

HEC-RAS HEC-RAS 5.0.1 April 2016  
U.S. Army Corps of Engineers  
Hydrologic Engineering Center  
609 Second Street  
Davis, California

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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
XXXXXXXX XXXX      X      XXX XXXX      XXXXXX      XXXX
X      X  X          X          X      X      X      X
X      X  X          X      X      X      X      X
X      X  XXXXXX      XXXX      X      X      X      XXXXX

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Project in SI units

PLAN DATA

Plan Title: Plan 01

Plan File : f:\02\_PROJEKT\2018\_projekty\01\_SOSNOWIEC\_WYSYPISKO\drive-download-20180218T150537Z-001\HEC RAS\Bobrek1.p01

Geometry Title: Bobrek i Przemsza

Geometry File :

f:\02\_PROJEKT\2018\_projekty\01\_SOSNOWIEC\_WYSYPISKO\drive-download-20180218T150537Z-001\HEC RAS\Bobrek1.g02

Flow Title : przeplywyl%i10%

Flow File :

f:\02\_PROJEKT\2018\_projekty\01\_SOSNOWIEC\_WYSYPISKO\drive-download-20180218T150537Z-001\HEC RAS\Bobrek1.f01

Plan Summary Information:

Number of:	Cross Sections =	34	Multiple Openings =	0
	Culverts =	0	Inline Structures =	0
	Bridges =	0	Lateral Structures =	0

Computational Information

Water surface calculation tolerance =	0.003
Critical depth calculation tolerance =	0.003
Maximum number of iterations =	20
Maximum difference tolerance =	0.1
Flow tolerance factor =	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

# FLOW DATA

Flow Title: przeplywy1%i10%

Flow File : f:\02\_PROJEKT\2018\_projekty\01\_SOSNOWIEC\_WYSYPISKO\drive-download-20180218T150537Z-001\HEC RAS\Bobrek1.f01

Flow Data (m3/s)

River	Reach	RS	Q1%
Bobrek	Bobrek	5746.67	18.42
Przemsza	Przemsza	5722.90	56.17

## Boundary Conditions

River	Reach	Profile	Upstream
Bobrek	Bobrek	Q1%	Critical
Przemsza	Przemsza	Q1%	Critical

## GEOMETRY DATA

Geometry Title: Bobrek i Przemsza

Geometry File : f:\02\_PROJEKT\2018\_projekty\01\_SOSNOWIEC\_WYSYPISKO\drive-download-20180218T150537Z-001\HEC RAS\Bobrek1.g02

## CROSS SECTION

RIVER: Bobrek

REACH: Bobrek RS: 5746.67

## INPUT

Description:

Station	Elevation	Data	num=	296					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	187	1.414	188	2.828	187	5.657	189	7.071	
9.9	188	12.728	190	14.142	189	15.556	189	18.385	
19.799	188	22.627	188	24.042	187	25.456	188	26.87	
28.284	189	32.527	189	35.355	191	36.77	189	38.184	
39.598	188	41.012	187	42.426	187	43.841	188	45.255	



321.005	187	322.419	186	323.833	187	325.247	186	326.65
187								
329.478	185	330.893	183	333.721	181	335.135	179	336.549
181								
337.964	182	342.206	179	343.621	180	352.106	180	353.52
179								
354.934	177	356.349	178	360.591	178	362.006	177	363.42
178								
369.077	174	370.491	176	371.905	177	376.148	177	377.562
178								
378.976	177	380.391	177	381.805	176	391.704	176	393.118
177								
394.533	177	395.947	178	397.361	180	398.775	179	400.19
179								
401.604	178	403.018	179	405.846	179	407.261	180	408.675
179								
410.089	183	411.503	185	412.918	189	415.746	189	417.16
190								
418.575	188	419.989	179	421.403	180	422.817	180	424.231
183								
425.646	187	427.06	188	432.717	188	434.131	187	435.545
188								
438.374	188	441.202	186	442.616	186	444.031	185	446.859
185								
448.273	186	449.687	185	452.516	187	468.072	187	469.487
186								
470.901	186	472.315	187	476.558	187	477.972	188	479.386
188								
480.8	187	485.043	187	486.457	188	492.114	188	493.528
189								
494.943	188	496.357	186	499.185	186	502.014	188	503.428
188								
504.842	187	507.671	187	510.499	185	514.742	185	516.156
184								
517.57	186	520.399	186	521.813	184	523.227	184	524.641
189								
527.47	187	528.884	183	530.298	182	531.712	188	533.127
190								
534.541	188	537.369	190	540.198	184	541.612	183	543.026
187								
544.44	189	547.269	189	548.683	191	550.097	194	551.512
196								
552.926	196	554.34	195	555.754	196	558.583	196	559.997
195								
561.411	197	562.825	196	564.24	193	565.654	186	567.068
181								
568.482	187	569.896	187	574.139	184	575.553	184	576.968
183								
579.796	183	581.21	185	582.625	185	584.039	184	585.453
186								
585.977	186							

Manning's	n	Values	num=	3
Sta	n	Val	Sta	n
0	.04	289.892	.25	313.934
			.04	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							

289.892	313.934	300.103	300.103	300.103	.1
.3					
Left Levee	Station=	286.47	Elevation=	200.64	
Right Levee	Station=	316.83	Elevation=	187.98	

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	156.46	Element	Left OB
Channel Right OB			
Vel Head (m)	0.03	Wt. n-Val.	
0.250			
W.S. Elev (m)	156.43	Reach Len. (m)	300.10
300.10 300.10			
Crit W.S. (m)	153.66	Flow Area (m2)	
22.89			
E.G. Slope (m/m)	0.019306	Area (m2)	
22.89			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	7.47	Top Width (m)	
7.47			
Vel Total (m/s)	0.80	Avg. Vel. (m/s)	
0.80			
Max Chl Dpth (m)	58.43	Hydr. Depth (m)	
3.06			
Conv. Total (m3/s)	132.6	Conv. (m3/s)	
132.6			
Length Wtd. (m)	300.10	Wetted Per. (m)	
13.14			
Min Ch El (m)	152.00	Shear (N/m2)	
329.79			
Alpha	1.00	Stream Power (N/m s)	
265.36			
Frctn Loss (m)	3.98	Cum Volume (1000 m3)	0.23
198.76			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
49.38			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	155.35	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	155.32	Reach Len. (m)	300.10
300.10 300.10			
Crit W.S. (m)	153.31	Flow Area (m2)	
15.23			
E.G. Slope (m/m)	0.018718	Area (m2)	
15.23			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

RIVER: Bobrek  
REACH: Bobrek RS: 5446.57

[illegible]

401.636	123	403.051	122	404.465	122	405.879	126	407.293
131								
408.708	133	410.122	133	411.536	134	412.95	136	414.364
140								
415.779	150	417.193	158	418.607	165	420.021	173	421.435
179								
422.85	181	424.264	182	428.506	182	429.921	181	431.335
182								
434.163	182	436.992	180	438.406	180	439.82	179	442.649
179								
444.063	180	445.477	179	452.548	179	453.962	180	458.205
177								
459.619	177	461.033	176	463.862	176	466.69	178	468.104
177								
470.933	177	472.347	176	473.761	176	475.176	177	476.59
176								
480.832	176	482.247	175	483.661	176	485.075	175	487.903
175								
489.318	174	492.146	174	493.56	173	496.389	173	499.217
171								
500.631	173	502.046	180	503.46	186	504.874	195	506.288
196								
507.702	198	509.113	199	510.527	199	511.941	197	513.356
191								
514.77	182	516.184	178	517.598	169	519.012	158	521.841
152								
523.255	148	527.498	148	528.912	149	530.326	157	531.74
173								
533.155	180	534.569	185	535.983	193	537.397	195	538.811
194								
540.226	195	541.64	194	543.054	191	544.468	186	547.297
184								
548.711	184	550.125	185	555.782	185	557.196	186	558.61
186								
560.025	187	562.853	187	564.267	186	571.338	186	572.753
184								
574.167	185	576.995	185	578.41	186	581.238	186	582.652
187								
584.067	186	585.481	186	586.895	185	588.309	185	591.138
187								
592.552	187	593.966	190	595.38	190	598.209	196	599.623
197								
601.037	189	602.451	188	603.866	189	605.28	189	606.694
188								
608.108	189	609.523	189	610.937	194	612.351	198	613.765
197								
615.18	197	616.594	198	618.008	198	619.422	195	622.251
195								
625.079	193	626.493	190	627.908	186	629.322	187	630.736
189								
636.393	185	637.807	185	639.221	186	645.441	186	

Manning's	n	Values	num=	3
Sta	n	Val	Sta	n
0	.04	511.941	.25	537.397
			.04	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							

511.941	537.397	123.642	123.642	123.642	.1
.3					
Left Levee	Station=	508.25	Elevation=	199.15	
Right Levee	Station=	540.59	Elevation=	195.74	

