
Velocity	6.94	ft/s
Velocity Head	0.75	ft
Specific Energy	1,379.27	ft
Froude Number	0.88	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+88.28	0.050
0+88.28	2+02.02	0.040
2+02.02	3+47.61	0.050

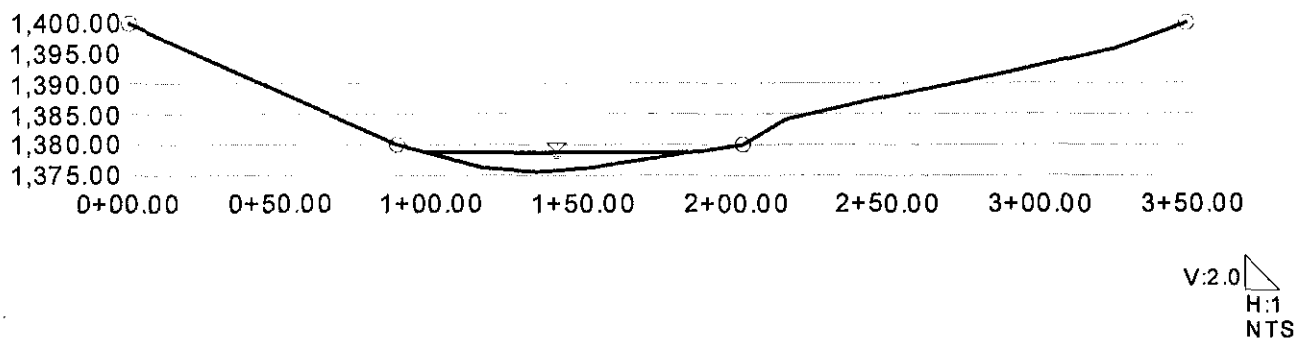
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,400.00
0+88.28	1,380.00
1+16.54	1,376.00
1+34.78	1,375.40
1+52.20	1,376.00
2+02.02	1,380.00
2+16.26	1,384.00
2+49.53	1,388.00
2+90.97	1,392.00
3+24.58	1,396.00
3+47.61	1,400.00

Unnamed Wash 9 - Approximate Method Section F-F
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section F-F
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0147	ft/ft
Water Surface Elevation	1,378.52	ft
Elevation Range	1,375.40 to 1,400.00	
Discharge	1,130	cfs



Unnamed Wash 9 - Approximate Method Section G-G
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0144	ft/ft
Discharge	1,130	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,392.69	ft
Elevation Range	1,389.21 to 1,413.51	
Flow Area	162.3	ft²
Wetted Perimeter	83.19	ft
Top Width	82.83	ft
Actual Depth	3.48	ft
Critical Elevation	1,392.51	ft
Critical Slope	0.0192	ft/ft
Velocity	6.96	ft/s
Velocity Head	0.75	ft
Specific Energy	1,393.44	ft
Froude Number	0.88	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+08.45	0.050
1+08.45	2+19.94	0.040
2+19.94	3+71.17	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,413.51
0+25.22	1,412.00
0+50.17	1,408.00
0+75.31	1,404.00
0+99.85	1,400.00
1+08.45	1,396.00
1+27.21	1,392.00
1+71.24	1,389.21
2+04.06	1,392.00
2+19.94	1,396.00
2+57.60	1,400.00

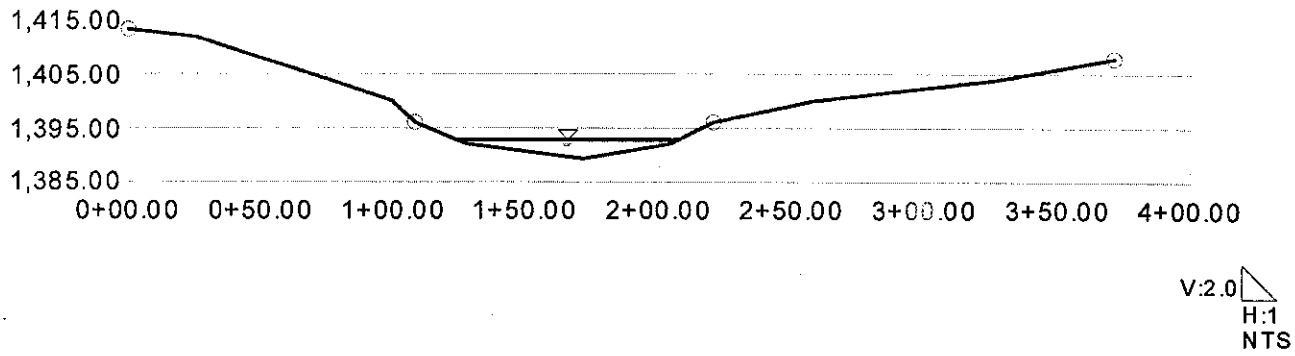
Unnamed Wash 9 - Approximate Method Section G-G
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
3+26.57	1,404.00
3+71.17	1,408.00

Unnamed Wash 9 - Approximate Method Section G-G
Cross Section for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section G-G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0144	ft/ft
Water Surface Elevation	1,392.69	ft
Elevation Range	1,389.21 to 1,413.51	
Discharge	1,130	cfs



Unnamed Wash 9 - Approximate Method Section H-H
Worksheet for Irregular Channel

Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.0170	ft/ft
Discharge	860	cfs

Options	
Current Roughness Method	Horton's Method
Open Channel Weighting Method	Horton's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.040	
Water Surface Elevation	1,407.51	ft
Elevation Range	1,404.10 to 1,420.00	
Flow Area	139.3	ft²
Wetted Perimeter	96.81	ft
Top Width	96.01	ft
Actual Depth	3.41	ft
Critical Elevation	1,407.39	ft
Critical Slope	0.0211	ft/ft
Velocity	6.17	ft/s
Velocity Head	0.59	ft
Specific Energy	1,408.10	ft
Froude Number	0.90	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	1+29.90	0.050
1+29.90	1+84.34	0.040
1+84.34	3+39.96	0.050
3+39.96	3+98.35	0.040
3+98.35	4+75.05	0.050

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	1,420.00
0+52.37	1,416.00
0+96.59	1,412.00
1+29.90	1,408.00
1+67.07	1,404.10
1+84.34	1,408.00

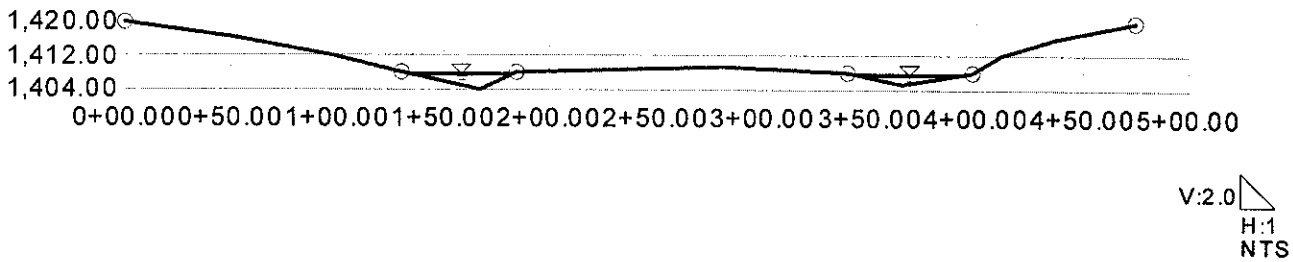
Unnamed Wash 9 - Approximate Method Section H-H
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
2+81.93	1,409.50
3+39.96	1,408.00
3+64.56	1,405.10
3+98.35	1,408.00
4+12.27	1,412.00
4+38.30	1,416.00
4+75.05	1,420.00

Unnamed Wash 9 - Approximate Method Section H-H
Cross Section for Irregular Channel

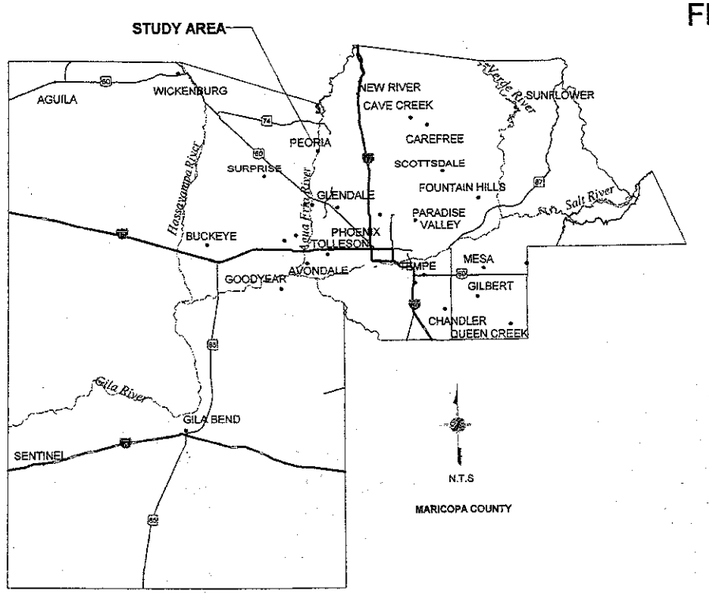
Project Description	
Worksheet	Unnamed Wash 9 - Approximate Method Section H-H
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.040	
Slope	0.0170	ft/ft
Water Surface Elevation	1,407.51	ft
Elevation Range	1,404.10 to 1,420.00	
Discharge	860	cfs

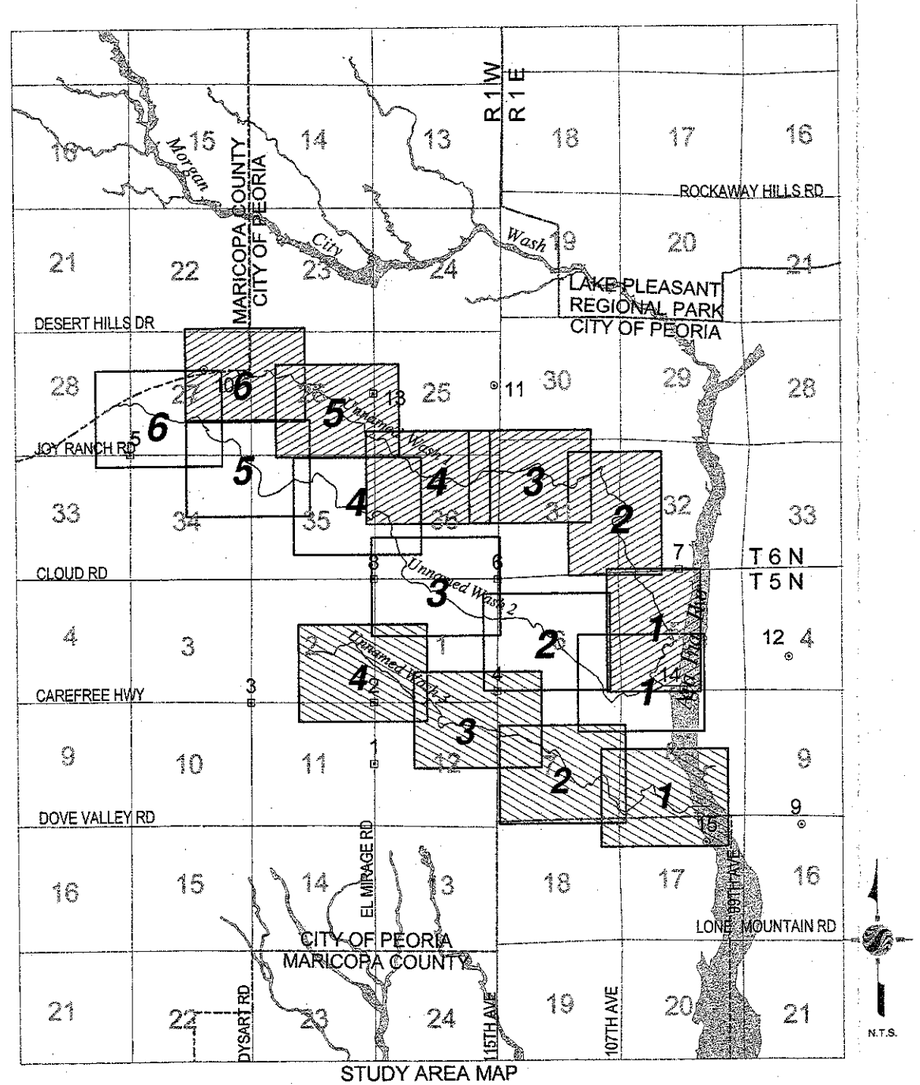


APPENDIX N: REDUCED SCALE FLOODPLAIN AND FLOODWAY WORK MAPS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
NORTH PEORIA AREA DRAINAGE MASTER PLAN
DETAIL FLOODPLAIN MAPS
FCD CONTRACT NO. 99-45



LOCATION MAP



STUDY AREA MAP
AND INDEX SHEET

DATUM
HORIZONTAL: North American Datum of 1983
VERTICAL: National Geodetic Vertical Datum of 1929

STATEMENTS BY PROFESSIONAL REGISTRANTS

The following statements apply to the individual seals affixed to each of the maps following this cover sheet.

The ground control survey was prepared under my direct supervision:

The photogrammetry and topographic mapping were prepared under my direct supervision:

The hydrologic values used for the floodplain and floodway delineation and the floodplain and floodway delineation were prepared under my direct supervision:

MICHAEL C. GERLACH
ARIZONA U.S.A.

AERIAL MAPPING
Cooper Aerial Surveys Co.
11402 N. Cave Creek Road
Phoenix, AZ 85020
(602) 678-5111

GROUND CONTROL
Valco Surveying Corporation
6426 E. Virginia Avenue
Scottsdale, AZ 85257
(480) 990-2412

HYDROLOGY
Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355
(602) 438-2200

HYDRAULICS
Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355
(602) 438-2200

LEGEND

- Study Wash
- Plate 4 Sheets
- Plate 5 Sheets
- Plate 6 Sheets
- 1 Sheet Number
- 09 Section Label
- Section Lines
- Corporate Limits
- ⊙12 Control Point with ERM Reference Number
- ⊞ 1 Section Corner with ERM Reference Number

Stantec
Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
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www.stantec.com

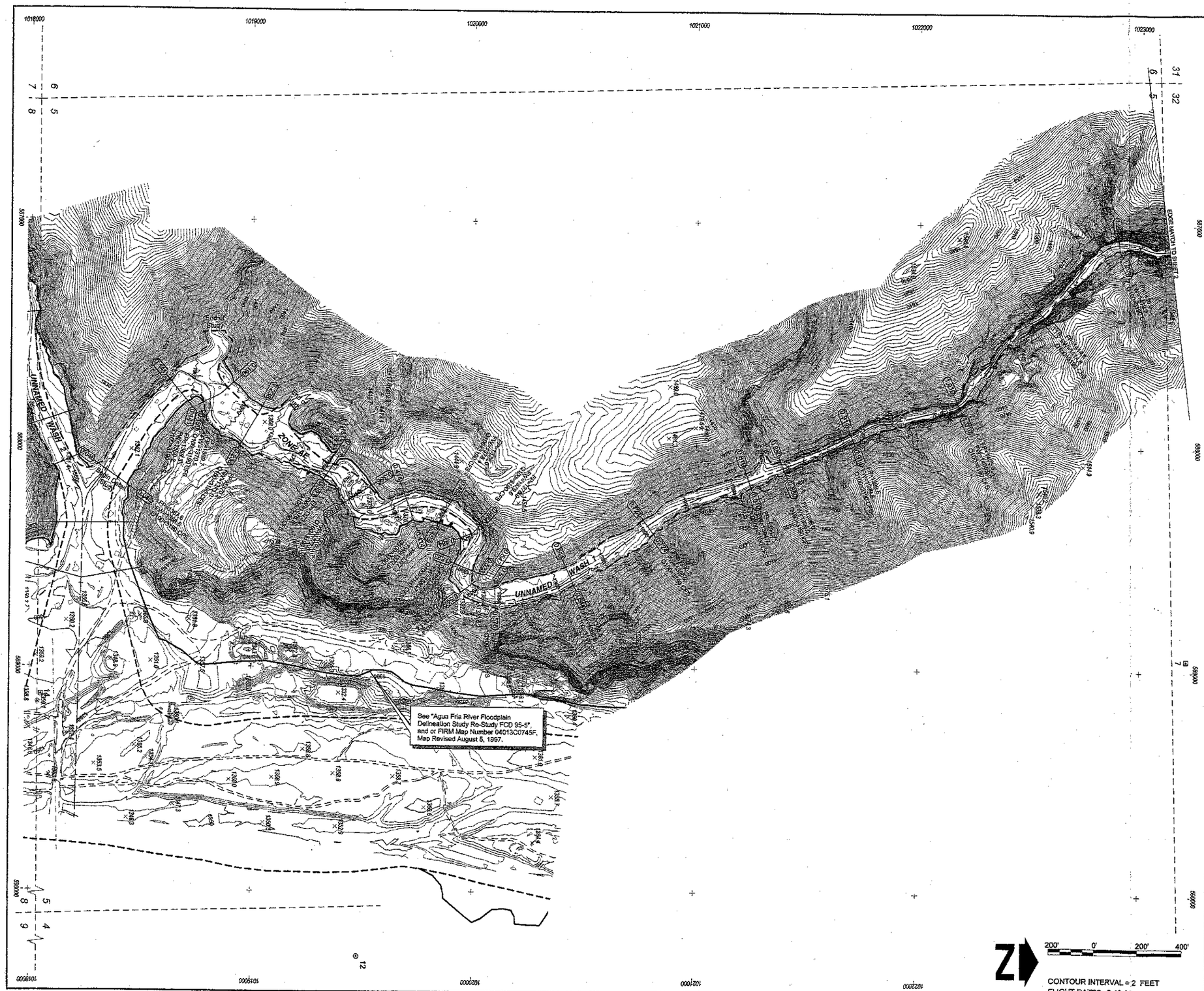
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

COVER SHEET SHEET 1 OF 1

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 FP= 1888.74 FW= 1889.54 Q100 = CFS
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

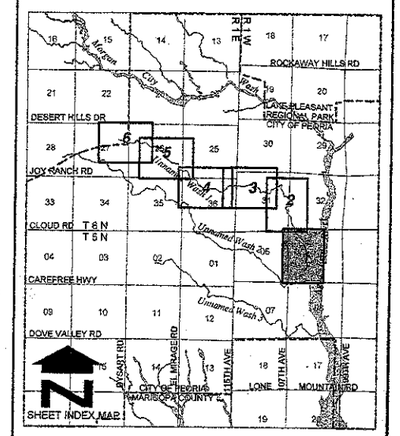
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
7	1499.825	GLO BRASS CAP 1/4 CORNER SECTIONS 5 & 32 T 6 N, R 1 E, N: 1023210.001 E: 588949.105
12	1440.688	CHISLED "+" ON STRUCTURE, VALCO TBM 65 - NORTHEAST CORNER OF CONCRETE BARRIER ON BRIDGE OVER BEARDSLEY CANAL +-1.6 MILES WEST OF LAKE PLEASANT ROAD AND WEST CAREFREE HIGHWAY. N: 1019462.853 E: 593588.029

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1988 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 1 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355 U.S.A.
Tel: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

PLATE 4 SHEET 1 OF 6

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALDO SURVEYING CORP.