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	152.48	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	152.46	Reach Len. (m)	123.64
123.64 123.64			
Crit W.S. (m)	149.14	Flow Area (m2)	
29.08			
E.G. Slope (m/m)	0.009672	Area (m2)	
29.08			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	7.90	Top Width (m)	
7.90			
Vel Total (m/s)	0.63	Avg. Vel. (m/s)	
0.63			
Max Chl Dpth (m)	109.46	Hydr. Depth (m)	
3.68			
Conv. Total (m3/s)	187.3	Conv. (m3/s)	
187.3			
Length Wtd. (m)	123.64	Wetted Per. (m)	
14.23			
Min Ch El (m)	148.00	Shear (N/m2)	
193.81			
Alpha	1.00	Stream Power (N/m s)	
122.77			
Frctn Loss (m)	1.08	Cum Volume (1000 m3)	0.23
190.96			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
47.07			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	150.96	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	150.94	Reach Len. (m)	123.64
123.64 123.64			
Crit W.S. (m)	148.81	Flow Area (m2)	
17.77			
E.G. Slope (m/m)	0.011755	Area (m2)	
17.77			



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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

RIVER: Bobrek  
REACH: Bobrek RS: 5322.93

Description:

[illegible]

87.681	135	89.095	131	90.51	128	91.924	128	93.338
124								
94.752	123	96.167	129	97.581	133	100.409	131	103.238
127								
104.652	127	106.066	122	107.48	122	108.894	124	110.309
120								
113.137	104	114.551	99	115.966	94	117.38	94	118.794
91								
120.208	90	121.622	83	123.037	75	127.279	63	128.693
55								
130.108	49	131.522	44	132.936	43	421.436	43	422.85
50								
424.264	62	425.678	81	427.093	102	428.507	111	429.921
116								
431.335	120	432.749	126	434.164	129	435.578	137	436.992
148								
439.82	160	441.235	164	442.649	169	444.063	172	445.477
174								
446.892	179	448.306	183	451.134	183	452.548	182	455.377
178								
456.791	174	458.205	174	459.619	173	462.448	175	466.69
175								
468.105	174	469.519	175	478.004	175	479.418	174	483.661
174								
485.075	173	486.489	175	489.318	173	492.146	173	493.561
174								
494.975	174	496.389	173	497.803	175	499.217	182	500.632
188								
502.035	193	504.864	193	506.278	190	507.692	185	509.107
177								
510.521	172	511.935	158	513.349	152	514.763	148	517.592
146								
519.006	146	520.42	143	521.834	156	523.249	158	524.663
176								
526.077	181	527.491	185	530.32	183	531.734	184	538.805
184								
540.219	182	541.575	181	545.817	175	547.232	175	548.646
172								
550.06	172	551.474	170	552.888	170	554.303	167	555.717
166								
557.131	166	558.545	165	564.202	165	565.616	164	567.03
164								
568.444	163	571.273	165	572.687	165	575.515	163	576.93
163								
578.344	162	579.758	160	581.172	161	582.586	160	584.001
160								
585.415	158	586.829	158	588.243	156	589.657	156	591.072
157								
592.486	157	593.9	155	595.314	152	596.728	154	599.557
154								
602.385	156	603.799	153	605.213	154	606.628	154	608.042
152								
609.456	153	612.284	151	613.699	145	615.113	143	617.941
145								
619.355	143	620.77	140	622.184	147	623.598	148	626.426
148								
627.841	151	629.255	158	630.669	167	632.083	175	633.497
176								

634.912	178	639.154	181	640.568	183	641.983	184	643.397
183								
644.811	184	646.225	184	647.639	185	650.468	191	654.71
191								
656.124	192	657.539	190	658.953	194	661.781	194	663.195
192								
664.61	188	666.024	187	667.438	189	670.266	183	671.681
183								
673.095	185	674.509	185	675.923	181	677.337	185	682.994
185								
684.408	184	687.237	184	688.651	183	690.065	184	697.136
184								
698.55	183	702.793	183	704.207	184	707.035	184	708.45
185								
709.864	184	714.106	184	715.521	185	715.936	185	

Manning's n Values      num=      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	507.692	.25	527.491	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	507.692	527.491		187.359	187.359	.1

.3					
Left Levee	Station=	505.17	Elevation=	194.89	
Right Levee	Station=	535.97	Elevation=	184.68	

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	151.40	Element	Left OB
Channel Right OB			
Vel Head (m)	0.01	Wt. n-Val.	
0.250			
W.S. Elev (m)	151.39	Reach Len. (m)	187.36
187.36      187.36			
Crit W.S. (m)	146.72	Flow Area (m2)	
35.60			
E.G. Slope (m/m)	0.007867	Area (m2)	
35.60			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	7.77	Top Width (m)	
7.77			
Vel Total (m/s)	0.52	Avg. Vel. (m/s)	
0.52			
Max Chl Dpth (m)	108.39	Hydr. Depth (m)	
4.58			
Conv. Total (m3/s)	207.7	Conv. (m3/s)	
207.7			
Length Wtd. (m)	187.36	Wetted Per. (m)	
20.22			
Min Ch El (m)	143.00	Shear (N/m2)	
135.84			
Alpha	1.00	Stream Power (N/m s)	
70.28			
Frctn Loss (m)	1.85	Cum Volume (1000 m3)	0.23
186.96			

C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
46.10			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	149.76	Element	Left OB
Channel Right OB			
Vel Head (m)	0.01	Wt. n-Val.	
0.250			
W.S. Elev (m)	149.75	Reach Len. (m)	187.36
187.36 187.36			
Crit W.S. (m)	146.25	Flow Area (m2)	
23.50			
E.G. Slope (m/m)	0.008105	Area (m2)	
23.50			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	7.01	Top Width (m)	
7.01			
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	
0.45			
Max Chl Dpth (m)	106.75	Hydr. Depth (m)	
3.35			
Conv. Total (m3/s)	117.4	Conv. (m3/s)	
117.4			
Length Wtd. (m)	187.36	Wetted Per. (m)	
16.83			
Min Ch El (m)	143.00	Shear (N/m2)	
110.96			
Alpha	1.00	Stream Power (N/m s)	
49.91			
Frctn Loss (m)	1.86	Cum Volume (1000 m3)	0.05
137.47			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.17
43.33			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION

RIVER: Bobrek  
 REACH: Bobrek RS: 5135.57

INPUT  
 Description:



517.597	152	519.012	155	520.426	156	521.84	155	523.254
156								
524.669	155	526.083	155	527.497	154	528.911	154	530.325
155								
531.74	155	533.154	156	534.568	155	535.982	156	537.396
159								
540.225	159	543.053	161	544.467	161	545.882	162	548.71
160								
551.539	156	554.367	160	555.781	160	557.195	161	558.609
161								
560.024	162	561.438	164	562.852	163	564.266	165	567.095
163								
568.509	163	569.923	165	571.337	164	572.752	164	574.166
163								
575.58	163	576.994	162	578.408	165	579.823	162	581.237
162								
582.651	164	584.065	165	586.894	165	588.308	166	589.722
166								
591.136	162	592.55	163	595.379	163	596.793	162	598.207
163								
599.622	162	601.036	162	602.45	163	606.693	163	609.521
165								
610.935	163	612.349	162	613.763	160	616.592	162	618.006
162								
620.835	158	625.077	167	626.491	171	627.906	177	629.32
180								
630.734	180	632.148	181	633.562	180	636.391	186	637.805
186								
639.219	185	640.633	186	642.048	186	643.462	187	644.876
189								
646.29	192	651.947	192	653.361	191	654.775	193	656.19
194								
657.604	192	659.018	191	660.432	189	661.846	186	663.261
182								
664.675	184	666.089	185	667.503	182	668.917	180	670.332
180								
671.746	182	673.16	183	674.574	182	675.989	183	677.403
182								
680.231	182	681.645	183	683.06	182	684.474	182	685.888
183								
690.131	183	691.545	184	692.959	183	694.373	183	695.787
184								
697.202	183	702.858	183	704.273	184	705.687	183	707.101
184								
709.93	184	712.758	182	714.172	183	715.586	182	719.829
182								
720.534	183							

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.04 425.676	.25	442.646

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	425.676	442.646	237.622	237.622	237.622	.1

.3						
Left Levee	Station=	425.08	Elevation=	182.98		
Right Levee	Station=	447.96	Elevation=	185.53		

## CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	149.55	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	149.53	Reach Len. (m)	237.62
237.62 237.62			
Crit W.S. (m)	144.52	Flow Area (m2)	
28.75			
E.G. Slope (m/m)	0.012704	Area (m2)	
28.75			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	6.74	Top Width (m)	
6.74			
Vel Total (m/s)	0.64	Avg. Vel. (m/s)	
0.64			
Max Chl Dpth (m)	106.53	Hydr. Depth (m)	
4.26			
Conv. Total (m3/s)	163.4	Conv. (m3/s)	
163.4			
Length Wtd. (m)	237.62	Wetted Per. (m)	
16.98			
Min Ch El (m)	142.00	Shear (N/m2)	
211.00			
Alpha	1.00	Stream Power (N/m s)	
135.17			
Frctn Loss (m)	2.52	Cum Volume (1000 m3)	0.23
180.93			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
44.74			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

## CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	147.90	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	147.88	Reach Len. (m)	237.62
237.62 237.62			
Crit W.S. (m)	143.96	Flow Area (m2)	
18.80			
E.G. Slope (m/m)	0.012430	Area (m2)	
18.80			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	5.32	Top Width (m)	
5.32			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

RIVER: Bobrek  
REACH: Bobrek RS: 4897.95

[illegible]



449.72	181 451.135	178 452.549	178 453.957	179 456.785
177				
465.271	177 466.685	178 473.756	178 475.17	169 476.584
159				
477.999	153 479.413	140 485.07	144 486.484	151 487.898
160				
489.312	166 490.726	174 492.141	180 493.555	178 494.969
177				
496.383	177 497.797	179 500.626	179 502.04	180 503.454
180				
504.868	181 506.283	180 507.697	178 509.111	178 513.354
175				
514.768	168 516.182	166 517.596	165 519.011	165 520.425
161				
521.839	160 523.253	155 524.667	155 526.082	154 527.496
156				
528.91	155 530.324	152 531.739	150 533.153	147 534.567
145				
535.981	139 537.395	138 538.81	140 540.224	143 541.638
143				
543.052	141 544.467	135 547.295	135 548.709	136 550.123
135				
551.538	135 552.952	134 555.78	136 557.194	136 558.609
137				
560.023	135 561.437	135 562.851	134 564.266	134 565.68
133				
568.508	133 572.751	136 574.165	136 575.579	137 576.994
136				
578.408	133 579.822	129 581.236	121 582.65	120 584.065
117				
586.893	113 588.307	108 589.722	106 591.136	105 592.55
103				
593.964	103 595.378	101 596.793	100 598.207	98 599.621
98				
601.035	96 603.864	94 608.106	94 609.521	95 610.935
94				
612.349	95 613.763	98 615.177	106 616.592	110 618.006
113				
619.42	120 620.834	131 622.249	151 623.663	155 625.077
152				
626.491	152 627.905	155 629.32	142 630.734	128 632.148
122				
633.562	115 634.977	107 636.391	106 639.219	106 642.048
100				
643.462	104 646.29	104 649.119	106 650.533	106 651.947
108				
653.361	109 654.776	109 657.604	111 659.018	114 660.433
116				
661.847	127 663.261	141 664.675	148 666.089	151 667.504
159				
668.918	177 678.817	177 680.232	178 681.646	181 683.06
186				
684.474	187 685.888	186 688.717	188 690.131	194 692.96
194				
694.374	193 695.788	194 697.202	193 698.616	193 700.031
195				
701.445	195 702.859	193 704.273	192 705.688	187 707.102
180				

708.516	177	709.93	176	712.759	178	717.001	178	718.416
179								
719.83	179	721.244	180	725.487	180	726.901	182	728.315
182								
729.729	181	731.143	181	732.558	182	733.972	182	735.386
181								
742.457	181	743.871	180	748.114	180	749.528	179	750.943
180								
752.357	179	753.771	179	755.185	180	756.599	179	758.014
180								
759.428	180	760.842	181	763.723	181			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	473.756	.25	490.726	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	473.756	490.726		221.965	221.965	.1
	.3					

Left Levee	Station=	466.45	Elevation=	182.13
Right Levee	Station=	494.61	Elevation=	182.98

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	147.03	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	147.01	Reach Len. (m)	221.97
221.97	221.97		
Crit W.S. (m)	142.60	Flow Area (m2)	
31.92			
E.G. Slope (m/m)	0.009019	Area (m2)	
31.92			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	7.03	Top Width (m)	
7.03			
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	
0.58			
Max Chl Dpth (m)	104.01	Hydr. Depth (m)	
4.54			
Conv. Total (m3/s)	194.0	Conv. (m3/s)	
194.0			
Length Wtd. (m)	221.97	Wetted Per. (m)	
17.05			
Min Ch El (m)	140.00	Shear (N/m2)	
165.60			
Alpha	1.00	Stream Power (N/m s)	
95.57			
Frctn Loss (m)	6.72	Cum Volume (1000 m3)	0.23
173.73			
C & E Loss (m)	0.05	Cum SA (1000 m2)	0.26
43.11			

Warning: The 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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	145.61	Element	Left OB
Channel Right OB			
Vel Head (m)	0.01	Wt. n-Val.	
0.250			
W.S. Elev (m)	145.60	Reach Len. (m)	221.97
221.97 221.97			
Crit W.S. (m)	142.09	Flow Area (m2)	
22.34			
E.G. Slope (m/m)	0.007648	Area (m2)	
22.34			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	6.59	Top Width (m)	
6.59			
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	
0.47			
Max Chl Dpth (m)	102.60	Hydr. Depth (m)	
3.39			
Conv. Total (m3/s)	120.9	Conv. (m3/s)	
120.9			
Length Wtd. (m)	221.97	Wetted Per. (m)	
14.20			
Min Ch El (m)	140.00	Shear (N/m2)	
118.00			
Alpha	1.00	Stream Power (N/m s)	
55.84			
Frctn Loss (m)	5.81	Cum Volume (1000 m3)	0.05
128.62			
C & E Loss (m)	0.04	Cum SA (1000 m2)	0.17
40.76			

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 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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.



480.823 166	160 482.238	162 483.652	163 486.48	163 487.894
489.309 164	166 490.723	164 492.137	165 493.551	165 494.965
497.794 162	166 499.208	166 500.622	167 503.451	163 504.865
506.279 163	162 507.693	166 509.108	165 510.522	165 511.936
513.35 142	162 514.764	154 516.179	152 517.593	148 519.007
520.421 141	138 523.25	140 524.664	140 526.078	141 528.907
530.321 156	140 531.735	138 533.15	145 534.564	153 535.978
537.392 162	157 538.806	160 540.221	161 541.635	164 543.049
544.463 175	166 545.878	171 547.292	170 548.706	173 551.534
554.363 177	175 555.777	176 565.677	176 567.091	177 578.405
579.819 176	178 581.233	178 582.648	177 584.062	177 585.476
592.547 175	176 593.961	177 595.376	177 596.79	175 608.104
610.932 174	177 613.761	177 615.175	176 618.003	176 619.418
620.832 165	163 622.246	157 623.66	157 625.075	159 626.489
627.903 163	164 630.731	164 632.146	163 633.56	164 634.974
636.388 162	161 637.803	161 639.217	163 640.631	164 642.045
643.46 170	159 644.874	158 647.702	158 649.116	159 650.531
651.945 175	173 654.773	171 656.188	171 657.602	174 659.016
660.43 189	174 663.259	174 664.673	176 667.501	188 668.916
670.33 194	189 673.158	193 674.573	196 680.229	196 681.644
683.058 189	195 684.472	197 685.886	196 687.301	193 688.715
690.129 175	182 691.543	174 692.958	174 694.372	175 695.786
697.2 178	174 698.615	176 700.029	176 701.443	178 702.857
704.271 180	177 709.928	177 711.343	178 714.171	178 717
718.414 178	179 719.828	180 721.242	180 724.071	178 728.313
729.728 178	177 732.556	179 733.97	179 735.385	178 738.213
739.627 176	176 745.284	176 746.698	175 748.113	175 749.527
750.941 177	175 752.355	176 758.012	176 759.426	177 763.669
765.083 179	178 767.912	178 769.326	177 772.154	179 773.569

774.983	178	776.397	179	790.539	179	791.954	178	794.782
178								
796.196	179	797.611	178	811.753	178	813.167	179	815.792
179								

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	429.921	.25	445.478	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	429.921	445.478		180.457	180.457	180.457
						.1
.3						
Left Levee	Station=	424.64	Elevation=	178.72		
Right Levee	Station=	454.35	Elevation=	171.91		

CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	140.25	Element	Left OB
Channel Right OB			
Vel Head (m)	0.51	Wt. n-Val.	
0.250			
W.S. Elev (m)	139.74	Reach Len. (m)	180.46
180.46      180.46			
Crit W.S. (m)	139.74	Flow Area (m2)	
5.82			
E.G. Slope (m/m)	1.079788	Area (m2)	
5.82			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	5.68	Top Width (m)	
5.68			
Vel Total (m/s)	3.16	Avg. Vel. (m/s)	
3.16			
Max Chl Dpth (m)	96.74	Hydr. Depth (m)	
1.02			
Conv. Total (m3/s)	17.7	Conv. (m3/s)	
17.7			
Length Wtd. (m)	180.46	Wetted Per. (m)	
8.77			
Min Ch El (m)	138.00	Shear (N/m2)	
7030.87			
Alpha	1.00	Stream Power (N/m s)	
22242.16			
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	0.23
169.54			
C & E Loss (m)	0.15	Cum SA (1000 m2)	0.26
41.70			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	139.77	Element	Left OB
Channel Right OB			
Vel Head (m)	0.37	Wt. n-Val.	
0.250			
W.S. Elev (m)	139.40	Reach Len. (m)	180.46
180.46 180.46			
Crit W.S. (m)	139.40	Flow Area (m2)	
3.94			
E.G. Slope (m/m)	1.154333	Area (m2)	
3.94			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	5.40	Top Width (m)	
5.40			
Vel Total (m/s)	2.68	Avg. Vel. (m/s)	
2.68			
Max Chl Dpth (m)	96.40	Hydr. Depth (m)	
0.73			
Conv. Total (m3/s)	9.8	Conv. (m3/s)	
9.8			
Length Wtd. (m)	180.46	Wetted Per. (m)	
8.01			
Min Ch El (m)	138.00	Shear (N/m2)	
5572.87			
Alpha	1.00	Stream Power (N/m s)	
14932.34			
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	0.05
125.70			
C & E Loss (m)	0.11	Cum SA (1000 m2)	0.17
39.43			

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.