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODPLAIN WATER SURFACE ELEVATION) FW= 1889.54 Q100 = CFS (FLOODWAY WATER SURFACE ELEVATION / 100 YEAR DISCHARGE) (CROSS SECTION RIVER MILE DESIGNATION)
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

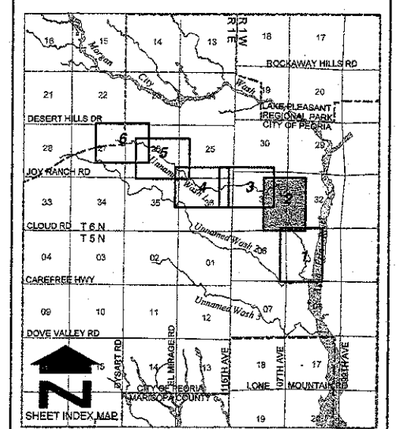
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1996 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

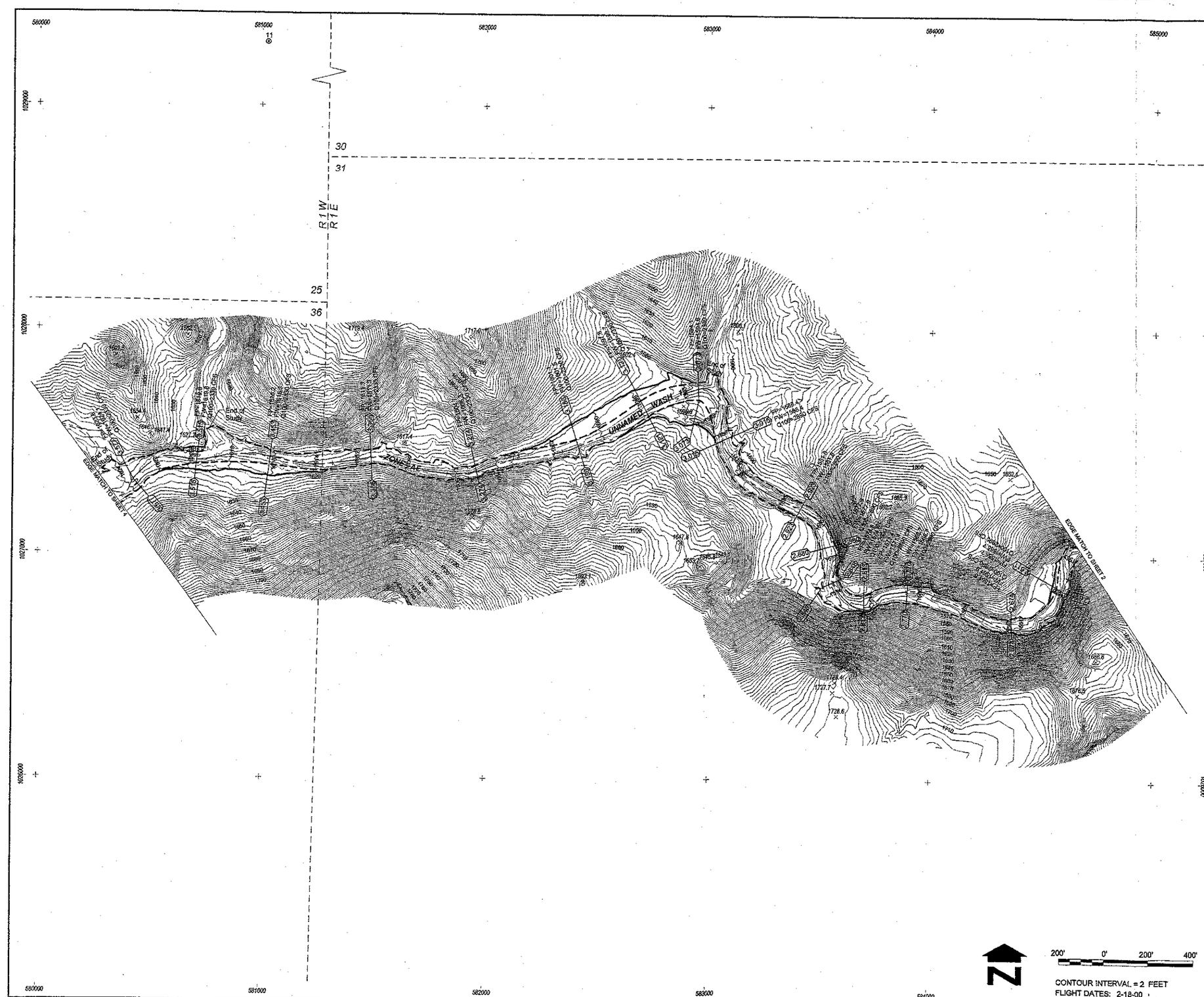
NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 1 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355 U.S.A.
Tel: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

Registered Professional Engineer (Civil) R. MICHAEL C. GERLACH 35150 ARIZONA U.S.A.

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 4 SHEET 2 OF 6



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 FP= 1888.74 FW= 1889.54 Q100 = CFS
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

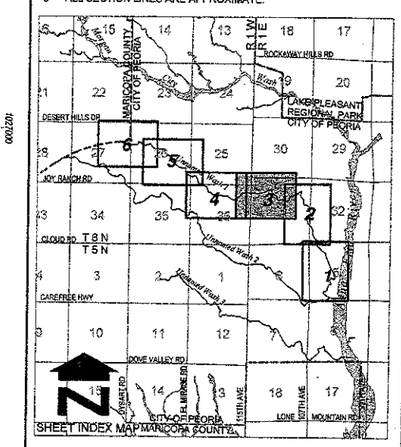
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
11 ⊙	1731.577	ADOT DISK STAMPED "LAKE" IN ROCK OUTCROP, LAKE - IN SOUTH R/W SR 74, 1 MILE SW OF LAKE PLEASANT AT MILEPOST 19.20. THE STATION IS 3 FEET INSIDE THE SOUTH R/W FENCE AND MARKED BY A WITNESS POST & SIGN. N: 1031113.905 E: 581053.811

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-365 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA
AREA DRAINAGE MASTER PLAN
FLOODWAY AND FLOODPLAIN MAP
UNNAMED WASH 1
F.C.D. CONTRACT NO. 99-45

R. MICHAEL C. GERLACH
ARIZONA, U.S.A.

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5358 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

PLATE 4 SHEET 3 OF 6

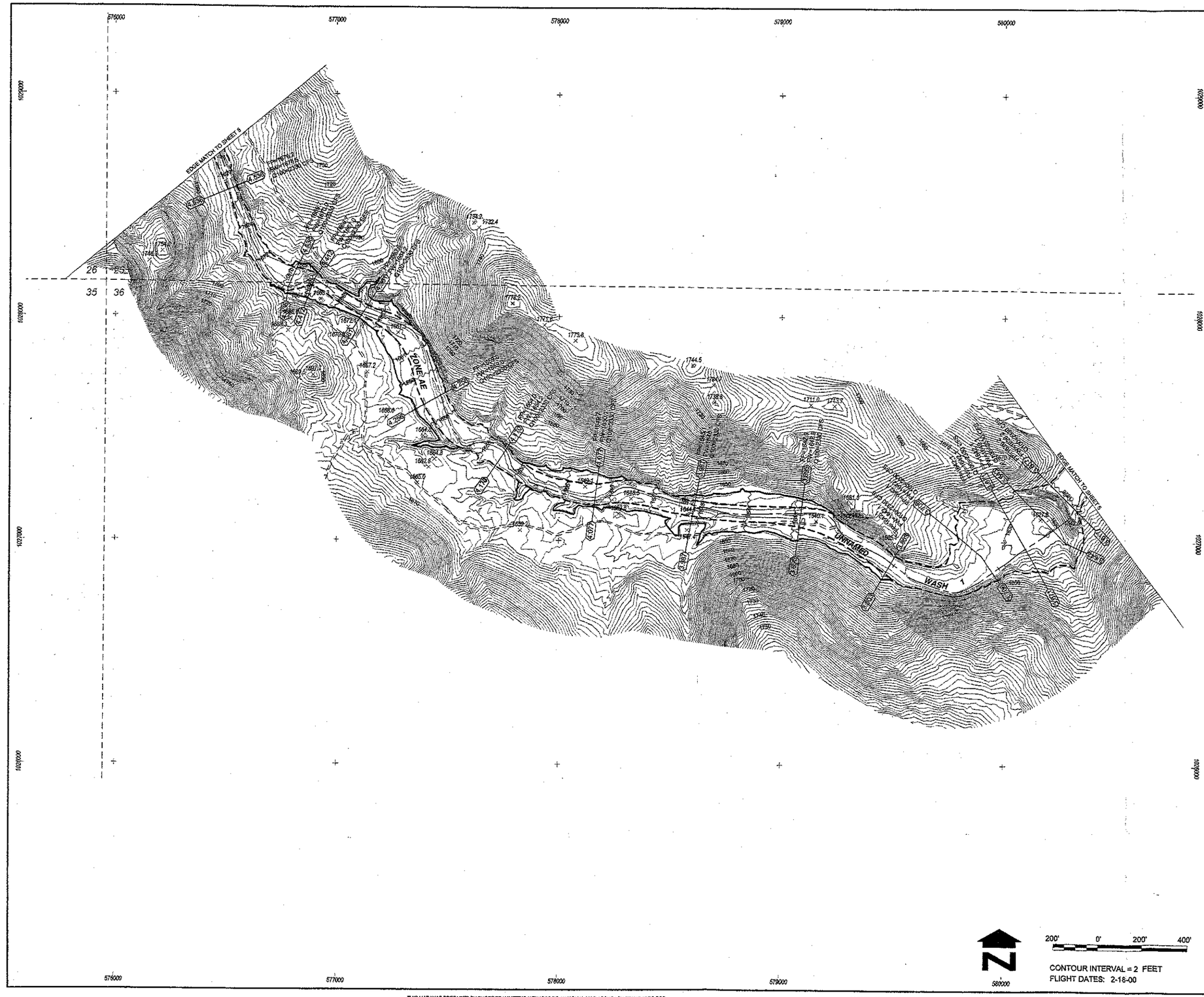
200' 0' 200' 400'

CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 2-18-00

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2 'CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 — FP= 1888.74 FW= 1889.54 Q100 = CFS
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

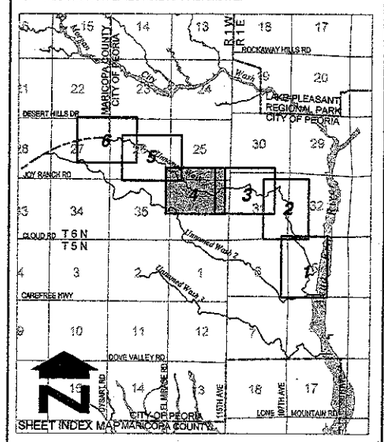
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-356 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 1 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355 U.S.A.
Tel.: (602) 436-2200
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www.stantec.com

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 4 SHEET 4 OF 6

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODWAY WATER SURFACE ELEVATION); FW= 1889.54 (ENCROACHED WATER SURFACE ELEVATION); Q100 = CFS (100 YEAR DISCHARGE); CROSS SECTION NUMBER AND DESIGNATION
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

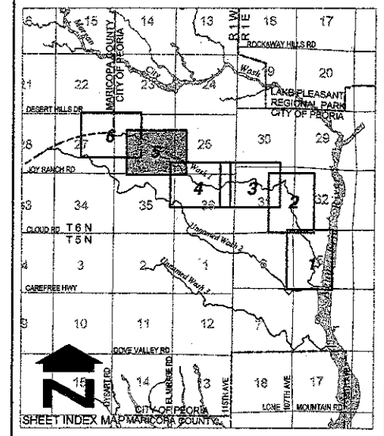
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
13	1747.520	GLO BRASS CAP, 1/4 CORNER SECTION 26 AND 25, T 6 N, R 1 W N: 1030780.041 E: 575913.787

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



SHEET INDEX MAP MARICOPA COUNTY

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 1 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-0062
www.stantec.com

Registered Professional Engineer (Civil) R. MICHAEL C. GERLACH Date Signed 1-7-01 ARIZONA U.S.A.

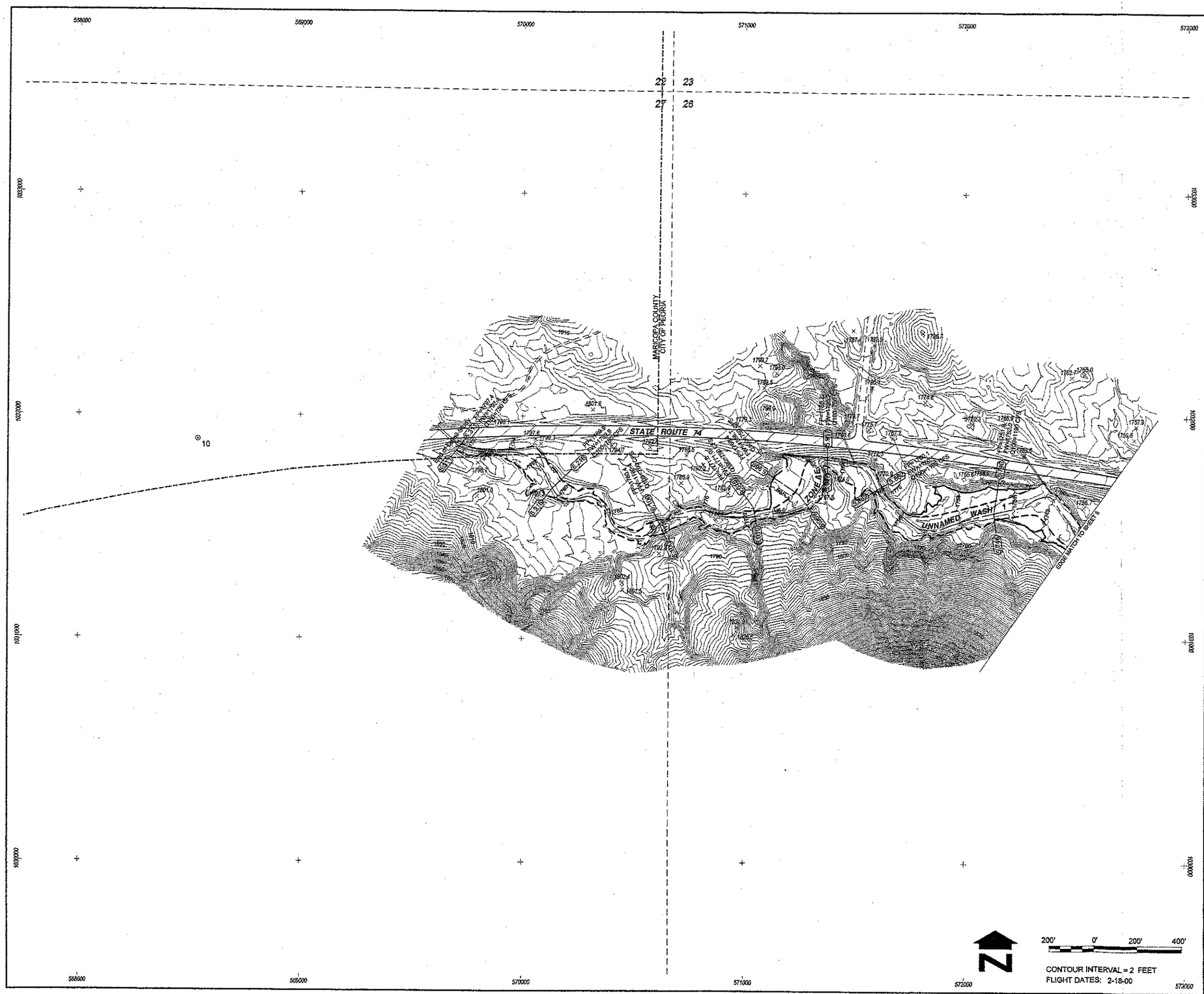
	BY	DATE
DESIGN	MCG	01/01
DESIGN CHK	PJE	01/01
PLANS	NKD	01/01
PLANS CHK	PJE	01/01

PLATE 4 SHEET 5 OF 6

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1889.54 (FLOODWAY WATER SURFACE ELEVATION); Q100 = CFS (100 YEAR DISCHARGE); CROSS SECTION RIVER MILE DESIGNATION
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

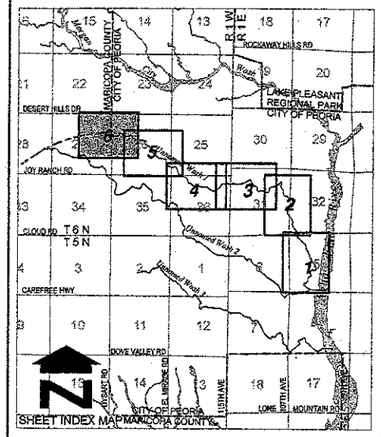
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
10 ⊙	1858.402	ADOT DISK STAMPED "CUT" IN 10" CONC. MONUMENT, CUT- IN NORTH R/W SR74, 5 MI WSW OF LAKE PLEASANT AT MILEPOST 16.99. THE MARK IS 3.5 FEET SOUTH OF THE NORTH R/W FENCE ON TOP OF A 15 FOOT CUTBANK. N: 1031888.332 E: 568536.274

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1988 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 1 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
3211 South 48th Street
Phoenix, Az 85044-5356 U.S.A.
Tel.: (602) 431-2200
Fax: (602) 431-9562
www.stantec.com

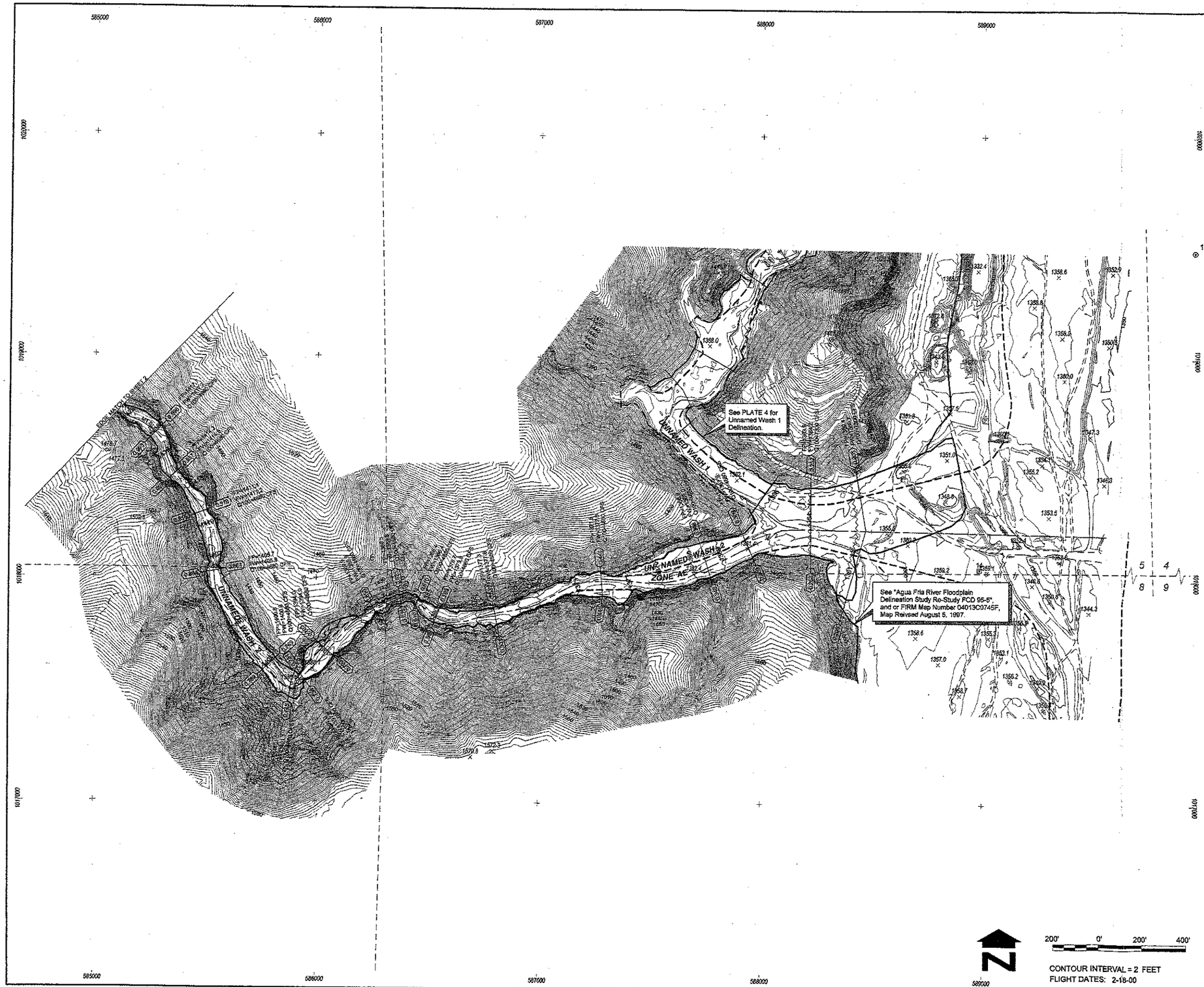
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

PLATE 4 SHEET 6 OF 5

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 FP= 1888.74 FW= 1889.54 Q100 = CFS
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

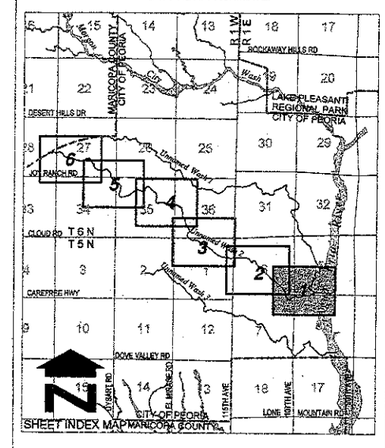
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
14	1356.700	DEPT. OF INTERIOR ALUM. CAP, 1/4 CORNER SECTIONS 5 & 8 T5N, R1E N: 1018052.383 E: 589126.608
12	1440.688	CHISLED "+" ON STRUCTURE, VALCO TBM 65 - NORTHEAST CORNER OF CONCRETE BARRIER ON BRIDGE OVER BEARDSLEY CANAL +-1.8 MILES WEST OF LAKE PLEASANT ROAD AND WEST CAREFREE HIGHWAY. N: 1019462.853 E: 593588.029

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1988 VALUES.