226.274	187 229.103	187 230.517	186 231.931	187 234.76
187				
236.174	186 237.588	187 240.417	187 241.831	188 243.245
188				
244.659	187 248.902	187 250.316	188 251.73	188 253.144
189				
254.559	188 255.973	189 258.801	187 260.216	187 261.63
186				
264.458	188 265.872	188 267.287	187 271.529	187 272.944
185				
274.358	186 277.186	186 278.6	187 280.014	186 281.429
186				
284.257	188 287.086	188 288.5	189 291.328	189 292.742
190				
294.157	189 295.571	189 296.985	188 298.399	189 305.47
189				
306.884	187 308.299	186 309.713	186 311.127	187 315.37
187				
316.784	186 318.198	186 319.612	185 321.027	185 322.441
184				
323.855	184 326.684	182 328.098	182 329.512	181 330.926
181				
332.34	180 333.755	180 335.169	179 336.583	180 337.997
180				
339.411	178 340.826	178 343.654	176 345.068	176 346.482
175				
347.897	175 349.311	174 350.725	174 352.139	175 353.553
174				
354.968	174 357.796	176 359.21	174 360.625	174 363.453
176				
364.867	175 366.281	177 367.696	178 369.11	180 370.524
179				
371.938	180 377.595	180 379.009	178 383.252	169 386.08
169				
387.495	167 391.708	167 393.122	166 394.536	168 395.95
169				
397.365	171 398.779	171 401.607	169 403.021	165 404.436
149				
405.85	144 407.264	138 408.678	141 411.507	143 412.921
145				
414.335	148 415.749	162 417.164	161 418.578	162 419.992
166				
421.406	166 422.82	165 424.235	166 425.614	165 427.029
163				
428.443	165 429.857	166 431.271	164 432.685	164 435.514
162				
436.928	163 438.342	162 439.756	164 441.171	158 442.585
163				
445.413	163 446.828	162 448.242	162 449.656	161 451.07
161				
452.484	162 455.313	162 456.727	163 458.141	163 459.555
161				
460.97	162 462.384	164 463.798	165 465.212	165 469.455
162				
472.283	162 473.698	161 475.112	162 476.526	160 477.94
160				
480.769	154 483.597	146 485.011	138 486.426	136 487.84
135				

489.254	133	490.668	133	492.082	132	493.497	130	494.911
131								
496.325	129	497.739	132	499.154	131	500.568	129	501.982
126								
506.224	129	507.639	127	510.467	133	511.881	133	513.296
132								
514.71	136	516.124	139	518.953	147	520.367	146	521.781
154								
523.195	160	524.609	162	528.852	165	530.266	165	531.681
166								
533.095	164	534.509	165	535.923	162	538.752	162	540.166
164								
541.58	165	544.409	163	550.065	163	551.48	162	555.722
162								
557.137	161	558.551	161	559.965	162	561.379	162	562.794
160								
564.208	160	565.622	159	567.036	160	572.693	160	574.107
161								
575.522	160	576.936	161	579.764	159	581.179	159	584.007
157								
585.421	158	586.835	158	588.25	157	589.664	159	593.906
159								
595.321	158	596.735	160	598.149	161	600.978	161	603.806
163								
608.049	163	609.463	164	610.877	164	612.291	166	613.706
167								
615.12	167	616.534	166	617.948	166	619.363	168	620.777
169								
622.191	169	625.02	171	626.434	171	627.848	172	629.262
171								
632.091	171	633.505	172	634.919	171	636.333	172	637.748
172								
639.162	171	641.99	171	646.233	174	647.647	179	649.061
193								
650.476	193	651.89	194	653.304	192	656.133	192	657.547
193								
658.961	198	663.204	198	664.618	197	666.032	197	667.446
196								
668.861	198	670.275	198	671.689	196	673.103	193	674.517
192								
675.932	190	678.76	176	683.003	173	684.417	175	687.245
175								
688.66	174	694.317	174	695.731	175	711.287	175	712.702
176								
714.116	175	714.264	175					

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	477.94	.25	523.195	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	477.94	523.195	209.736	209.736	209.736	.1

.3					
Left Levee	Station=	470.85	Elevation=	161.7	
Right Levee	Station=	525.41	Elevation=	162.98	

CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	139.94	Element	Left OB
Channel Right OB			
Vel Head (m)	0.00	Wt. n-Val.	
0.250			
W.S. Elev (m)	139.94	Reach Len. (m)	209.74
209.74 209.74			
Crit W.S. (m)	128.28	Flow Area (m2)	
266.57			
E.G. Slope (m/m)	0.000037	Area (m2)	
266.57			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	31.79	Top Width (m)	
31.79			
Vel Total (m/s)	0.07	Avg. Vel. (m/s)	
0.07			
Max Chl Dpth (m)	13.94	Hydr. Depth (m)	
8.39			
Conv. Total (m3/s)	3047.5	Conv. (m3/s)	
3047.5			
Length Wtd. (m)	209.74	Wetted Per. (m)	
55.17			
Min Ch El (m)	126.00	Shear (N/m2)	
1.73			
Alpha	1.00	Stream Power (N/m s)	
0.12			
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	0.23
144.96			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
38.31			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	138.31	Element	Left OB
Channel Right OB			
Vel Head (m)	0.00	Wt. n-Val.	
0.250			
W.S. Elev (m)	138.31	Reach Len. (m)	209.74
209.74 209.74			
Crit W.S. (m)	127.87	Flow Area (m2)	
215.65			
E.G. Slope (m/m)	0.000022	Area (m2)	
215.65			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	30.85	Top Width (m)	
30.85			
Vel Total (m/s)	0.05	Avg. Vel. (m/s)	
0.05			

Max Chl Dpth (m)	12.31	Hydr. Depth (m)	
6.99			
Conv. Total (m3/s)	2233.3	Conv. (m3/s)	
2233.3			
Length Wtd. (m)	209.74	Wetted Per. (m)	
51.77			
Min Ch El (m)	126.00	Shear (N/m2)	
0.92			
Alpha	1.00	Stream Power (N/m s)	
0.04			
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	0.05
105.89			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.17
36.16			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: Bobrek

REACH: Bobrek

RS: 4285.79

INPUT

Description:

Station	Elevation	Data	num=	292					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	190	1.414	189	2.829	189	4.243	188	5.657	189
7.071	189	8.485	190	11.314	188	12.728	189	14.142	189
15.556	188	16.971	189	22.627	189	24.042	188	26.87	188
28.284	189	29.699	189	31.113	188	33.941	188	35.355	189
36.77	188	38.184	188	39.598	187	41.012	187	42.426	188
45.255	188	46.669	187	48.083	187	49.498	189	50.912	189
53.74	187	56.569	187	57.983	188	59.397	188	60.811	189
62.225	189	65.054	187	66.468	187	69.296	185	70.711	186
73.539	184	79.196	184	80.61	185	84.853	185	87.681	187
90.51	187	91.924	186	93.338	186	94.752	187	98.995	187
100.409	188	103.238	188	104.652	187	106.066	187	107.48	188
108.895	187	110.309	185	111.723	184	115.966	184	117.38	183

118.794	184 121.622	182 124.451	182 125.865	181 127.279
181				
128.693	182 130.108	181 131.522	182 132.936	182 134.35
181				
140.007	181 141.421	182 142.836	182 144.25	181 145.664
182				
149.907	182 151.321	181 152.735	182 155.564	182 156.978
181				
158.392	181 159.806	182 161.22	182 162.635	181 164.049
181				
165.463	180 166.877	180 168.291	179 173.948	179 176.777
177				
178.191	178 183.848	174 185.262	174 188.09	172 189.505
172				
190.919	173 193.747	173 196.576	175 206.475	175 207.889
174				
210.718	174 212.132	173 213.546	173 216.375	171 217.789
171				
220.617	169 222.031	167 223.446	167 224.86	166 227.688
166				
229.103	167 230.517	166 231.931	166 233.345	167 236.174
167				
237.588	166 240.416	168 241.83	171 243.245	171 244.659
170				
246.073	170 247.487	172 248.901	171 250.316	172 251.73
171				
253.144	172 257.383	169 258.797	167 260.211	166 265.868
166				
267.282	163 268.697	157 270.111	147 271.525	135 272.939
134				
274.353	134 275.768	135 277.182	141 278.596	145 280.01
152				
281.424	163 282.839	162 284.253	159 289.91	159 291.324
158				
292.738	156 294.152	155 296.981	155 298.394	156 299.809
155				
301.223	155 304.051	153 306.879	153 309.708	155 311.122
155				
312.536	156 313.951	155 315.365	155 316.779	156 318.193
155				
326.678	155 328.093	156 329.507	155 340.821	155 342.235
154				
343.649	154 345.063	153 347.892	153 349.306	154 350.72
154				
354.963	151 356.377	151 357.791	152 359.205	152 360.619
153				
362.034	155 363.448	154 364.862	151 366.276	153 367.69
157				
369.105	157 371.933	155 376.176	155 377.59	156 379.004
156				
380.418	154 383.247	154 384.661	155 388.904	155 391.732
157				
394.56	161 395.975	164 398.803	164 400.217	165 403.046
165				
407.288	168 410.117	168 411.531	167 415.774	167 417.188
168				
418.602	168 420.016	169 421.43	169 422.845	170 425.673
170				

427.087	171	428.501	171	429.916	170	431.33	170	432.744
172								
436.987	172	438.401	173	439.815	172	442.644	172	444.058
171								
446.886	171	448.3	170	449.715	171	451.129	170	452.543
171								
456.786	171	458.2	170	459.614	171	462.442	171	463.857
172								
465.271	171	468.099	171	469.513	172	472.342	172	473.756
171								
475.17	171	476.585	170	477.999	170	479.413	171	480.827
171								
482.241	172	487.898	172	489.312	171	492.141	171	494.969
169								
496.383	169	497.798	171	499.212	171	500.626	172	502.04
172								
503.455	173	504.869	170	506.283	170	507.697	173	509.111
178								
510.526	190	511.94	193	513.354	194	514.768	194	516.182
193								
520.425	193	521.839	194	523.254	198	524.668	199	526.082
199								
527.496	198	528.91	198	530.325	197	533.153	197	534.567
198								
535.982	197	537.396	195	538.81	195	540.224	193	541.638
193								
543.053	179	544.467	175	547.295	173	548.71	173	550.124
172								
551.538	172	552.952	174	554.366	175	555.781	177	557.195
177								
558.609	176	560.023	177	561.438	175	562.852	174	564.266
174								
565.68	175	567.094	174	568.509	175	569.923	175	571.337
174								
572.751	175	576.217	175					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	267.282	.25	281.424	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						

	267.282	281.424		241.104	241.104	241.104	.1
.3							

Left Levee	Station=	264.03	Elevation=	166.49
Right Levee	Station=	285.15	Elevation=	162.77

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	139.91	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	139.89	Reach Len. (m)	241.10
241.10	241.10		
Crit W.S. (m)	135.58	Flow Area (m2)	
27.78			

E.G. Slope (m/m)	0.011882	Area (m2)	
27.78			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	5.97	Top Width (m)	
5.97			
Vel Total (m/s)	0.66	Avg. Vel. (m/s)	
0.66			
Max Chl Dpth (m)	5.89	Hydr. Depth (m)	
4.65			
Conv. Total (m3/s)	169.0	Conv. (m3/s)	
169.0			
Length Wtd. (m)	241.10	Wetted Per. (m)	
14.82			
Min Ch El (m)	134.00	Shear (N/m2)	
218.46			
Alpha	1.00	Stream Power (N/m s)	
144.83			
Frctn Loss (m)	9.36	Cum Volume (1000 m3)	0.23
114.09			
C & E Loss (m)	0.07	Cum SA (1000 m2)	0.26
34.35			

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 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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	138.30	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	138.28	Reach Len. (m)	241.10
241.10 241.10			
Crit W.S. (m)	135.20	Flow Area (m2)	
18.64			
E.G. Slope (m/m)	0.010613	Area (m2)	
18.64			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	5.40	Top Width (m)	
5.40			
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	
0.57			
Max Chl Dpth (m)	4.28	Hydr. Depth (m)	
3.45			
Conv. Total (m3/s)	102.6	Conv. (m3/s)	
102.6			





127.279 173	172 128.693	173 130.108	172 131.522	172 132.936
134.35 169	173 137.179	171 138.593	171 140.007	168 141.421
144.25 169	169 147.078	171 149.907	171 151.321	172 152.735
154.126 166	166 156.954	170 158.368	170 159.783	167 161.197
164.025 152	162 165.44	161 166.854	158 168.268	153 169.682
171.096 163	150 178.167	150 180.996	154 182.41	158 183.824
185.239 129	166 186.653	160 188.067	150 189.481	136 190.895
192.31 145	128 193.724	128 195.138	132 196.552	141 197.966
199.381 153	160 200.795	159 202.209	159 205.038	153 206.452
210.694 152	156 213.523	154 214.937	152 216.351	151 217.766
220.594 142	148 222.008	147 224.837	147 231.908	142 233.322
234.736 136	140 236.15	139 237.565	139 238.979	138 240.393
244.627 138	136 246.041	138 247.455	138 248.87	139 250.284
251.698 142	139 253.112	138 254.527	139 255.941	139 260.183
261.598 149	142 263.012	143 264.426	145 265.84	146 267.255
268.669 151	151 270.083	152 271.497	150 272.911	150 274.326
275.74 162	151 277.154	154 278.568	156 287.054	162 289.882
291.296 164	163 292.711	163 294.125	162 296.953	164 302.61
304.024 163	163 305.438	163 306.853	164 309.681	164 311.095
312.51 165	163 313.924	162 315.338	162 316.752	163 318.167
322.409 167	165 323.823	166 325.238	166 326.652	167 329.48
330.894 168	166 332.309	167 333.723	167 335.137	168 336.551
337.966 168	169 339.38	168 340.794	169 342.208	168 347.865
349.279 169	167 350.694	168 352.108	168 353.522	167 356.35
357.765 170	169 359.179	171 377.564	171 378.978	170 388.878
390.292 167	169 393.12	169 394.534	168 397.363	168 398.777
407.262 169	167 408.677	168 410.091	170 411.505	169 412.919
414.333 174	170 417.162	170 419.99	172 422.819	172 424.233
427.061 175	174 428.476	172 429.89	174 431.304	175 432.718

434.133	177	435.547	178	441.204	178	442.618	179	446.861
179								
448.275	180	449.689	180	451.103	181	452.517	183	453.932
188								
455.346	193	456.76	199	458.174	204	459.589	211	461.003
224								
462.417	230	465.245	244	466.66	250	468.074	252	469.488
251								
470.902	251	472.317	252	473.731	252	475.145	253	476.559
253								
477.973	254	503.429	254	504.844	252	505.038	252	

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	186.653	.25	199.381	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	186.653	199.381	305.732	305.732	305.732	.1

.3					
Left Levee	Station=	185.48	Elevation=	166.17	
Right Levee	Station=	203.3	Elevation=	159.47	

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	130.49	Element	Left OB
Channel Right OB			
Vel Head (m)	0.69	Wt. n-Val.	
0.250			
W.S. Elev (m)	129.80	Reach Len. (m)	305.73
305.73 305.73			
Crit W.S. (m)	129.80	Flow Area (m2)	
5.01			
E.G. Slope (m/m)	1.042203	Area (m2)	
5.01			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	3.63	Top Width (m)	
3.63			
Vel Total (m/s)	3.68	Avg. Vel. (m/s)	
3.68			
Max Chl Dpth (m)	1.80	Hydr. Depth (m)	
1.38			
Conv. Total (m3/s)	18.0	Conv. (m3/s)	
18.0			
Length Wtd. (m)	305.73	Wetted Per. (m)	
5.87			
Min Ch El (m)	128.00	Shear (N/m2)	
8730.58			
Alpha	1.00	Stream Power (N/m s)	
32097.04			
Frctn Loss (m)	5.76	Cum Volume (1000 m3)	0.23
110.14			
C & E Loss (m)	0.20	Cum SA (1000 m2)	0.26
33.20			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	129.83	Element	Left OB
Channel Right OB			
Vel Head (m)	0.50	Wt. n-Val.	
0.250			
W.S. Elev (m)	129.33	Reach Len. (m)	305.73
305.73 305.73			
Crit W.S. (m)	129.33	Flow Area (m2)	
3.37			
E.G. Slope (m/m)	1.007762	Area (m2)	
3.37			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	3.36	Top Width (m)	
3.36			
Vel Total (m/s)	3.13	Avg. Vel. (m/s)	
3.13			
Max Chl Dpth (m)	1.33	Hydr. Depth (m)	
1.00			
Conv. Total (m3/s)	10.5	Conv. (m3/s)	
10.5			
Length Wtd. (m)	305.73	Wetted Per. (m)	
4.89			
Min Ch El (m)	128.00	Shear (N/m2)	
6815.34			
Alpha	1.00	Stream Power (N/m s)	
21361.80			
Frctn Loss (m)	4.87	Cum Volume (1000 m3)	0.05
78.67			
C & E Loss (m)	0.15	Cum SA (1000 m2)	0.17
31.30			