3- ALL SECTION CORNERS ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA
AREA DRAINAGE MASTER PLAN
FLOODWAY AND FLOODPLAIN MAP
UNNAMED WASH 2
F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9062
www.stantec.com

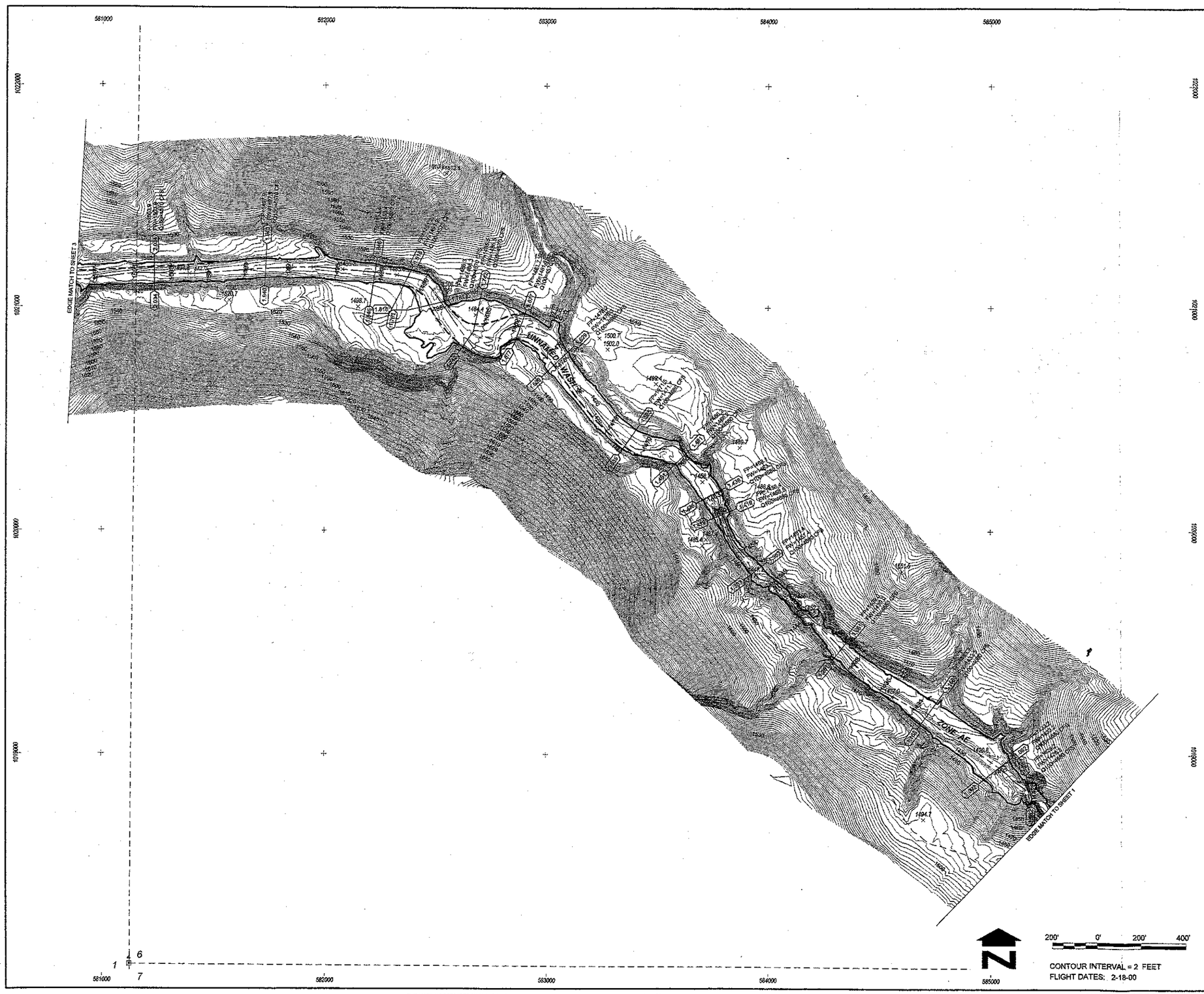
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 5 SHEET 1 OF 6

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1888.54 (FLOODWAY WATER SURFACE ELEVATION); Q100 = CFS (100-YEAR DISCHARGE); (CROSS SECTION BASE MAP DESIGNATION)
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

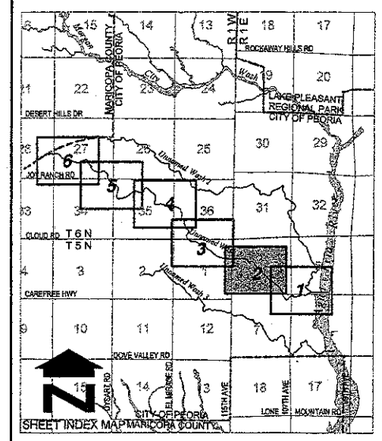
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1744.668	GLO BRASS CAP SECTION CORNER, SECTIONS 1, 6, 7, T5N, R1W & R1E N: 1018061.909 E: 581123.399

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1988 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 2 F.C.D. CONTRACT NO. 99-45

Registered Professional Engineer (Civil) No. 35150 R. MICHAEL C. GERLACH Date Signed 4-4-01 ARIZONA, U.S.A.

Stantec

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
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www.stantec.com

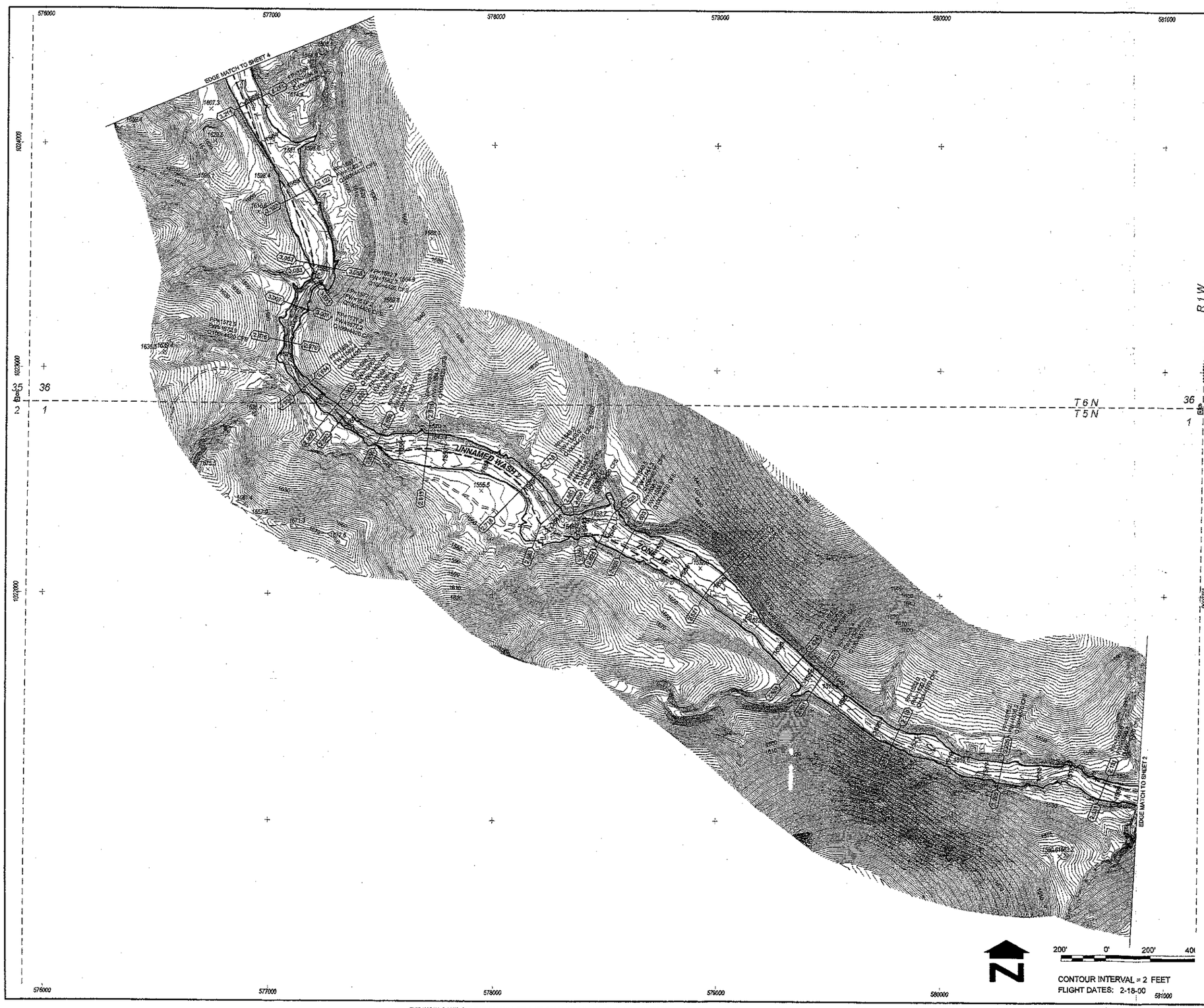
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 5 SHEET 2 OF 8

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1889.54 (BREAKLINE WATER SURFACE ELEVATION); Q100 = CFS (100 YEAR DISCHARGE); (CROSS SECTION 10+00 MILE DESIGNATION)
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

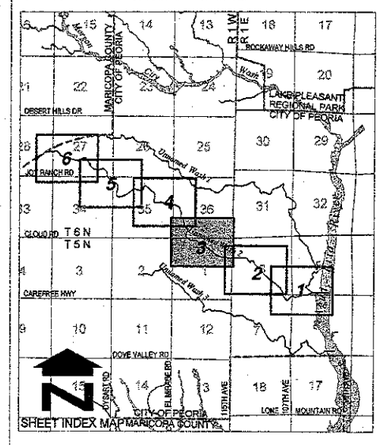
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
6	1743.227	GLO BRASS CAP SECTION CORNER, SECTIONS 31, 36, 1, 6 T5N, T6N, R1E, R1W N: 1022840.322 E: 581157.608
8	1713.615	GLO BRASS CAP SECTION CORNER, SECTIONS 35, 36, 1, 2 T5N,T6N, R1W N: 1022868.043 E: 575881.369

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-368 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 2 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5205 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

Registered Professional Engineer (Civil) CERTIFICATE NO. 06150 R. MICHAEL C. GERLACH Date Signed 4-6-01 ARIZONA U.S.A.

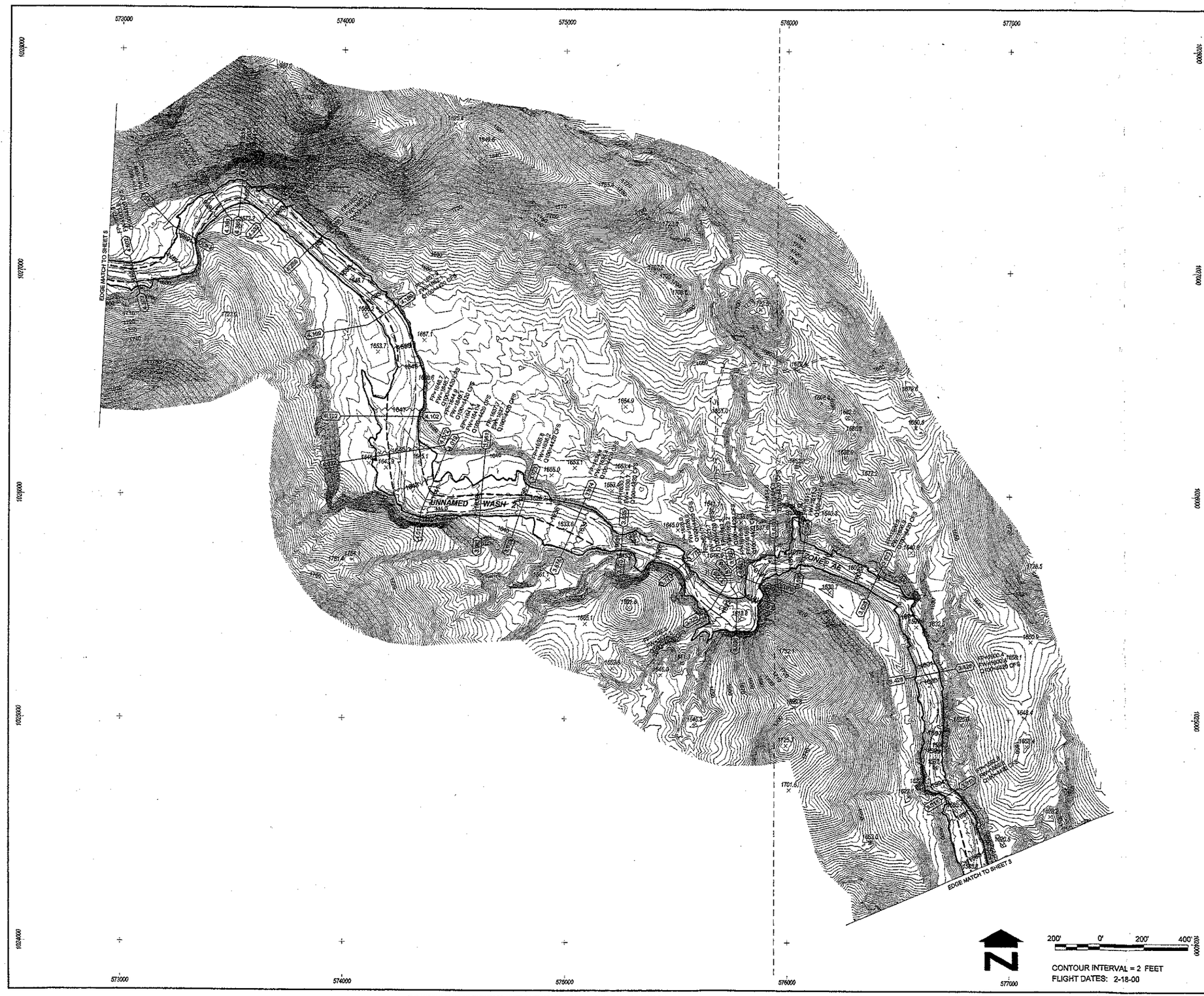
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 5 SHEET 3 OF 6

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1889.54 (ENCROACHED WATER SURFACE ELEVATION); Q100 = CFS (100 YEAR DISCHARGE); CROSS SECTION ROUTE HALF DESIGNATION
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

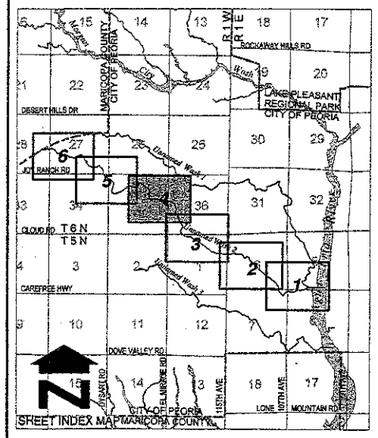
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION CORNERS ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 2 F.C.D. CONTRACT NO. 99-45

R. MICHAEL C. GERLACH 35150 ARIZONA U.S.A.

Stantec
Stantec Consulting Inc.
5211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
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Fax: (602) 431-9562
www.stantec.com