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical



165.463	164	171.12	160	172.534	157	173.948	157	175.362
156								
176.777	156	178.191	154	179.605	155	182.434	155	183.848
156								
185.262	156	186.676	157	188.09	156	189.505	156	190.919
155								
199.404	155	200.818	154	203.647	156	205.061	156	206.475
155								
207.889	153	209.304	152	210.718	149	212.132	149	213.546
148								
214.96	146	216.375	146	217.789	145	219.203	145	220.617
144								
222.031	144	223.446	143	224.86	144	227.688	144	229.102
142								
230.517	143	231.931	143	233.345	144	234.759	143	236.174
144								
237.588	144	239.002	143	240.416	143	241.83	142	243.245
143								
244.659	142	247.487	146	248.901	146	250.316	145	251.73
146								
253.144	145	254.558	146	255.972	146	257.387	147	260.215
147								
261.629	146	265.872	149	267.286	151	270.115	153	271.529
153								
274.357	155	275.772	162	278.6	164	280.014	163	281.428
163								
282.843	162	284.257	162	285.671	163	287.085	165	289.914
163								
291.328	161	294.156	159	295.571	160	296.985	157	298.399
156								
301.227	158	302.642	160	304.056	164	306.884	174	308.299
179								
309.713	180	312.541	180	315.37	178	316.784	178	318.198
177								
319.612	177	321.026	176	322.441	177	326.683	174	328.098
174								
333.754	170	335.169	164	336.583	150	337.997	143	339.411
141								
340.826	136	342.24	132	343.654	131	345.068	129	346.482
123								
347.897	121	350.725	119	352.139	119	353.553	122	356.382
124								
357.796	128	359.21	131	360.625	138	362.039	147	363.453
151								
364.867	156	366.281	162	367.696	161	369.11	152	371.938
136								
373.353	131	374.767	128	376.181	124	377.595	117	379.009
114								
380.424	114	383.252	126	384.666	129	386.08	129	387.495
133								
388.909	147	390.323	148	391.737	147	393.152	132	394.566
129								
395.98	129	397.394	128	398.808	130	400.223	130	401.637
128								
404.465	128	405.88	127	407.294	127	408.708	126	412.951
126								
414.365	127	415.779	126	418.607	126	420.022	125	421.436
126								

425.679	126	427.093	127	432.75	127	434.164	128	439.821
128								
441.235	129	442.649	129	448.306	133	449.72	133	451.135
134								
452.549	134	455.377	136	456.791	138	458.206	139	459.62
139								
462.448	141	463.863	140	465.277	141	469.519	141	470.934
142								
473.762	142	475.176	143	476.591	142	478.005	143	479.419
143								
482.247	145	483.662	145	485.076	146	486.49	146	487.904
148								
489.319	147	490.733	147	492.147	146	493.561	147	494.975
146								
496.39	147	499.218	147	500.632	148	504.875	148	506.289
149								
509.118	149	511.946	151	513.36	149	514.774	150	516.189
152								
517.603	152	519.017	153	521.846	157	523.26	158	524.674
160								
526.088	161	527.502	161	530.331	159	535.988	159	537.402
160								
543.059	160	548.715	156	554.372	156	555.786	155	560.029
155								
561.443	156	564.272	156	568.514	159	569.928	162	571.343
163								
572.757	162	578.414	162	579.828	166	581.242	166	582.656
168								
584.071	171	585.485	173	586.899	176	588.313	175	589.727
186								
591.142	191	592.556	201	593.97	212	595.384	217	596.798
226								
598.213	235	599.627	234	603.869	234	605.284	228	606.698
216								
608.112	210	609.526	198	610.94	188	612.355	183	613.769
177								
615.183	176	616.597	174	618.011	171	619.426	167	620.84
163								
622.254	164	623.668	167	625.082	167	627.911	165	629.325
167								
630.739	166	640.639	166	642.053	168	643.467	169	644.881
171								
648.213	171							

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.04	369.11	.25
		388.909	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	369.11	388.909		342.179	342.179	.1

.3					
Left Levee	Station=	368.1	Elevation=	161.81	
Right Levee	Station=	391.2	Elevation=	146.17	

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	123.69	Element	Left OB
Channel Right OB			
Vel Head (m)	0.01	Wt. n-Val.	
0.250			
W.S. Elev (m)	123.68	Reach Len. (m)	342.18
342.18 342.18			
Crit W.S. (m)	116.14	Flow Area (m2)	
40.80			
E.G. Slope (m/m)	0.005417	Area (m2)	
40.80			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	6.46	Top Width (m)	
6.46			
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	
0.45			
Max Chl Dpth (m)	9.68	Hydr. Depth (m)	
6.32			
Conv. Total (m3/s)	250.3	Conv. (m3/s)	
250.3			
Length Wtd. (m)	342.18	Wetted Per. (m)	
21.49			
Min Ch El (m)	114.00	Shear (N/m2)	
100.86			
Alpha	1.00	Stream Power (N/m s)	
45.53			
Frctn Loss (m)	3.86	Cum Volume (1000 m3)	0.23
103.13			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
31.66			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	121.58	Element	Left OB
Channel Right OB			
Vel Head (m)	0.01	Wt. n-Val.	
0.250			
W.S. Elev (m)	121.58	Reach Len. (m)	342.18
342.18 342.18			
Crit W.S. (m)	115.56	Flow Area (m2)	
28.20			
E.G. Slope (m/m)	0.004539	Area (m2)	
28.20			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	5.54	Top Width (m)	
5.54			

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.

RIVER: Bobrek  
REACH: Bobrek RS: 3396.77

[illegible]



135.764	157 137.179	157 138.593	158 141.421	158 142.836
157				
144.25	157 147.078	159 148.492	159 149.907	158 151.321
159				
152.735	158 155.564	160 158.392	160 159.806	159 162.635
159				
164.049	160 165.463	160 166.877	159 168.292	160 169.706
159				
173.948	159 175.363	160 176.777	159 186.676	159 188.091
160				
196.576	160 197.99	161 199.404	160 200.819	162 202.233
161				
205.061	161 206.475	162 207.89	160 209.304	160 210.718
157				
213.546	157 214.961	156 219.203	156 220.618	158 223.446
160				
224.86	159 226.274	157 229.103	157 230.517	156 231.931
154				
233.346	153 234.76	150 236.174	149 240.417	149 243.245
147				
244.659	150 246.074	149 247.488	145 250.316	147 251.73
147				
253.145	149 255.973	149 257.387	147 258.801	149 260.216
148				
261.63	149 263.044	148 265.873	150 267.287	152 268.701
150				
270.115	144 271.529	141 272.944	142 274.358	152 275.772
159				
277.186	167 278.6	172 282.843	172 284.257	173 288.5
173				
289.914	174 291.328	174 292.743	175 294.157	175 295.571
174				
298.4	174 299.814	173 304.056	173 305.471	172 306.885
166				
308.299	154 309.713	145 311.128	134 313.956	128 316.784
126				
318.199	123 323.855	119 325.27	116 328.098	116 329.512
115				
330.926	116 332.341	120 333.755	130 335.168	140 336.582
153				
337.997	155 339.411	152 340.825	144 342.239	137 343.653
132				
345.068	132 346.482	130 347.896	118 349.31	113 350.724
114				
352.139	119 353.553	130 354.967	128 356.381	132 357.796
134				
359.21	141 360.624	145 362.038	146 363.452	139 364.867
133				
366.281	126 367.695	125 369.109	126 370.523	126 371.938
127				
377.593	127 379.007	129 380.422	128 381.836	129 384.664
129				
386.078	130 388.907	130 390.321	131 393.149	131 394.564
132				
395.978	131 397.392	132 398.806	132 400.22	134 401.635
135				
403.049	135 407.291	138 408.706	138 410.12	139 411.534
139				

412.948	138	415.777	142	420.019	139	421.433	140	422.848
140								
424.262	139	425.676	139	427.09	140	431.333	140	432.747
139								
439.818	139	441.232	140	444.061	140	445.475	141	446.889
140								
448.303	140	449.718	141	451.132	140	452.546	141	455.374
139								
458.203	139	461.031	141	462.445	140	466.688	143	469.516
141								
470.931	142	472.345	142	473.759	141	476.587	141	478.002
143								
480.83	143	482.244	144	485.073	144	489.315	147	490.73
149								
492.144	149	496.386	152	497.801	152	499.215	150	506.286
150								
507.7	149	509.114	145	510.528	139	511.943	132	513.357
120								
514.771	116	516.185	113	517.6	105	519.014	96	520.428
98								
521.842	98	523.256	99	524.671	99	526.085	100	527.499
98								
528.913	99	530.328	99	531.742	100	533.156	100	534.57
99								
535.985	102	537.399	102	538.813	103	540.227	102	541.642
104								
543.056	105	544.47	105	545.884	106	548.713	106	550.127
107								
551.541	107	552.955	109	557.198	109	560.027	111	561.441
113								
562.855	112	564.269	112	569.926	116	571.341	113	572.755
113								
574.169	112	575.583	113	575.821	113			

Manning's n Values      num=      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	340.825	.25	359.21	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	340.825	359.21		222.945	222.945	.1

.3					
Left Levee	Station=	337.29	Elevation=	155.53	
Right Levee	Station=	361.06	Elevation=	145.96	