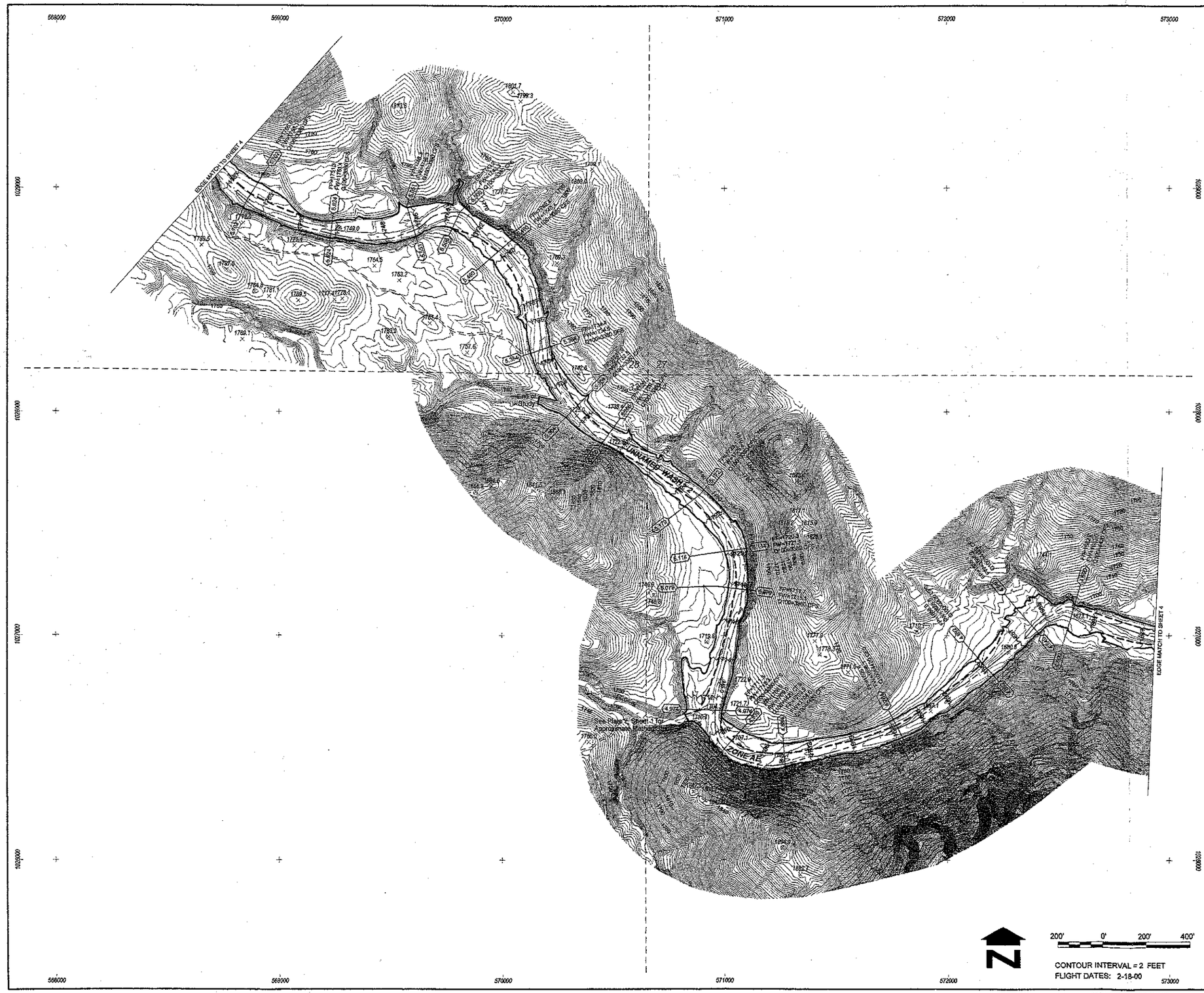
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 5 SHEET 4 OF 8

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	0.100 — FP= 1889.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1889.54 (FLOODWAY WATER SURFACE ELEVATION); Q100 = CFS (100 YEAR DISCHARGE); CROSS SECTION STATION DESIGNATION
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

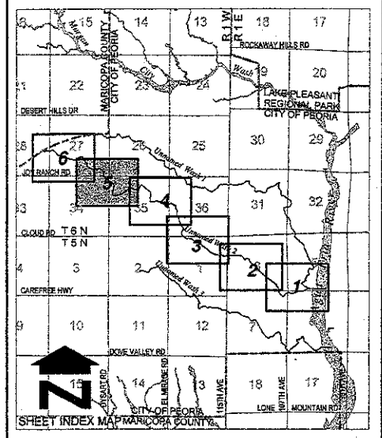
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-356 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

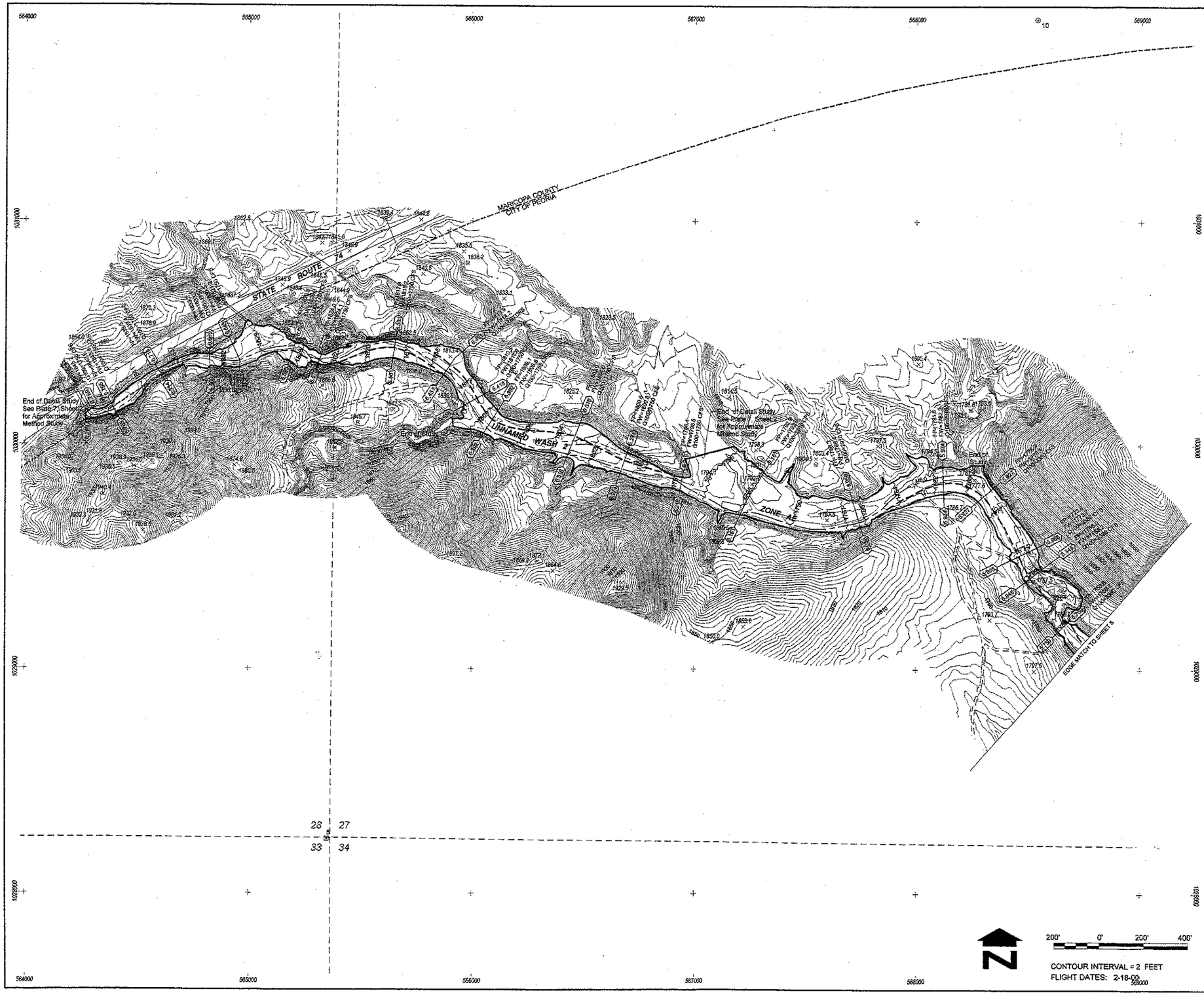
NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 2 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
Tel.: (602) 438-2000
Fax: (602) 431-9562
www.stantec.com

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

R. MICHAEL C. GERLACH 35150 ARIZONA U.S.A.

PLATE 5 SHEET 5 OF 6



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 FP= 1888.74 FW= 1889.54 Q100 = CFS
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

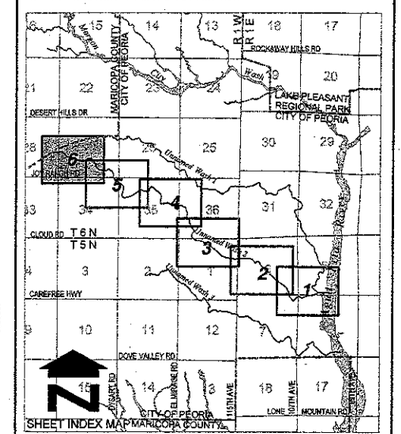
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
10 ⊙	1856.402	ADOT DISK STAMPED "CUT" IN 10" CONC. MONUMENT, CUT- IN NORTH R/W SR74, 5 MI WSW OF LAKE PLEASANT AT MILEPOST 16.99. THE MARK IS 3.5 FEET SOUTH OF THE NORTH R/W FENCE ON TOP OF A 15 FOOT CUTBANK. N: 1031888.332 E: 568536.274
5 ⊡	1868.563	GLO BRASS CAP, SECTION CORNER SECTIONS 27, 28, 33, 34, T6N, R1W N: 1028211.900 E: 565351.762

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA
AREA DRAINAGE MASTER PLAN
FLOODWAY AND FLOODPLAIN MAP
UNNAMED WASH 2
F.C.D. CONTRACT NO. 99-45

Registered Professional Engineer (Civil) 33150 R. MICHAEL C. GERLACH Date Signed 04-01-01 ARIZONA, U.S.A.

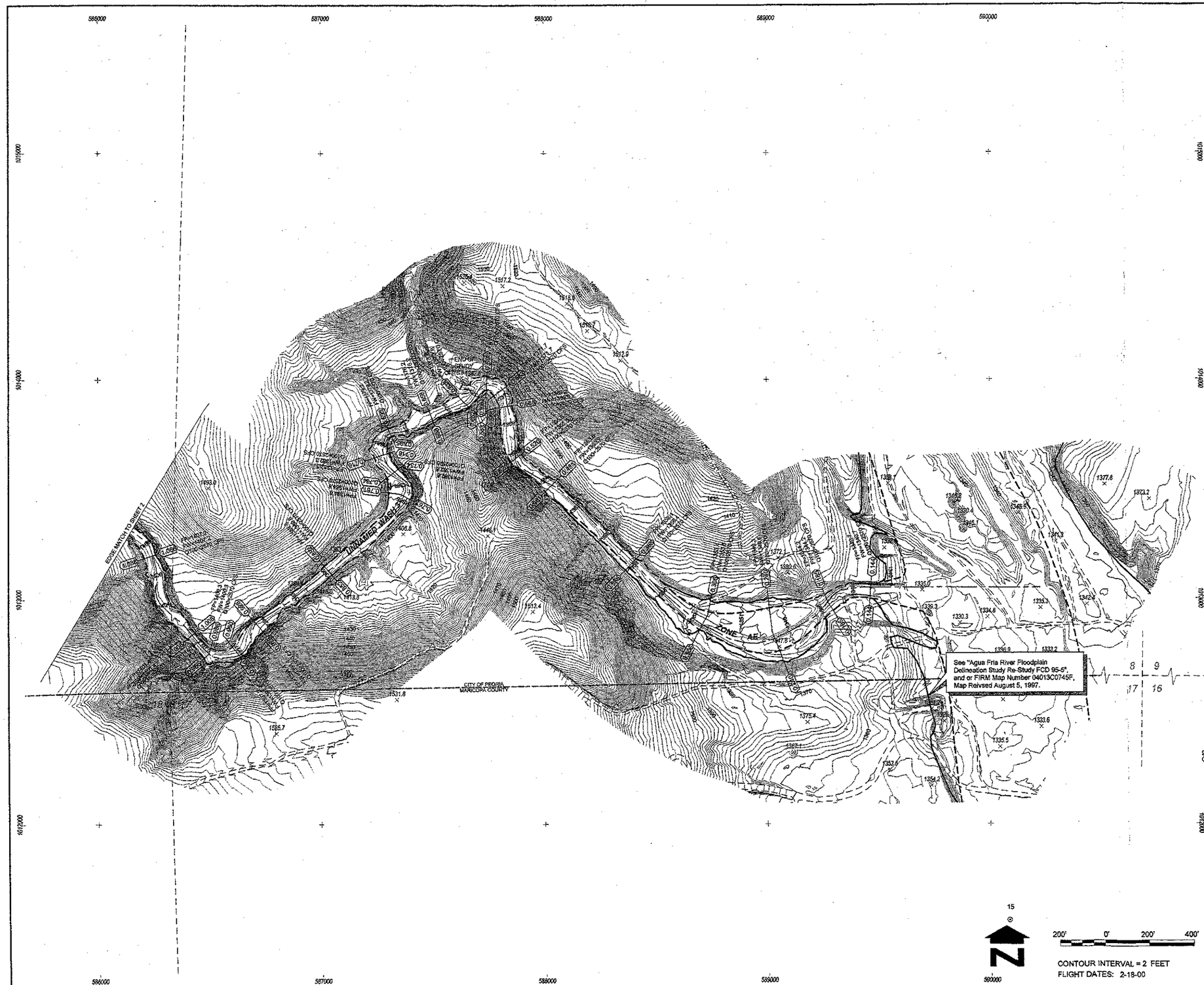
Stantec
Stantec Consulting Inc.
5211 South 48th Street
Phoenix, Az 85044-5305 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODING WATER SURFACE ELEVATION); FW= 1889.54 (DISCHARGING WATER SURFACE ELEVATION); Q100 = CFS (100-YEAR DISCHARGE); CROSS SECTION RIVER MILE DESIGNATION
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
15 ⊙	1353.720	+" TOP BOLT IN SW CORNER CONCRETE ABUTTMENT AT WEST END OF FLUME, WEST END BEARDSLEY CANAL FLUME CROSSING AGUA FRIA RIVER N: 1011568.327 E: 590082.699
9 ⊙	1434.830	CHISLED "+" NW COR. CONC. HEADWALL, CHUTE - SOUTH OF BEARDSLEY CANAL AND NORTH OF CAP SERVICE ROAD. +- 1.0 MILES WEST OF LAKE PLEASANT ROAD AND CAP BRIDGE. N: 1012280.199 E: 584087.160

NOTES

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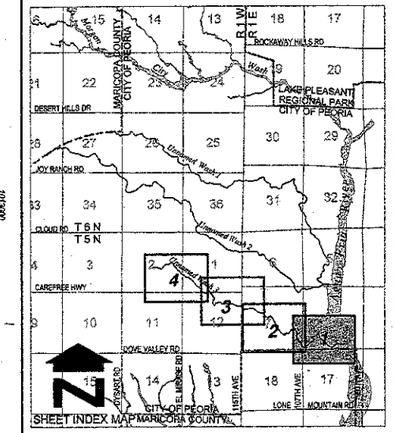
2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 3 F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

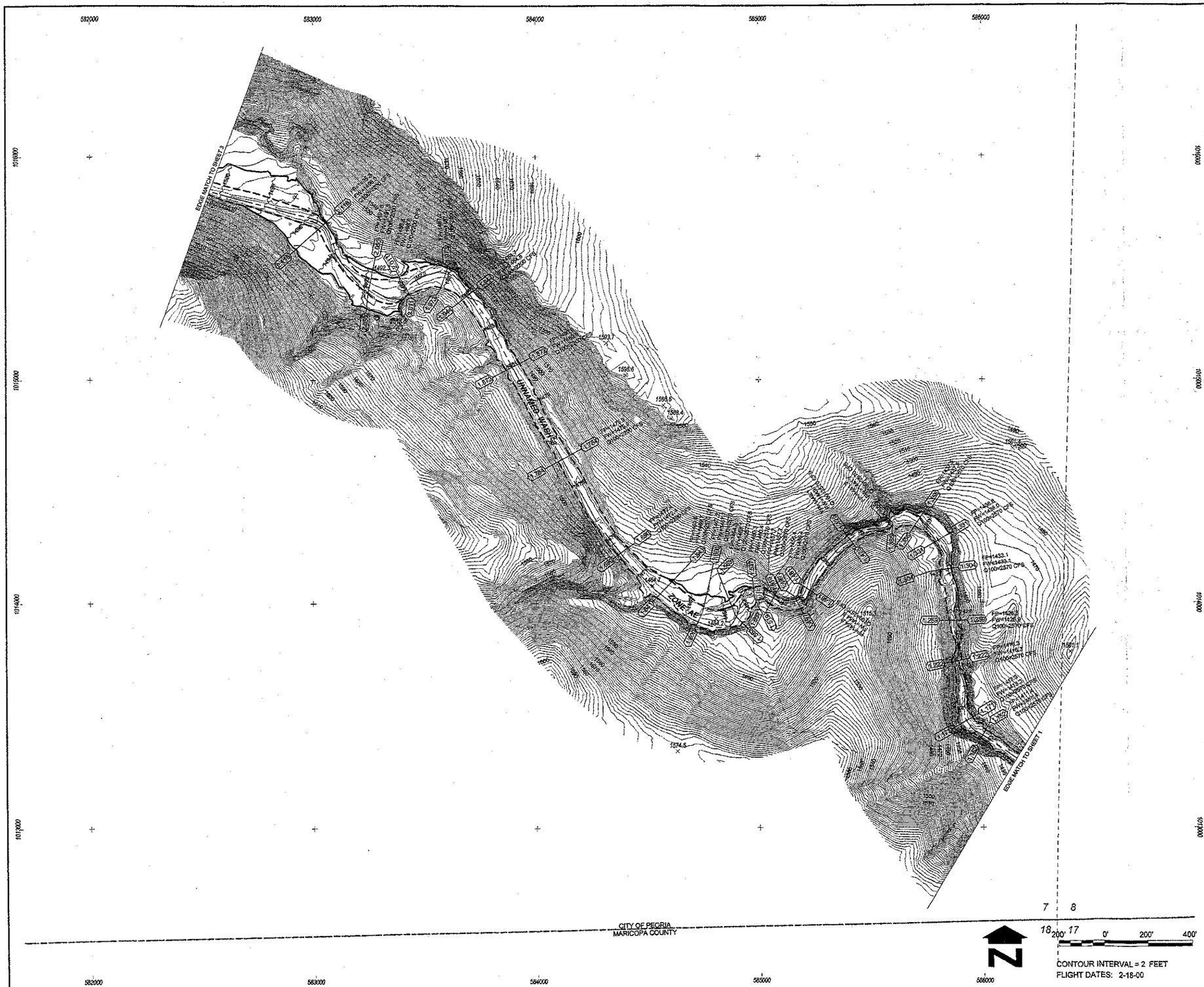
PLATE 8 SHEET 1 OF 4

CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 2-18-00

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 — FP= 1888.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1889.54 (FLOODWAY WATER SURFACE ELEVATION); Q100 = CFS (100 YEAR DISCHARGE); CROSS SECTION RIVER MILE DESIGNATION
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

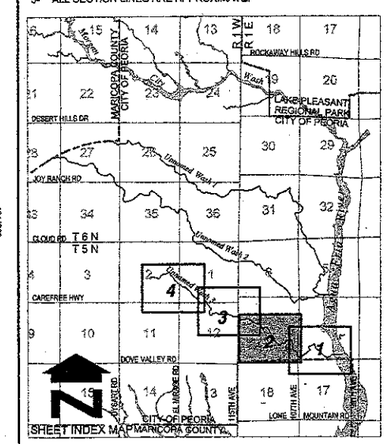
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000 UNLESS NOTED OTHERWISE.

2- COORDINATES ARE IN NAD 1983 HORIZONTAL AND NGVD 1929 VERTICAL. COORDINATES ARE GRID AND IN INTERNATIONAL FEET. NGVD 1929 ELEVATIONS WERE DERIVED BY SUBTRACTING THE PUBLISHED DIFFERENCE OF 2.07 FEET AT BM S-366 FROM THE ADJUSTED NAVD 1998 VALUES.

3- ALL SECTION LINES ARE APPROXIMATE.



NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP UNNAMED WASH 3 F.C.D. CONTRACT NO. 99-45

R. MICHAEL C. GERLACH 35150 ARIZONA U.S.A.

Stantec
Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5306 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

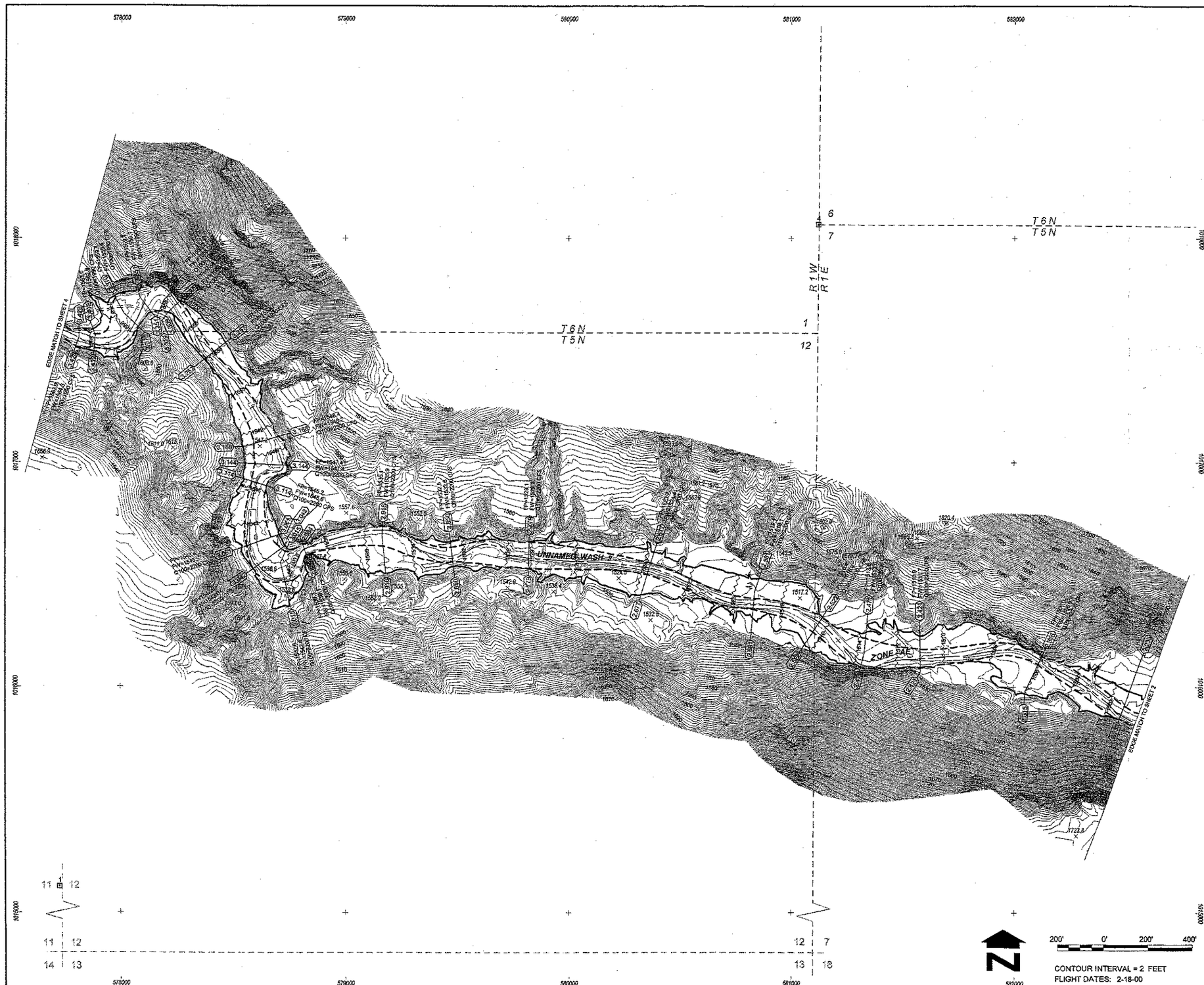
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

PLATE 6 SHEET 2 OF 4

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 2-18-00

200' 0' 200' 400'

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 FP= 1888.74 FW= 1889.54 Q100 = CFS
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVAITONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1744.668	GLO BRASS CAP SECTION CORNER, SECTIONS 1, 6, 7, T5N, R1W & R1E N: 1018061.909 E: 581123.399
1	1611.931	GLO BRASS CAP 1/4 CORNER, SECTIONS 11 & 12 T5N, R1W N: 1014953.756 E: 575853.309

NOTES

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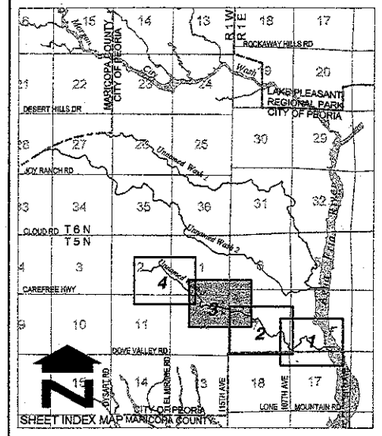
3- ALL SECTION LINES ARE APPROXIMATE.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA
AREA DRAINAGE MASTER PLAN
FLOODWAY AND FLOODPLAIN MAP
UNNAMED WASH 3
F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, Az 85044-5355 U.S.A.
Tel.: (602) 438-2200
Fax: (602) 431-9562
www.stantec.com

Registered Professional Engineer (Civil) CERTIFICATE NO. 35150 MICHAEL C. GERLACH Date Signed 4-18-01 ARIZONA U.S.A.

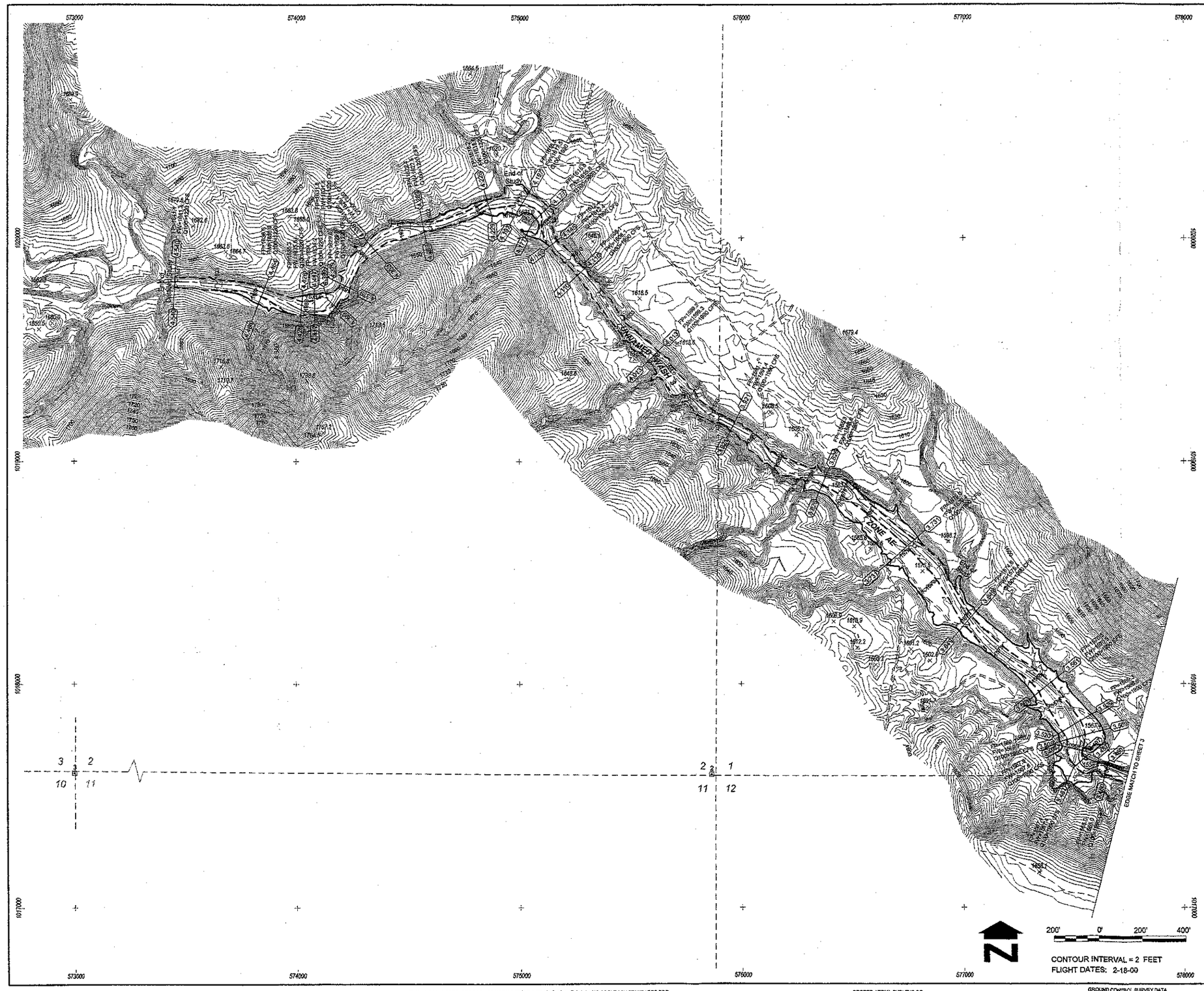
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK.	PJE	04/01
PLANS	NKD	04/01
PLANS CHK.	PJE	04/01

PLATE 6 SHEET 3 OF 4

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.



THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS CO.

GROUND CONTROL SURVEY DATA PROVIDED BY VALCO SURVEYING CORP.

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	0.100 — FP= 1889.74 (FLOODPLAIN WATER SURFACE ELEVATION); FW= 1889.54 (FLOODWAY WATER SURFACE ELEVATION); Q100 = CFS (100-YEAR DISCHARGE)
ELEVATION REFERENCE MARK	ERM XXX
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Corporate Limits
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
SECTION LINES	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
2	1624.244	GLO BRASS CAP SECTION CORNER, SECTIONS 1, 2, 11, 12 T5N, R1W N: 1017591.572 E: 575862.942
3	1646.762	GLO BRASS CAP SECTION CORNER, SECTIONS 2, 3, 10, 11 T5N, R1W N: 1017617.764 E: 570584.939

NOTES

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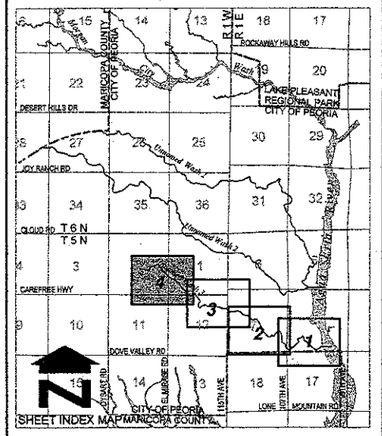
3- ALL SECTION LINES ARE APPROXIMATE.



NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NORTH PEORIA
AREA DRAINAGE MASTER PLAN
FLOODWAY AND FLOODPLAIN MAP
UNNAMED WASH 3
F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
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Phoenix, Az 85044-5305 U.S.A.
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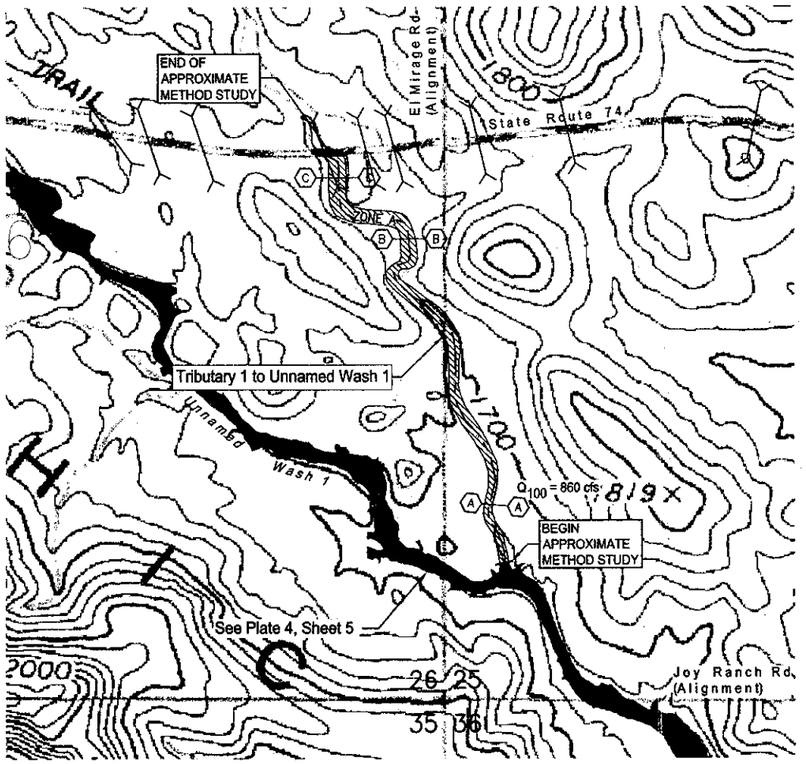
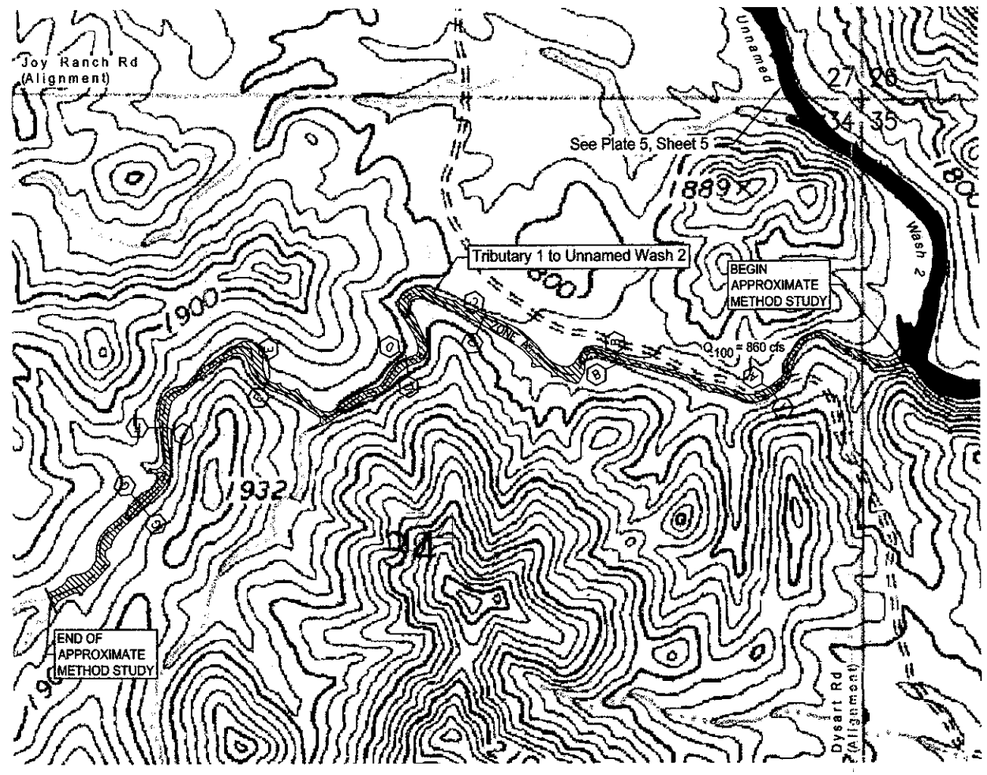
	BY	DATE
DESIGN	MCG	04/01
DESIGN CHK	PJE	04/01
PLANS	NKD	04/01
PLANS CHK	PJE	04/01

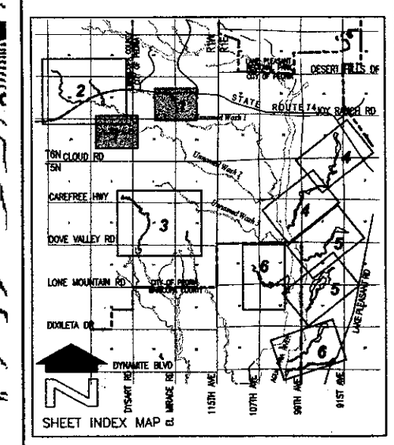
PLATE 8 SHEET 4 OF 4





LEGEND

SPECIAL FLOOD HAZARD AREA, ZONE A	
DETAILED STUDY FLOOD HAZARD AREA, ZONE AE	
END OF STUDY	EOS
CROSS SECTION LOCATION AND IDENTIFIER	A — A
100-YEAR PEAK DISCHARGE	Q_{100} = 860 cfs
HYDRAULIC BASE LINE	
CULVERT	
CORPORATE LIMITS	



SHEET INDEX MAP

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODPLAIN WORK MAP APPROXIMATE METHOD REACHES F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix AZ 85044-5355 U.S.A.
tel. 602.438.2200
fax. 602.431.9562
www.stantec.com

Registered Professional Engineer (Civil) — Certificate No. 16651 — MICHAEL C. GERLACH — ARIZONA U.S.A.

	BY	DATE
DESIGN	MMZ	12.15.00
DESIGN CHK.	MCG	01.25.01
PLANS	HAR	12.15.00
PLANS CHK.	MMZ	01.25.01

PLATE 7

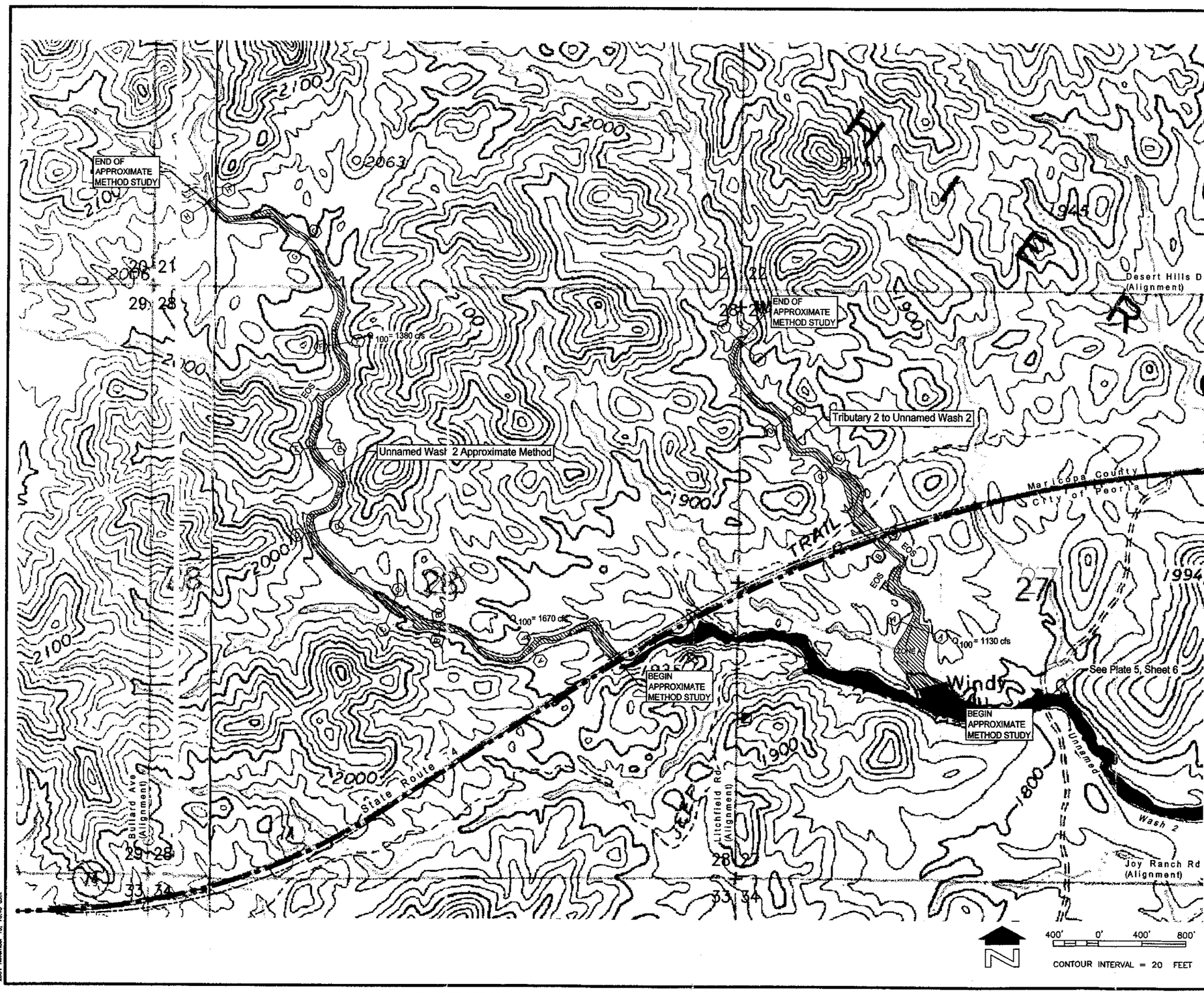
SHEET 1 OF 6

400' 0' 400' 800'

CONTOUR INTERVAL = 20 FEET

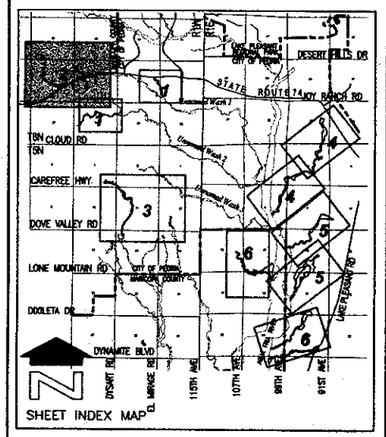
PORTION OF USGS QUADRANGLE BALDY MOUNTAIN

P:\(2000)145\Dwg\ypodmp\01MPR1.DWG
2001 November 15, 10:25 a.m.