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	119.83	Element	Left OB
Channel Right OB			
Vel Head (m)	0.04	Wt. n-Val.	
0.250			
W.S. Elev (m)	119.78	Reach Len. (m)	222.95
222.95	222.95		
Crit W.S. (m)	115.69	Flow Area (m2)	
19.81			
E.G. Slope (m/m)	0.036343	Area (m2)	
19.81			

Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	4.55	Top Width (m)	
4.55			
Vel Total (m/s)	0.93	Avg. Vel. (m/s)	
0.93			
Max Chl Dpth (m)	23.78	Hydr. Depth (m)	
4.35			
Conv. Total (m3/s)	96.6	Conv. (m3/s)	
96.6			
Length Wtd. (m)	222.95	Wetted Per. (m)	
14.71			
Min Ch El (m)	113.00	Shear (N/m2)	
479.99			
Alpha	1.00	Stream Power (N/m s)	
446.38			
Frctn Loss (m)	5.47	Cum Volume (1000 m3)	0.23
92.76			
C & E Loss (m)	0.01	Cum SA (1000 m2)	0.26
29.77			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	118.16	Element	Left OB
Channel Right OB			
Vel Head (m)	0.04	Wt. n-Val.	
0.250			
W.S. Elev (m)	118.12	Reach Len. (m)	222.95
222.95 222.95			
Crit W.S. (m)	115.06	Flow Area (m2)	
12.65			
E.G. Slope (m/m)	0.037712	Area (m2)	
12.65			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	4.01	Top Width (m)	
4.01			
Vel Total (m/s)	0.84	Avg. Vel. (m/s)	
0.84			
Max Chl Dpth (m)	22.12	Hydr. Depth (m)	
3.15			
Conv. Total (m3/s)	54.4	Conv. (m3/s)	
54.4			
Length Wtd. (m)	222.95	Wetted Per. (m)	
11.33			
Min Ch El (m)	113.00	Shear (N/m2)	
412.67			



200.818	148 202.232	149 210.718	149 212.132	150 216.375
150				
217.789	149 223.446	149 226.274	147 234.759	147 236.174
146				
237.588	146 240.416	148 241.83	148 243.245	147 247.487
150				
248.901	149 250.316	138 251.73	128 253.144	132 254.558
143				
255.973	145 257.387	153 258.801	160 260.215	164 261.629
166				
263.044	167 264.458	167 265.872	169 268.7	171 270.115
171				
271.529	170 272.943	171 278.6	171 280.014	172 281.428
172				
282.843	173 284.257	172 285.671	172 287.085	171 291.328
171				
292.742	170 294.156	170 295.571	168 298.399	148 299.813
135				
301.227	134 302.642	136 308.298	136 309.713	134 311.127
128				
312.541	118 313.955	111 315.37	108 319.612	108 321.026
110				
322.441	109 325.268	109 326.682	113 328.096	122 329.51
134				
330.925	147 332.339	151 333.753	152 336.581	134 337.996
127				
339.41	124 340.824	120 342.238	114 343.652	109 345.067
107				
347.895	113 349.309	118 350.724	122 352.138	121 353.552
125				
354.966	134 356.38	138 359.209	132 360.623	130 362.037
120				
363.451	113 364.866	113 366.28	111 367.694	111 369.108
110				
370.523	111 371.937	110 376.179	110 377.594	111 380.422
111				
381.836	112 383.25	110 384.665	111 386.079	111 388.907
109				
390.321	110 391.736	109 393.15	110 394.564	110 395.978
111				
397.393	111 398.807	112 403.049	112 404.464	111 405.878
112				
408.706	112 410.12	113 411.535	112 412.949	114 414.363
114				
420.02	118 422.848	118 425.677	120 427.091	122 428.505
123				
436.99	123 438.405	122 448.304	122 451.133	124 453.961
124				
455.375	125 458.204	125 459.618	126 461.032	126 462.446
127				
463.86	126 465.275	127 466.689	127 468.103	128 469.517
128				
470.932	129 473.76	129 482.245	135 485.074	135 486.488
136				
493.559	136 494.973	135 496.387	129 497.802	119 499.216
108				
500.63	103 502.044	99 503.458	96 504.873	91 506.287
90				

507.701	90	509.115	94	510.529	93	513.358	93	517.601
96								
519.015	96	520.429	97	521.843	96	523.258	97	526.086
101								
528.914	103	530.329	103	531.743	102	533.157	102	534.571
101								
535.986	101	537.4	102	538.814	104	540.228	104	541.643
106								
543.057	107	544.471	105	545.885	102	547.299	106	548.714
109								
550.128	109	551.542	111	554.371	113	555.785	110	557.199
106								
558.613	106	560.028	108	568.513	102	569.927	104	571.342
105								
575.584	105	578.413	107	579.827	106	581.241	108	582.655
113								
583.747	116							

Manning's n Values      num=      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	336.581	.25	354.966	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	336.581	354.966		234.785	234.785	.1

.3

Left Levee	Station=	333.33	Elevation=	151.28
Right Levee	Station=	358.42	Elevation=	137.98

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	114.35	Element	Left OB
Channel Right OB			
Vel Head (m)	0.03	Wt. n-Val.	
0.250			
W.S. Elev (m)	114.32	Reach Len. (m)	234.79
234.79      234.79			
Crit W.S. (m)	109.88	Flow Area (m2)	
25.42			
E.G. Slope (m/m)	0.017680	Area (m2)	
25.42			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	6.11	Top Width (m)	
6.11			
Vel Total (m/s)	0.72	Avg. Vel. (m/s)	
0.72			
Max Chl Dpth (m)	24.32	Hydr. Depth (m)	
4.16			
Conv. Total (m3/s)	138.5	Conv. (m3/s)	
138.5			
Length Wtd. (m)	234.79	Wetted Per. (m)	
15.98			
Min Ch El (m)	107.00	Shear (N/m2)	
275.72			
Alpha	1.00	Stream Power (N/m s)	
199.79			

Frctn Loss (m)	12.96	Cum Volume (1000 m3)	0.23
87.72			
C & E Loss (m)	0.05	Cum SA (1000 m2)	0.26
28.58			

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.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	112.92	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	112.90	Reach Len. (m)	234.79
234.79 234.79			
Crit W.S. (m)	109.29	Flow Area (m2)	
17.30			
E.G. Slope (m/m)	0.015991	Area (m2)	
17.30			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	5.30	Top Width (m)	
5.30			
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	
0.61			
Max Chl Dpth (m)	22.90	Hydr. Depth (m)	
3.26			
Conv. Total (m3/s)	83.6	Conv. (m3/s)	
83.6			
Length Wtd. (m)	234.79	Wetted Per. (m)	
13.03			
Min Ch El (m)	107.00	Shear (N/m2)	
208.19			
Alpha	1.00	Stream Power (N/m s)	
127.20			
Frctn Loss (m)	12.12	Cum Volume (1000 m3)	0.05
63.51			
C & E Loss (m)	0.04	Cum SA (1000 m2)	0.17
27.27			

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 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.





224.86	140 226.274	141 229.103	137 230.517	138 231.931
137				
234.759	137 237.588	139 239.002	139 241.83	141 243.245
140				
244.659	142 248.902	142 250.316	141 251.73	143 253.144
147				
255.973	147 257.387	146 258.801	144 260.215	144 263.044
142				
264.458	143 265.872	149 267.286	149 268.7	148 270.115
146				
271.529	146 272.943	145 280.014	145 281.428	146 282.842
149				
284.257	155 285.671	159 287.076	160 289.905	160 291.319
161				
292.733	161 294.147	162 295.562	162 298.39	164 301.218
162				
305.461	162 306.875	161 308.29	161 309.704	160 311.118
158				
312.532	150 313.946	132 315.361	126 316.775	119 318.189
119				
321.018	117 322.432	117 323.846	115 326.674	115 328.089
116				
329.503	115 330.917	115 332.331	120 333.746	137 335.16
145				
336.574	154 337.988	153 339.402	147 340.817	140 342.231
127				
343.645	125 345.059	122 346.474	110 347.888	101 349.302
98				
350.716	100 352.13	100 353.545	103 354.959	113 356.373
118				
357.787	118 359.202	119 360.616	127 362.03	133 363.444
133				
364.858	124 366.273	115 369.101	111 371.93	113 374.758
113				
376.172	111 377.586	112 379.001	114 380.415	113 381.819
113				
383.234	111 386.062	113 388.89	113 390.305	111 391.719
114				
394.547	116 395.962	114 398.79	116 401.618	114 403.033
116				
405.861	118 407.275	120 408.689	120 410.104	122 411.518
123				
412.932	123 414.346	125 415.761	126 417.175	126 418.589
128				
420.003	133 421.417	137 422.832	140 425.66	140 427.074
143				
428.488	144 429.903	144 431.317	149 432.731	163 434.145
163				
436.974	165 438.388	165 439.802	164 441.216	164 442.631
165				
444.045	169 445.459	171 448.288	173 449.702	173 451.116
174				
452.53	174 455.359	176 458.187	176 459.601	178 463.844
181				
465.258	180 466.672	181 468.087	183 470.915	185 473.743
185				
475.158	187 476.572	188 480.815	188 482.229	189 483.643
189				