LEGEND

SPECIAL FLOOD HAZARD AREA, ZONE A	
DETAILED STUDY FLOOD HAZARD AREA, ZONE AE	
END OF STUDY	EOS
CROSS SECTION LOCATION AND IDENTIFIER	A — A
100-YEAR PEAK DISCHARGE	Q_{100} = 860 cfs
HYDRAULIC BASE LINE	
CULVERT	
CORPORATE LIMITS	



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODPLAIN WORK MAP APPROXIMATE METHOD REACHES F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355 U.S.A.
Tel. 602.438.2200
Fax. 602.431.8562
www.stantec.com

MICHAEL C. GERLACH, P.E. ARIZONA U.S.A.

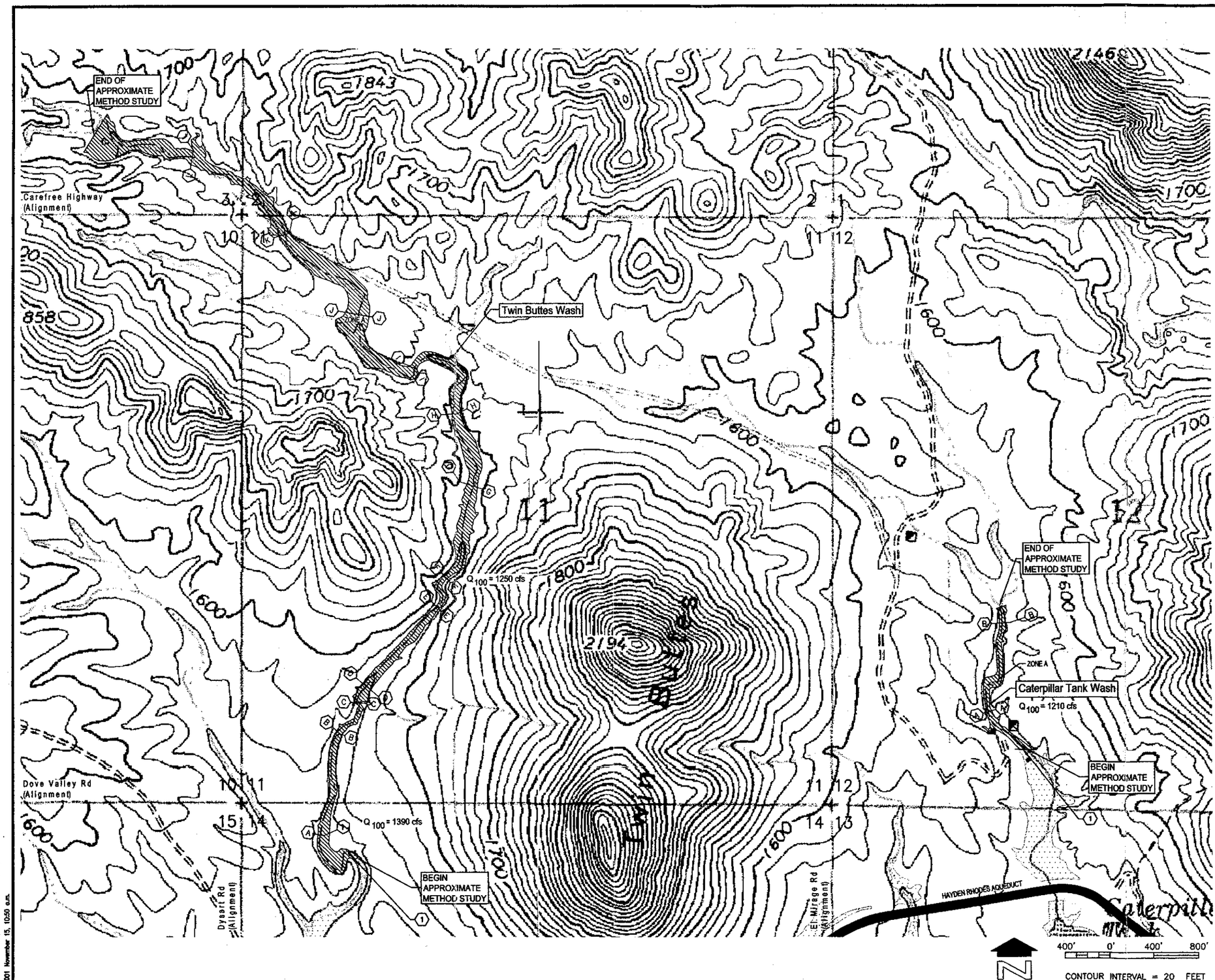
	BY	DATE
DESIGN	MMZ	12.15.00
DESIGN CHK.	MCG	01.25.01
PLANS	HAR	12.15.00
PLANS CHK.	MMZ	01.12.01

PLATE 7

SHEET 2 OF 6

P:\82000146\Dwg\ppdmp\02amfp146.dwg
2001 November 15, 10:43 a.m.

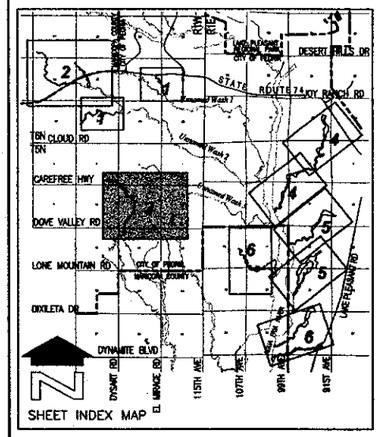
PORTION OF USGS QUADRANGLE BALDY MOUNTAIN



LEGEND

SPECIAL FLOOD HAZARD AREA, ZONE A	
EFFECTIVE SPECIAL FLOOD HAZARD AREA, ZONE AE	
END OF STUDY	EOS
CROSS SECTION LOCATION AND IDENTIFIER	A — A
100-YEAR PEAK DISCHARGE	Q_{100} = 860 cfs
HYDRAULIC BASE LINE	
CULVERT	
CORPORATE LIMITS	

(1) TIE INTO EXISTING SPECIAL FLOOD HAZARD ZONE PER FIRM MAP NUMBER 04013C0740 F, MAP REVISED DECEMBER 3, 1993.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODPLAIN WORK MAP APPROXIMATE METHOD REACHES F.C.D. CONTRACT NO. 99-45

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R. MICHAEL C. GERLACH

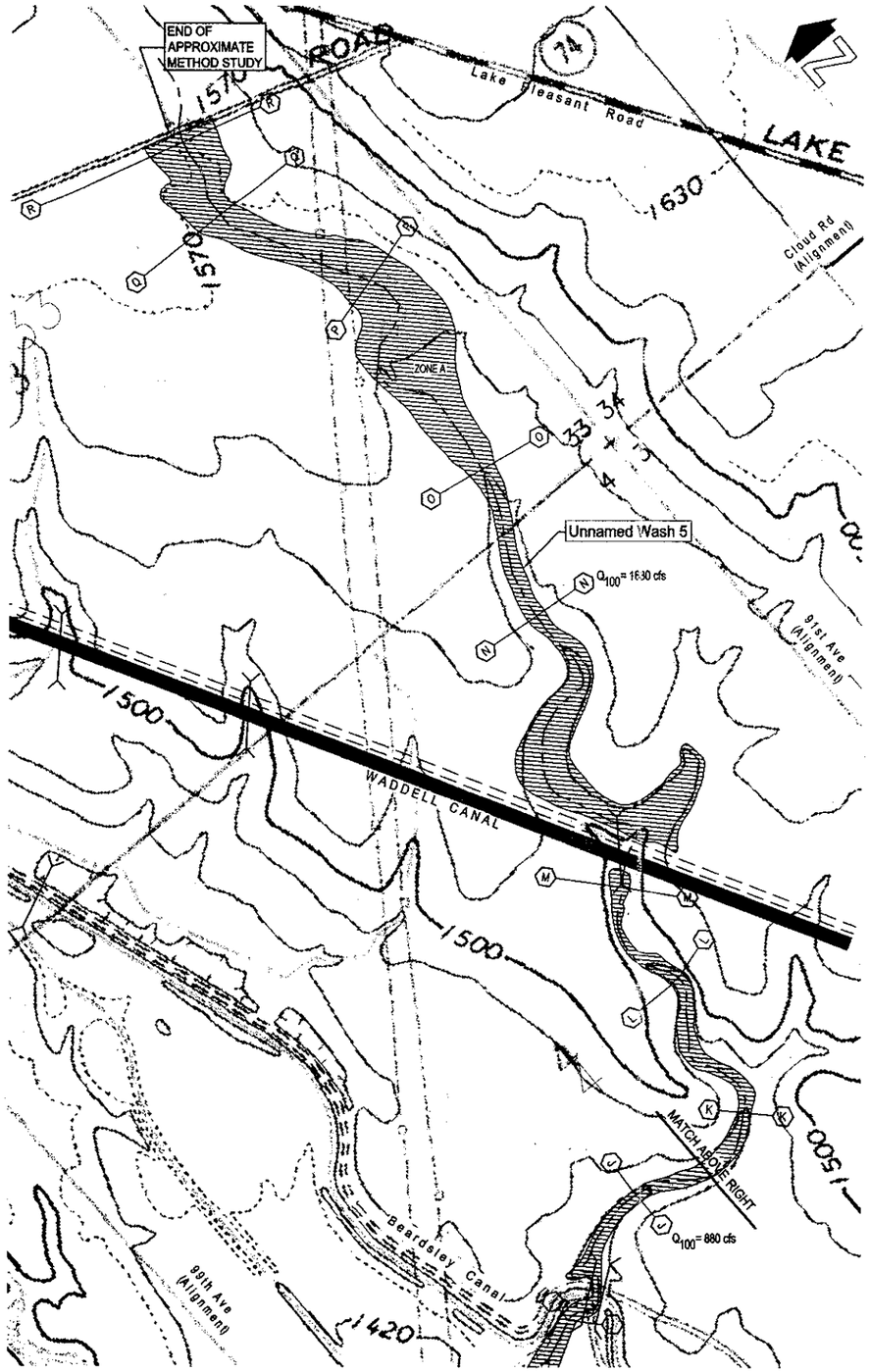
	BY	DATE
DESIGN	MMZ	12.15.00
DESIGN CHK.	MCG	01.25.01
PLANS	HAR	12.15.00
PLANS CHK.	MMZ	01.12.01

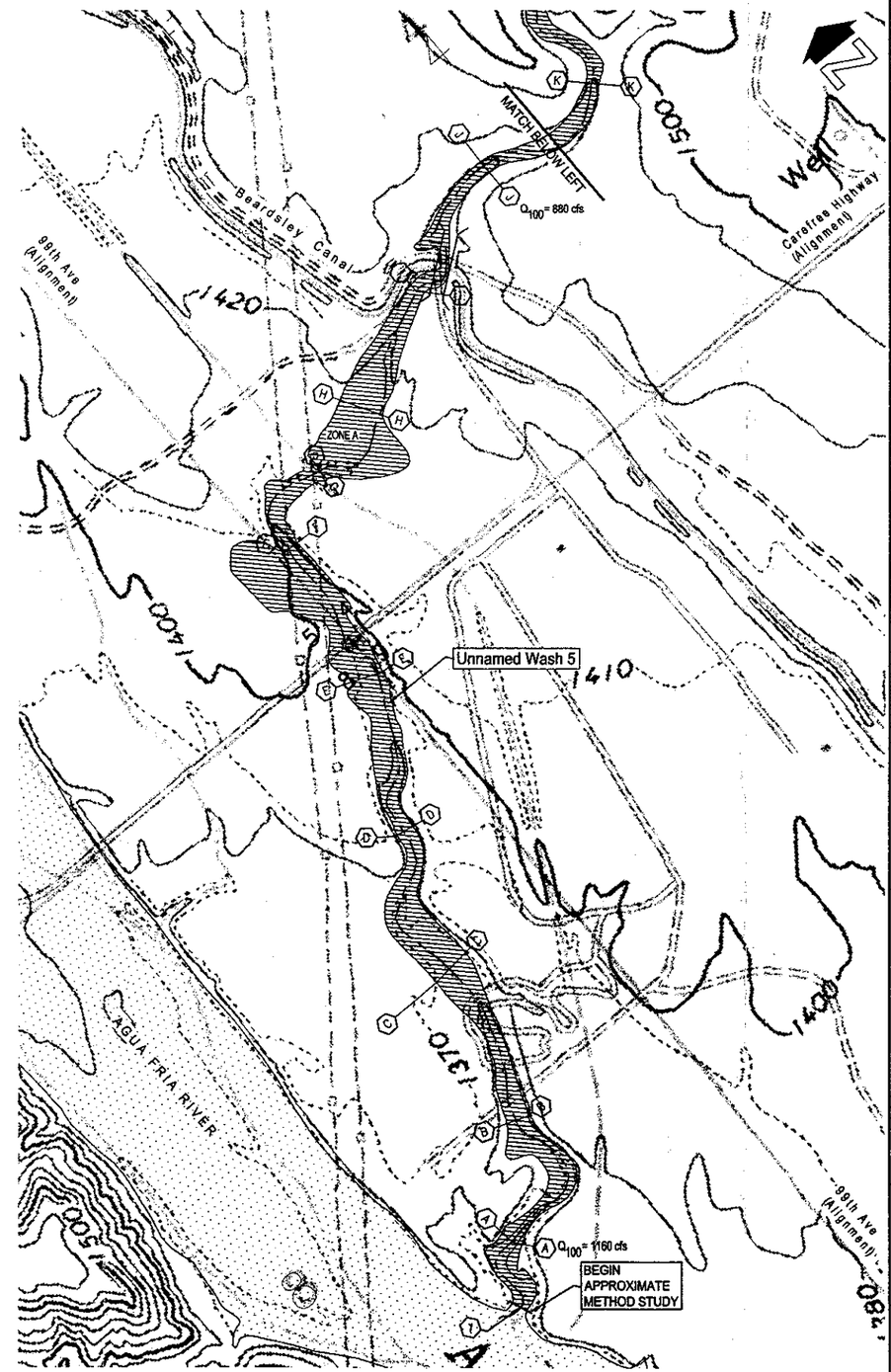
PLATE 7

SHEET 3 OF 6

P:\82000140\Dwg\ypodmp\03emfp146.dwg
2001 November 15, 10:50 a.m.

PORTION OF USGS QUADRANGLE BALDY MOUNTAIN

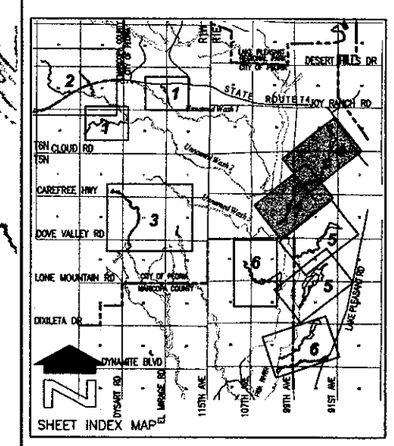




LEGEND

SPECIAL FLOOD HAZARD AREA, ZONE A	
EFFECTIVE SPECIAL FLOOD HAZARD AREA, ZONE AE	
END OF STUDY	EOS
CROSS SECTION LOCATION AND IDENTIFIER	A — A
100-YEAR PEAK DISCHARGE	Q_{100}= 860 cfs
HYDRAULIC BASE LINE	
CULVERT	
CORPORATE LIMITS	

(1) TIE INTO EXISTING SPECIAL FLOOD HAZARD ZONE PER FIRM MAP NUMBER 04013C0745 F, MAP REVISED AUGUST 5, 1997.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODPLAIN WORK MAP APPROXIMATE METHOD REACHES F.C.D. CONTRACT NO. 99-45

Stanley Consulting Inc.
8211 South 48th Street
Phoenix, AZ 85044-5355 U.S.A.
Tel. 602.438.2200
Fax. 602.431.8562
www.stanleyc.com

R. MICHAEL C. GERLACH
No. 29156
REGISTERED PROFESSIONAL ENGINEER
ARIZONA U.S.A.

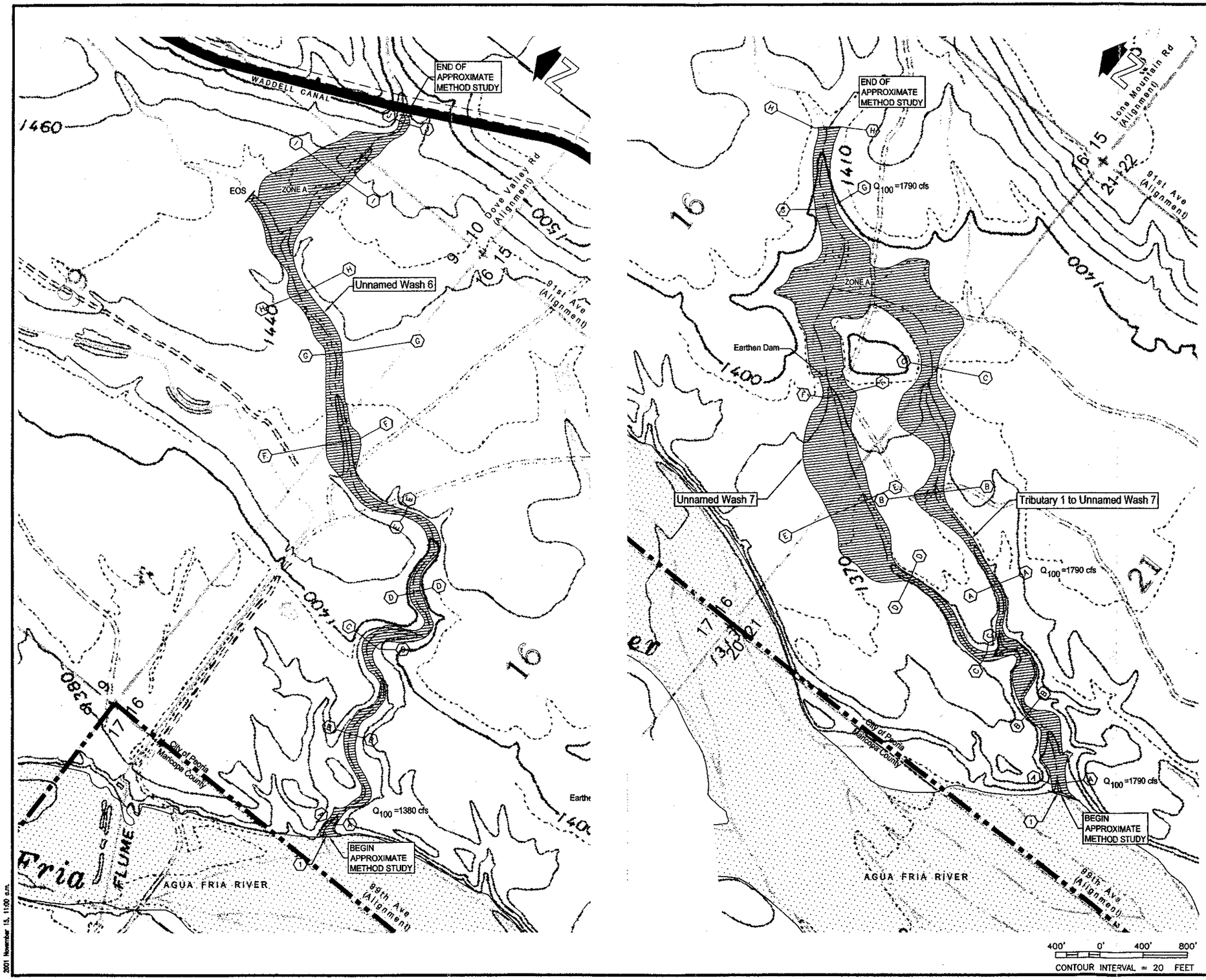
	BY	DATE
DESIGN	MMZ	12.15.00
DESIGN CHK.	MCG	01.25.01
PLANS	HAR	12.15.00
PLANS CHK.	MMZ	01.12.01

PLATE 7

SHEET 4 OF 6

P:\82000146\Dwg\prodwg\04emfp146.dwg
2001 November 15, 10:57 a.m.

PORTION OF USGS QUADRANGLE BALDY MOUNTAIN



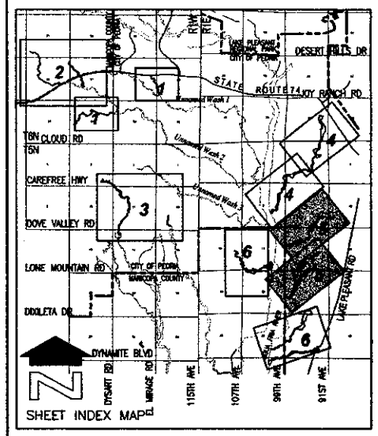
PORTION OF USGS QUADRANGLE BALDY MOUNTAIN

P:\B2000146\Dwg\proplmp\Qtcomp146.dwg
2001 November 15, 11:00 a.m.

LEGEND

SPECIAL FLOOD HAZARD AREA, ZONE A	
EFFECTIVE SPECIAL FLOOD HAZARD AREA, ZONE AE	
END OF STUDY	EOS
CROSS SECTION LOCATION AND IDENTIFIER	A — A
100-YEAR PEAK DISCHARGE	Q_{100} = 860 cfs
HYDRAULIC BASE LINE	
CULVERT	
CORPORATE LIMITS	

(1) TIE INTO EXISTING SPECIAL FLOOD HAZARD ZONE PER FIRM MAP NUMBER 04013C0745 F, MAP REVISED AUGUST 5, 1997.



SHEET INDEX MAP

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

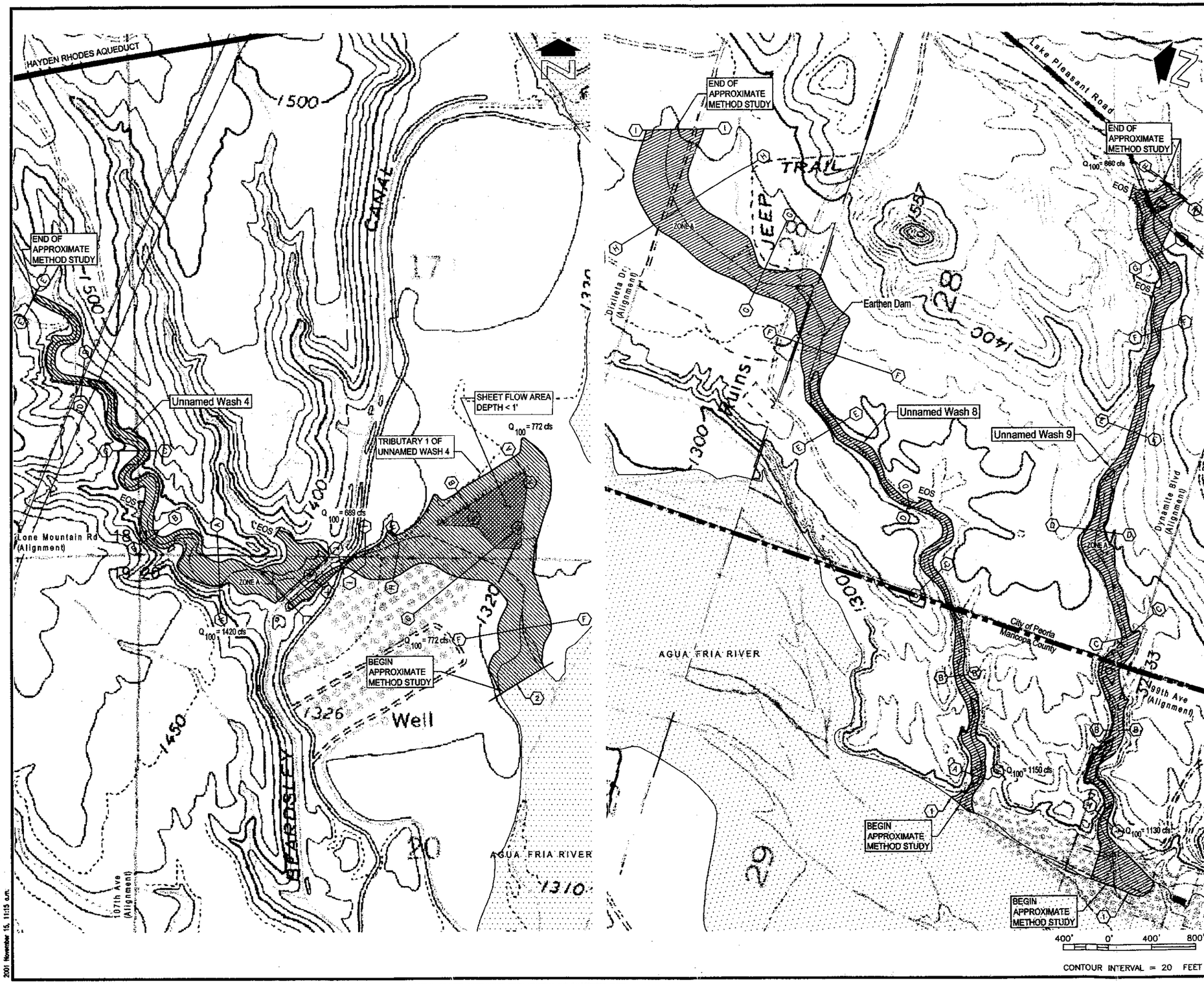
NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODPLAIN WORK MAP APPROXIMATE METHOD REACHES F.C.D. CONTRACT NO. 99-45

Registered Professional Engineer (Civil) 35150 R. MICHAEL C. GERLACH Date Signed ARIZONA U.S.A.

Stantec Consulting Inc.
8211 South 48th Street
Phoenix AZ 85044-5355 U.S.A.
Tel. 602-438-2200
Fax. 602-431.0562
www.stantec.com

	BY	DATE
DESIGN	MMZ	12.15.00
DESIGN CHK.	MCG	01.25.01
PLANS	HAR	12.15.00
PLANS CHK.	MMZ	01.12.01

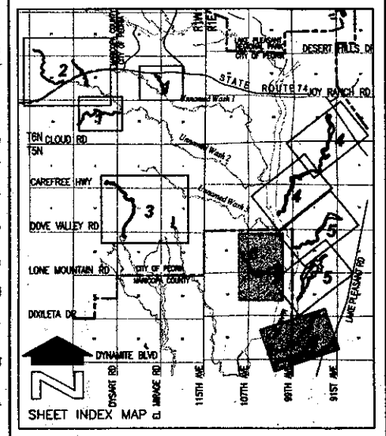
PLATE 7



LEGEND

SPECIAL FLOOD HAZARD AREA, ZONE A	
EFFECTIVE SPECIAL FLOOD HAZARD AREA, ZONE AE	
END OF STUDY	EOS
CROSS SECTION LOCATION AND IDENTIFIER	A — A
100-YEAR PEAK DISCHARGE	Q_{100} = 860 cfs
HYDRAULIC BASE LINE	
CULVERT	
CORPORATE LIMITS	

1. TIE INTO EXISTING SPECIAL FLOOD HAZARD ZONE PER FIRM MAP NUMBER 04013C0760 F, MAP REVISED AUGUST 5, 1997.
2. TIE INTO EXISTING SPECIAL FLOOD HAZARD ZONE PER FIRM MAP NUMBER 04013C0745 F, MAP REVISED AUGUST 5, 1997.



NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOODPLAIN WORK MAP APPROXIMATE METHOD REACHES F.C.D. CONTRACT NO. 99-45

Stantec Consulting Inc.
8211 South 48th Street
Phoenix AZ 85044-5355 U.S.A.
Tel. 602.438.2200
Fax. 602.431.9562
www.stantec.com

R. MICHAEL C. GERLACH 23150 ARIZONA U.S.A.

	BY	DATE
DESIGN	MMZ	12.15.00
DESIGN CHK.	MCG	01.25.01
PLANS	HAR	12.15.00
PLANS CHK.	MMZ	01.12.01

PLATE 7

SHEET 6 OF 6

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2001 November 15, 11:15 a.m.

PORTION OF USGS QUADRANGLES BALDY MOUNTAIN AND CALDERWOOD BUTTE

APPENDIX P: LEGAL NOTICE AND CORRESPONDENCE

AFFIDAVIT OF PUBLICATION

THE ARIZONA REPUBLIC

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

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

The Arizona Republic

June 17,24, 2001

Sworn to before me this
25 TH day of
June A.D. 2001

OFFICIAL SEAL
GLORIA SALDIVAR
NOTARY PUBLIC-ARIZONA
MARICOPA COUNTY
My Comm. Expires Dec. 1, 2003

Notary Public

ANNOUNCEMENT OF FLOODPLAIN DELINEATION STUDY

The Flood Control District of Maricopa County (FCDMC) under authority of the National Flood Insurance Act of 1973 (PL-90-448), as amended, and the Flood Disaster Protection Act of 1973 (PL93-234) has funded a study to identify flood hazard areas and has contracted with Stantec Consulting Inc. to perform floodplain delineations for specific washes located in the City of Peoria and unincorporated Maricopa County.

The study includes unnamed washes tributary to the Agua Fria River, tributaries to those unnamed washes, and the upper reaches of Caterpillar Tank Wash and Twin Buttes Wash. The washes are generally located north of the Deer Valley Road alignment, east of the Bullard Avenue alignment, west of Lake Pleasant Road, and south of an east-west alignment approximately one mile north of State Route 74.

The study delineated flood hazard areas in accordance with federal and state requirements. The study results have been submitted to the Federal Emergency Management Agency (FEMA) for review and approval. Once approved FEMA will utilized the floodplain delineation to revise Flood Insurance Rate Maps for the area. Buildings located within a 100-year floodplain are required by FEMA to have flood insurance coverage if they are financed by federally insured loans.

For additional information concerning the floodplain delineation study please contact the Ms. Kelli Serfich AICP, Project Manager, at the Flood Control District of Maricopa County, 2801 W. Durango Street, Phoenix, AZ 85009, phone number (602) 506-0867.

01467 - June 17,24, 2001

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
)SS
COUNTY OF MARICOPA)

I, Robin R. Hutchison of
PEORIA TIMES
a newspaper of general circulation published and printed in the city of Peoria, County of Maricopa, State of Arizona, do solemnly swear that a copy of the notice, in the matter of

FloodPlain Delineation Study

Public Notice

as per clipping attached, was published weekly in the regular and entire edition of the said newspaper, and not in any supplement hereof, for a period of 3 consecutive week(s), as follows, to-wit;

26/01/2001
02/02/2001

(s) Robin Hutchison
Subscribed and sworn to before me, this;

02/02/2001

(s) Roger W. Toops
Notary Public

My commission expires:_____,20__

"OFFICIAL SEAL"
Roger W. Toops
Notary Public-Arizona
Maricopa County
My Commission Expires 8/14/2002

PUBLIC NOTICE

ANNOUNCEMENT OF INTENT TO PERFORM FLOODPLAIN DELINEATION STUDY

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This study will delineate the flood hazard areas in accordance with federal and state requirements. Results of the study will be used for floodplain management and the determination of flood insurance rates by the Federal Emergency Management Agency (FEMA).

This announcement is intended to inform all interested persons and communities of the commencement of this study so that they may have an opportunity to bring any relevant technical information to the attention of FCDMC and FEMA in order to be considered during the course of this study. Any comments should be addressed to Ms. Marilyn DeRosa, Project Manager, at the Flood Control District of Maricopa County, 2801 W. Durango Street, Phoenix, AZ 85009, phone number (602) 506-4766.

Publish Peoria Times
January 26 and February 2, 2001

Pat Ellison

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
)SS
COUNTY OF MARICOPA)

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PEORIA TIMES
a newspaper of general circulation published and printed in the city of Peoria, County of Maricopa, State of Arizona, do solemnly swear that a copy of the notice, in the matter of

FloodPlain Delineation Study

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(s) Robin R. Hutchison
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(s) Roger W. Toops
Notary Public

My commission expires:_____,20__

"OFFICIAL SEAL"
Roger W. Toops
Notary Public-Arizona
Maricopa County
My Commission Expires 8/14/2002

PUBLIC NOTICE

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Publish Peoria Times
January 26 and February 2, 2001

FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009-6399
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5859

BOARD OF DIRECTORS
Betsey Bayless
Jan Brewer
Fulton Brock
Don Stapley
Mary Rose Garrido Wilcox

June 12, 2001

Group Three Properties
7332 E. Butherus Drive, 2nd Floor
Scottsdale, AZ 85260-2426

Dear property representatives:

The Flood Control District of Maricopa County in its efforts to protect the public from harm's way due to flooding began working in the fall of 2000 on a drainage master plan for the area of Maricopa County displayed on the attached map. Notice was placed in the local newspaper. As part of the comprehensive look at drainage for this entire area, a number of the washes in the area were studied in order to determine where the floodplain boundary is. An information sheet and the map are attached regarding these flood line boundaries. This information may need to be taken into account as future development opportunities occur along these washes.

The Flood Control District staff wishes to work in conjunction with landowners on the safest development for the future. Please review this information and feel free to call me, or the other representatives listed on the attached information sheet if you have any comments or questions. There will be meetings held later this year to review and comment on the drainage master plan for the entire area being studied. At this time, however, we are only dealing with these specific areas that floodplain boundaries have been delineated on.

Sincerely,

Kelli A. Sertich, AICP
Planning Project Manager

enclosures:

FIRST	LAST	PIN #	Street or P.O.Box	Community
GROUP THREE PROPERTIES		503 88 009	7332 E. Butherus Dr., FL 2ND	Scottsdale, AZ. 85260-2426
		503 88 010		
		503 88 014		
		503 88 015		
		503 88 006		
CENTRAL ARIZONA PROJECT		201 31 001D	201 N. Central Ave	Phoenix, AZ. 85073-0073
		201 18 002A		
		201 32 001		
BRIDGE FINANCIAL CORP.	C/O Michael E. Tiffany	503 88 001	1850 N. Central Ave.	Phoenix, AZ. 85004-4527
NORANDA PROPERTIES INC.		503 88 019	7201 E. Camelback Rd., STE. 305	Scottsdale, AZ. 85251-3336
WESTWARD HO ADVENTURES LLC		201 18 001	3828 N 28TH Ave.	Phoenix, AZ. 85017-4733
WP PROPERTIES LLC		503 88 030	3737 N 7TH St. STE 158	Phoenix, AZ. 85014-5079
		503 88 031		
MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT		201 02 007A	PO Box 900	Waddell, AZ. 85355-0900
ROSE	MORROW	201 02 002B	11033 N. 105TH Ave.	Sun City, AZ. 85351-4103
DTCH-ARIZONA		201 04 001	16156 W. Olive Ave.	Waddell, AZ. 85355-9637
		201 04 002		
RAVEN ROCK CONSTRUCTION LLC		201 19 001D	PO Box 14690	Phoenix, AZ. 85063-4690
		201 19 002A		
H&H DEVELOPMENT CO,		201 19 001E	902 W. Palm Ln.	Phoenix, AZ. 85007-1535
CLYDE VERNON	JARRETT	201 04 006	5201 N. 18TH Pl.	Phoenix, AZ. 85016-3303
FIRST AMERICAN TITLE TR		201 05 004D	5141 N. 40TH St.	Phoenix, AZ. 85018-2167
HC BUILDERS INC.		201 06 002K	1414 W. Broadway Rd. Ste. 200	Tempe, AZ. 85282-1148

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399
(602) 506-1501
FAX: (602) 506-4601
TT: (602) 506-5859

July 5, 2000

MEMO TO: Michael Gerlach

FROM: Kofi Awumah

SUBJECT: North Peoria ADMS – Hydrology (First Draft)

The following are our comments on the hydrology model (HEC-1 model) submitted by Stantech Consulting.

The DDMSW was used to check one of the washes' sub-basin parameter. This was necessary since the model was developed using proprietary type software and not the public domain District's model.

a) The DDMSW could not reproduce most of the XKSAT values.

b) The DDMSW could not reproduce most of the Tc and R.

c) The DDMSW could not replicate some of the Kb values. It is not clear why intermediate values are used for the m and b values rather than the actual values. The use of Figure 5.5 , page 5-12 of the hydrology manual may be a more significant adjustment (to watershed size) to the Kb values.

d) Justify or explain the use of lower non-default (50%) values for RTIMP

e) The LAND USE types used appear to be different from those in the current hydrology manual

f) Routing Reach 207105, channel n value of 0.03 appear to be low.

g) Routing Reach 302303, channel n value of 0.03 appear to be low.

h) Routing Reach 301302, channel n value of 0.03 appear to be low.

i) Routing Reach 717718, channel n value of 0.045 appear to be low.

j) We recommend the use of a thin layer of mortar bedding beneath the upper few lifts of CSA. The mortar should contain a set-retarding admixture.

k) It appears some of the sub-basins have high unit discharges. Those sub-basins with unit discharges between 2500 to 3500 cfs per square mile (for the 6 hour storm) need to be reviewed and adjusted

l) Of the two frequencies, the 24 Hour 100 Year discharge should apply to Morgan City Wash while the 6-Hour applies to all the other washes.

m) Sub-basin S710 does not appear on the sub-basin exhibit.

Memo

Stantec

To: Kofi Awumah, Ph.D, P.E.

From: Mike Gerlach, P.E.

Stantec Consulting Inc.

File: 82000146

Date: 4 August 2000

Reference: Existing Condition Hydrology Submittal Comments
North Peoria ADMP, FCD No. 99-45

The following is the response to the existing condition hydrology submittal comments as provided in your memo dated July 5, 2000.

General Comment:

The program that was used to assist in the development of the Clark unit hydrograph parameters is proprietary only in that a pre-and post-processor executable is used to pass and receive data directly to and from the MCUHP1 executable. All other input parameters are calculated using a spreadsheet and follow procedures and/or guidelines per the Flood Control District of Maricopa County Drainage Design Manual, Volume I, January 1995 (Manual).

Use of the DDMSW program was not required by the Scope of Work (SOW). Further more, there seems to be some data input limitations/restrictions that could lead to slightly different results. Results verification would more appropriately be obtained via the DDMS program. If it is desired that this study be conducted so that data can be incorporated into the DDMSW program, then we will need to discuss how best to restructure the data collection approach so that the project schedule is not adversely effected.

Comment a:

The calculation for XKSAT used by Stantec is as follows:

Log-Avg XKSAT = 10^a

where $a = \dfrac{\sum_{i=1}^{n}(A_i log(XKSAT_i))}{\sum_{i=1}^{n} A_i}$

and A_i = Area of each unique soil map unit as it occurs within a subbasin.

$XKSAT_i$ = XKSAT of each unique soil map unit as it occurs within a subbasin.

The following example for S100 is provided to check the calculations against DDMSW. The Unique soil map units and the corresponding areas and XKSAT values are as follows:

Map Unit	Area Acres	Bare Ground XKSAT in/hr
21	38.9	0.38
52	81.5	0.16
108	246.8	0.31

$$a = \left[\frac{(38.9)\log(0.38) + (81.5)\log(0.16) + (246.8)\log(0.31)}{38.9 + 81.5 + 246.8} \right]$$

$$a = -0.561$$

Log - Avg XKSAT is then adjusted for vegetative cover density (VCD). The VCD for this subbasin is 32%. The VCD correction factor is calculated using the equation associated with Figure 4.4 of the Manual.

$$C_k = \frac{V_c - 10}{90} + 1.0$$

$$C_k = \frac{32 - 10}{90} + 1 = 1.244$$

XKSAT(Adjusted) = $(0.27)(1.244) = 0.336^{in/hr}$

DDMSW only calculates the VCD correction factor to the nearest tenth. For S100 the correction factor would be 1.2 and this multiplied by XKSAT ($0.27^{in/hr}$) yields $0.32^{in/hr}$.

The difference in XKSAT values is therefore due to the number of significant digits and rounding of the VCD correction factor. This difference is not seen as significant to the overall watershed analysis.

Comment b & c:

T_c and R values could not be reproduced due to the selection of the K_b types. In DDMSW the selection of K_b types is limited to four "terrain/land use" types. For this study intermediate types are used based on Figure 5.5 of the Manual. These intermediate types are used for subbasins that share characteristics of two "base" K_b types; i.e., a portion of the subbasin can be classified by hillslope terrain (base type "C") and another portion can be classified by desert rangeland terrain (base type "B"). Or for subbasins that are, in general, not strongly characterized by either type.

A sensitivity analysis is performed on 10 subbasins that currently use the intermediate K_b values to determine if these intermediate values have a significant impact on the calculation of time of concentration (T_c). The results of this analysis are summarized below. Column 1 is the HEC-1 identifier of the subbasins for which this test is performed. Columns 2 through 4 are the intermediate K_b type, corresponding value of K_b and the resulting T_c, respectively. Column 5 is the upper base K_b type of the intermediate K_b type (i.e. if the intermediate type is B/C, then the upper type is C). Columns 6 and 7 are the correspond value of K_b and resulting T_c using the K_b type from Column 5. Column 8 is the lower base K_b type of the intermediate K_b type. Column 9 and 10 are the corresponding value of K_b and the resulting T_c.

Subbasin ID (1)	Kb Type (2)	Kb (3)	100-yr, 6-hr Tc hours (4)	Kb Type (5)	Kb (6)	100-yr, 6-hr Tc hours (7)	Kb Type (8)	Kb (9)	100-yr, 6-hr Tc hours (10)
S103	C/D	0.11	0.796	D	0.13	0.908	C	0.09	0.679
S106	C/D	0.10	0.679	D	0.12	0.779	C	0.09	0.625
S300	C/D	0.10	0.746	D	0.12	0.858	C	0.09	0.688
S400	C/D	0.10	0.850	D	0.12	0.983	C	0.08	0.717
S401	C/D	0.10	0.804	D	0.12	0.933	C	0.08	0.675
S708	C/D	0.10	0.529	D	0.12	0.604	C	0.08	0.454
S717	B/C	0.06	0.692	C	0.08	0.842	B	0.04	0.525
S725	B/C	0.06	0.917	C	0.08	1.138	B	0.04	0.688
S726	B/C	0.07	0.267	C	0.09	0.317	B	0.05	0.221
S727	B/C	0.07	0.621	C	0.09	0.746	B	0.05	0.488

Inspection of the computed T_c values for each K_b type for each subbasin shows that the equation is fairly sensitive to K_b. However, of more importance is the sensitivity of the resulting runoff hydrograph to K_b.

The T_c values and corresponding R values for the upper and lower base K_b types were coded into HEC-1 to compute runoff hydrographs. The results of the model are summarized in the following table. Column 1 is the HEC-1 identifier of the subbasins for which this test is performed. Columns 2 through 4 are the intermediate K_b type and the resulting 100-year, 6-hour peak discharge (Qp) and time to peak (Tp), respectively. Columns 5 through 7 are the upper base K_b type and the resulting 100-year, 6-hour peak discharge (Qp) and time to peak (Tp), respectively. Columns 8 through 10 are the lower base K_b type and the resulting 100-year, 6-hour peak discharge (Qp) and time to peak (Tp), respectively.

Subbasin ID (1)	Kb Type (2)	Qp cfs (3)	Tp hours (4)	Kb Type (5)	Qp cfs (6)	Tp hours (4)	Kb Type (8)	Qp cfs (9)	Tp hours (4)
S103	C/D	455	4.57	D	403	4.67	C	514	4.50
S106	C/D	686	4.47	D	600	4.58	C	729	4.42
S300	C/D	710	4.50	D	625	4.58	C	751	4.50
S400	C/D	1159	4.60	D	1025	4.67	C	1311	4.50
S401	C/D	769	4.53	D	674	4.67	C	781	4.42
S708	C/D	1336	4.33	D	1205	4.42	C	1431	4.25
S717	B/C	1625	4.47	C	1413	4.58	B	1922	4.33
S725	B/C	1153	4.70	C	964	4.92	B	1432	4.50
S726	B/C	860	4.13	C	774	4.17	B	928	4.08
S727	B/C	519	4.43	C	440	4.58	B	622	4.33

In general, the results of the sensitivity analysis seem to indicate that the use of intermediate K_b types approximate the results for the upper base K_b types than those for the lower base K_b types. Potentially, the most significant parameter that is effected by the selection of a K_b type is the resulting time to peak. The resulting time to peak between the upper and lower base K_b type ranges from 3 to 8 computational time steps. The accumulated effects of the difference in time to peak could become quite significant further downstream. Based on these results, it is our opinion that the use of intermediate values of K_b is justified.

Comments d & e:

Assignment of land use categories was based in guidance provided in the Manual, field reconnaissance and inspection of 1999 aerial photography. For those land uses that were not specifically referenced in the Manual (see Table 4.2a) such as gravel mining and airport, a representative equivalent category was assigned or a new category was created. Stantec will revise the assigned land use categories to more closely match the District default categories, specifically those categories available in the DDMSW program.

Assignment of land use parameters (i.e., IA, RTIMP and Veg. Cover) was based on guidelines provided in the Manual (see Table 4.2a), field reconnaissance and 1999 aerial photography. The land use parameters are therefore specific to what is present in the watershed and are not assigned by applying a factor to the default values in the Manual. The discussion in the TDN will be enhanced to make this more clear.

Comments f through i:

A detailed Manning's n-value estimate is in process for specific reaches of the watercourses within the watershed, specifically those reaches noted in Comments f, g & h. Upon completion of the n-value estimate, the hydrologic models will be

updated. The values currently in the model for those reaches are therefore temporary only.

The channel n-value for reach 717718 is adjusted to 0.045, as noted in comment i.

Comment k:

There are 19 subbasins that have unit discharges higher than what might be expected. The majority of these subbasins are located to the east of the Agua Fria River. For the subbasins with high unit discharges located west of the Agua Fria River, review of the subbasin input parameters shows that these subbasins typically have steep slopes with a high percent impervious. Therefore, high unit discharges for these subbasins is to be expected. For the subbasins with high unit discharges located east of the Agua Fria River, two factors effected the modeling results. As a result of the elimination of Subbasin S710 (see comment m) a data error occurred in all subsequent subbasin parameters. Modeling results for these subbasins should be disregarded. This error has been corrected and the 100-year, 6- and 24-hour models have been updated. The Unit discharges for these subbasins have been recomputed and reviewed for reasonableness. Many of these subbasins still have unit discharges higher than what might be expected. Review of the subbasin input parameters shows an high percentage of clay soils in this portion of the watershed. This results in very low infiltration rates, typically less than 0.05 inches per hour. The presence of the clay soils translates to a high percentage of rainfall excess and thus high peak discharges. The high unit discharges for these subbasins is to be expected.

Comment l:

A table listing the peak discharge at each operation for each storm will be added to the TDN. This table will also indicate which storm is the controlling storm. Additionally, comment cards will be added to the HEC-1 input files notifying futures users that both a 6- and 24-hour model is developed for the entire study area.

Comment m:

The drainage area for subbasin S710 was added to the drainage area of S709 during the refinement process of the watershed delineation. However, the "elimination" of the basin was only made on the Hydrology Plates and was not carried through to the models. The "elimination" also left a gap in the subbasin numbering. The "old" Subbasin S710 is re-numbered so that now there are not any gaps in the numbering sequence.

STANTEC CONSULTING INC.

Mike Gerlach, P.E.
Water Resources,
Project Engineer

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Gerlach, Michael

From: Kofi Awumah - FCDX [koa@mail.maricopa.gov]
Sent: Thursday, August 31, 2000 10:21 AM
To: 'mgerlach@stantec.com'
Cc: 'pellison@stantec.com'; Marilyn DeRosa - FCDX; Kofi Awumah - FCDX
Subject: N.Peoria ADMS- Existing Condition Hydrology

I have reviewed the draft of the above report and have accepted it as the final report, subject to the following minor corrections:

1. Page 3-1, parageph 3, the last but one line should read ".... analyses consists of HEC-1...."
2. Appendix D, the title of the last two pages in this appendix should read " Data Summary Descriptions for Tables D-4 and D-5", as there are no Tables D-6 and D-7 in the Appendix.

I have no technical issues regarding the HEC-1 modeling effort or the final discharges, etc. So you may finalize this aspect of the report.
Thanks.

Gerlach, Michael

From: Kofi Awumah - FCDX [koa@mail.maricopa.gov]
Sent: Thursday, August 10, 2000 10:42 AM
To: 'mgerlach@stantec.com'
Cc: Marilyn DeRosa - FCDX; Kofi Awumah - FCDX
Subject: N. Peoria ADMS Exis. Hydrology Response to Comments.

I have gone over all your responses (dated August 4, 2000) to my comments (a through m) and accept your explanations as well as how you proposed to address all issues that need correction.
Regarding the use of the intermediate values (comments b & c) for terrain/land use in the selection of Kb values, I agree with you for the use of this method since the resulting discharges are significantly different from using the standard values.
You may therefore proceed to complete the existing condition hydrologic model for the watershed.

Thanks.

Gerlach, Michael

From: Kofi Awumah - FCDX [koa@mail.maricopa.gov]
Sent: Wednesday, November 15, 2000 10:38 AM
To: 'mgerlach@stantec.com'
Cc: 'pellison@stantec.com'; Kofi Awumah - FCDX
Subject: N. Peoria ADMS - Hydrology Questions

Hi Mike:
Per our discussion yesterday, here are my answers.

1. Rounding off Discharge values - Round them off to the nearest 10 for unnamed tributaries.
2. Regarding whether to mix the 6 hour and the 24 hour peak discharges for the floodplain delineation, you may do so but with the following condition: the upper reaches may be the 6 hour while the lower reaches may be the 24 hour if necessary. What we do not want is jumping from 6 hour to 24 hour from cross section to cross section. If the differences are less than 10 percent or do not change the floodplain significantly, then you are better off sticking to one frequency type for an entire wash.

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November 14, 2000

MEMO: Patrick Ellison, Stantec Consulting Inc.
FROM: Kofi Awumah
CC: Marilyn Derosa, FCD.
SUBJECT: North Peoria ADMS – Unnamed Tributary 3 HEC RAS Preliminary.

The following are my comments.

1. The convention for our floodplain maps are that the GR stations are measured from left to right, looking downstream. The reference point in the GR data for the hydraulic baseline should be either 10,000 feet for large washes or 1,000 feet for smaller washes, this number being chosen such that none of the stations (spanning the floodplain width) will become negative in value. Thus a station of value less than 1000 is on the left side of the hydraulic baseline while stations more than 1,000 is on the right side. As currently modeled, it is not possible to determine the station for the hydraulic baseline, nor can the station zero, from which all stations are measured cannot be identified.

2. It is not clear why the reach length of the downstream cross section (River Station 0.185) is not equal to zero, as the starting cross section.

3. Please provide the elevation numbers on the contour lines to enable us check the floodplain elevations with that plotted on the maps. Only the index numbers may be adequate for this purpose.

4. Islands should not be shown on the maps unless they are modeled as islands in the HEC-RAS. The island shown at cross section 0.240 has to be reviewed since the water surface elevation is so close to the ground elevation of the island.

5. Comments in GR data.

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November 16, 2000

MEMO: Patrick Ellison, Stantec Consulting Inc.
FROM: Kofi Awumah
CC: Marilyn Derosa, FCD.
SUBJECT: North Peoria ADMS – Unnamed Tributary 2 HEC RAS Preliminary.

The following are my comments.

1. Round off reach lengths to nearest whole numbers. Also round off the GR stations and elevations to the one decimal place.
2. It is not clear how the starting river station and discharge were determined. It is obvious that the modeling starts at the confluence with Unnamed Tributary 1. We need to discuss this.

3. Please provide the elevation numbers on the contour lines to enable us check the floodplain elevations with that plotted on the maps. Only the index numbers may be adequate for this purpose.

4. Extend the GR stations in the HEC-RAS models at the following river stations:
   0.756 – Left
   0.875 – Right
   2.824 – Right
   3.630 – Left
   3.709 – Left
   3.736 – Left
   4.611 – Right
   4.951 – Left
   5.713 – Left
   6.172 – Left
   6.462 – Left
5. The definition of THALWEG as used in the model and shown on the maps need to be discussed. Thalweg should be changed to HYDRAULIC BASELINE which is not the line joining the lowest points in the channel.
6. The discharges used in the model were difficult to determine. From Table 3-16, I obtained the following that I presume were the correct discharges. Confirm these.

Transmittal

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Stantec

To:	Flood Control District of Maricopa County	Sender:	Mike Gerlach, P.E.
		☐	For Your Information
Attention:	Marilyn DeRosa, RG, Kofi Awumah, Ph.D., P.E.	☐	For Your Approval
		☑	For Your Review
Date:	1 February 2001	☐	As Requested
File:	82000146		

Reference: North Peoria Area Drainage Master Plan

Attached is a set of preliminary floodplain/floodway maps for Unnamed Wash 1, 2 and 3 and floodplain maps (including cross section locations) for the approximate method reaches. Included with this submittal are the HEC-RAS models for the three Unnamed Washes. The models include three profiles. Profile number one is the 100-year floodplain profile. Tables 1 through 3 lists the peak discharges at each flow change location for Unnamed Washes 1, 2 and 3, respectively. Profiles 2 and 3 are for the floodway analysis, methods 4 and 1, respectively. Floodway modeling is based on the energy gradeline per guidelines set forth in the State Standards as all three washes have 3 consecutive cross sections that defaulted to critical depth. Also included are the normal depth calculations with Manning's n-value estimations used in the approximate method floodplain analysis.

Table 1

Modeling peak discharges for Unnamed Wash 1

River Reach	Controlling Peak Discharge	HEC-1 Concentration Point	Model Results	
			6-Hour	24- Hour
6.312 – 5.917	750	S100	746	512
5.862 – 4.629	1,190	C102R	1,185	967
4.613 – 3.073	2,330	C103R	2,331	2,058
3.015 – 1.367	2,900	C104	2,901	2,682
1.286 – 0.046	3,200	C105L	3,202	3,031

Reference: North Peoria Area Drainage Master Plan

Table 2

Modeling peak discharges for Unnamed Wash 2

River Reach	Controlling Peak Discharge	HEC-1 Concentration Point	Model Results	
			6-Hour	24- Hour
6.789 – 6.218	1,750*	C203R	1,954	1,746
6.160 – 5.974	2,910	C204	2,913	2,913
5.927 – 4.974	3,380	C205L	3,345	3,378
4.939 – 2.656	4,420	C206	4,325	4,421
2.625 – 1.677	4,570	C207R	4,471	4,573
1.629 – 0.308	4,680	C105R	4,567	4,684
0.252	7,300	C105	6,847	7,297

Note: * The 24-hour peak discharge is used for this reach for consistency.

Table 3

Modeling peak discharges for Unnamed Wash 3

River Reach	Controlling Peak Discharge	HEC-1 Concentration Point	Model Results	
			6-Hour	24- Hour
4.540 – 4.229	1,220	S301	1,216	959
4.197 – 3.257	1,990	C301	1,985	1,787
3.168 – 1.690	2,200	C302	2,203	2,042
1.641 – 0.185	2,570	C303	2,567	2,414

The are two special problems that are addressed in this submittal. The first is the stock tank along Unnamed Wash 1. Overtopping of the stock tank is being accomplished using an in-line weir. The second is a flow break-out location along Unnamed Wash 1. A weir calculation for the break-out location based on the water surface elevation resulted in a peak discharge of approximately 20 cfs for the

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May 17, 2001

MEMO: Mike Gerlach, Stantec Consulting Inc./
FROM: Kofi Awumah
CC: Kelly Sertich, FCDMC; Pat Ellison, Stantec Consulting

SUBJECT: North Peoria ADMS – FEMA LOMR Package

I have reviewed the LOMR package and have a few comments. I also have some redlines in the documents for your attention.

1. On the floodplain work maps, where the Floodway water surface elevation was lower than the floodplain water surface elevation (negative surcharges) make both elevations the same.
2. In the floodway tables Tables 7-4 to 7-6, change all negative surcharges to zero and make floodway water surface elevation equal to floodplain water surface elevation. Then add a section in the TDN to explain the occurrence of some minor negative surcharges and their removal from the Summary Table and the work maps.
3. FEMA Form MT-2 Form 1 item number 5, add Maricopa County Unincorporated Areas and community number 04037 to the list.
4. Add HEC-RAS Input and Output printouts in hydraulic report (Appendix).