485.057	190	486.471	192	489.3	192	493.543	195	494.957
195								
496.371	196	497.785	196	500.614	198	502.028	198	503.442
199								
504.856	199	506.27	200	509.099	200	510.513	201	511.927
201								
513.342	202	514.756	201	520.413	205	523.241	205	524.655
206								
531.726	206	533.14	207	534.555	207	535.969	205	537.383
204								
541.626	204	543.04	203	544.454	204	548.697	204	551.525
202								
552.939	204	554.353	203	555.768	204	557.182	204	558.596
202								
560.01	202	561.424	203	565.667	200	568.495	200	571.324
202								
572.738	201	574.152	199	575.566	199	578.395	197	579.809
198								
592.537	198	593.951	199	595.365	199	598.194	195	599.608
194								
602.436	190	603.85	190	606.679	188	608.093	188	609.507
187								
610.921	188	612.336	186	613.75	186	615.164	184	619.407
184								
620.821	183	622.235	183	623.649	181	627.892	184	630.72
184								
633.549	186	634.963	186	637.791	188	639.206	188	640.62
190								
642.034	193	643.448	203	644.862	208	646.276	212	647.691
214								
650.519	216	651.933	208	653.347	206	654.762	209	656.176
210								
659.004	208	661.833	210	663.247	210	666.075	208	667.49
208								
670.318	210	673.146	210	675.975	212	677.389	212	678.803
213								
680.217	212	681.632	213	682.661	213			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	339.402	.25	363.444	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						

	339.402	363.444		332.837	332.837	332.837	.1
.3							

Left Levee	Station=	338.83	Elevation=	152.98
Right Levee	Station=	364.25	Elevation=	133.62

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	101.34	Element	Left OB
Channel Right OB			
Vel Head (m)	0.54	Wt. n-Val.	
0.250			
W.S. Elev (m)	100.80	Reach Len. (m)	332.84
332.84	332.84		

Crit W.S. (m)	100.73	Flow Area (m2)	
5.67			
E.G. Slope (m/m)	1.016592	Area (m2)	
5.67			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	4.52	Top Width (m)	
4.52			
Vel Total (m/s)	3.25	Avg. Vel. (m/s)	
3.25			
Max Chl Dpth (m)	2.80	Hydr. Depth (m)	
1.25			
Conv. Total (m3/s)	18.3	Conv. (m3/s)	
18.3			
Length Wtd. (m)	332.84	Wetted Per. (m)	
7.84			
Min Ch El (m)	98.00	Shear (N/m2)	
7208.43			
Alpha	1.00	Stream Power (N/m s)	
23420.45			
Frctn Loss (m)	13.40	Cum Volume (1000 m3)	0.23
84.07			
C & E Loss (m)	0.15	Cum SA (1000 m2)	0.26
27.34			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	100.76	Element	Left OB
Channel Right OB			
Vel Head (m)	0.44	Wt. n-Val.	
0.250			
W.S. Elev (m)	100.32	Reach Len. (m)	332.84
332.84 332.84			
Crit W.S. (m)	100.32	Flow Area (m2)	
3.60			
E.G. Slope (m/m)	1.252051	Area (m2)	
3.60			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	4.07	Top Width (m)	
4.07			
Vel Total (m/s)	2.94	Avg. Vel. (m/s)	
2.94			
Max Chl Dpth (m)	2.32	Hydr. Depth (m)	
0.88			

Station	Elevation	Data	num=	311					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	185	1.414	184	4.243	186	5.657	185	14.142	
16.971	183	18.385	184	24.042	184	25.456	181	26.87	
32.527	182	33.941	183	35.355	183	36.77	182	38.184	
41.012	183	42.426	184	46.669	184	48.083	185	53.74	
55.154	184	56.568	184	57.983	183	59.397	184	63.64	
66.468	186	67.882	189	69.296	189	70.711	187	72.125	



363.452	88 364.866	87 366.281	87 367.695	88 370.523
86 371.937	86 373.352	83 374.766	84 376.18	86 377.594
85 379.008	86 380.423	82 381.837	77 383.251	78 384.665
78 386.08	77 387.494	79 390.322	79 391.736	80 393.151
79 398.807	79 400.222	81 401.636	81 403.05	79 405.878
79 408.707	81 410.121	80 411.535	81 415.778	81 417.192
82 418.606	81 420.02	81 422.849	83 424.263	86 425.677
87 427.092	87 428.506	89 429.92	90 431.334	92 432.748
93 434.163	99 435.577	102 436.991	109 438.405	110 439.819
118 441.234	131 442.648	148 444.062	149 445.476	154 446.89
157 448.305	158 449.719	157 452.547	157 453.962	160 455.376
161 456.79	161 458.204	162 459.618	164 461.033	165 463.861
169 465.275	170 466.689	173 468.104	174 469.518	173 470.932
176 473.76	178 476.589	182 478.003	182 483.66	186 485.074
188 486.488	188 487.902	189 490.731	189 492.145	190 493.559
192 496.388	194 497.802	194 499.216	193 504.873	201 506.287
205 507.701	207 509.116	207 511.944	209 514.772	209 516.187
211 519.015	209 520.429	209 521.844	210 523.258	210 526.086
212 527.5	215 528.915	216 530.329	218 531.743	219 533.157
219 534.572	220 535.986	222 537.4	222 538.814	223 540.228
226 541.643	225 543.057	226 547.299	226 548.714	228 551.542
226 558.613	231 561.442	231 565.684	234 567.099	234 568.513
233 571.341	233 572.755	232 574.17	232 575.584	233 579.827
233 581.241	231 582.655	232 584.069	231 585.483	231 586.898
232 591.14	229 595.383	229 598.211	231 599.626	230 601.04
230 602.454	229 603.868	229 605.282	228 608.111	224 609.525
223 615.182	223 616.596	222 619.425	222 620.839	223 622.253
222 622.696	222			

Manning's	n Values	num=	3
Sta	n Val	Sta	n Val

0	.04	325.269	.25	346.482	.04	
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	325.269	346.482		433.513	433.513	433.513
						.1
.3						
Left Levee	Station=	324.2	Elevation=	126.06		
Right Levee	Station=	348.07	Elevation=	117.45		

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	87.78	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	87.76	Reach Len. (m)	433.51
433.51 433.51			
Crit W.S. (m)	83.99	Flow Area (m2)	
27.83			
E.G. Slope (m/m)	0.012416	Area (m2)	
27.83			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	6.77	Top Width (m)	
6.77			
Vel Total (m/s)	0.66	Avg. Vel. (m/s)	
0.66			
Max Chl Dpth (m)	10.76	Hydr. Depth (m)	
4.11			
Conv. Total (m3/s)	165.3	Conv. (m3/s)	
165.3			
Length Wtd. (m)	433.51	Wetted Per. (m)	
15.38			
Min Ch El (m)	82.00	Shear (N/m2)	
220.33			
Alpha	1.00	Stream Power (N/m s)	
145.82			
Frctn Loss (m)	6.41	Cum Volume (1000 m3)	0.23
78.50			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
25.46			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	86.28	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	86.26	Reach Len. (m)	433.51
433.51 433.51			

Crit W.S. (m)	83.63	Flow Area (m2)	
18.20			
E.G. Slope (m/m)	0.012540	Area (m2)	
18.20			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	6.11	Top Width (m)	
6.11			
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	
0.58			
Max Chl Dpth (m)	9.26	Hydr. Depth (m)	
2.98			
Conv. Total (m3/s)	94.4	Conv. (m3/s)	
94.4			
Length Wtd. (m)	433.51	Wetted Per. (m)	
12.32			
Min Ch El (m)	82.00	Shear (N/m2)	
181.62			
Alpha	1.00	Stream Power (N/m s)	
105.51			
Frctn Loss (m)	6.34	Cum Volume (1000 m3)	0.05
57.43			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.17
24.48			

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.

## CROSS SECTION

RIVER: Bobrek  
REACH: Bobrek RS: 2172.69

INPUT

Description:

[illegible]





335.147	140	336.561	137	337.975	137	339.389	136	340.803
130								
342.218	129	343.632	115	345.046	111	346.46	105	347.875
102								
349.289	98	350.703	97	353.531	97	357.774	94	359.188
90								
360.602	91	362.017	94	363.431	100	364.845	108	366.259
111								
367.674	113	369.088	111	370.502	93	371.916	87	374.745
87								
376.159	83	377.573	76	378.987	76	381.816	78	383.23
85								
387.473	94	388.887	99	390.301	105	391.715	108	393.129
99								
394.544	95	395.958	90	397.372	84	398.786	85	400.2
84								
403.029	84	404.443	83	405.857	83	407.271	84	408.686
88								
410.1	88	411.514	85	412.928	86	414.343	89	417.171
89								
418.585	84	421.414	88	422.828	87	424.204	86	425.619
87								
427.033	86	428.447	84	429.861	84	432.69	86	434.104
88								
435.518	87	436.932	88	438.346	87	439.761	88	441.175
88								
442.589	89	445.417	89	446.832	91	448.246	90	449.66
92								
451.074	92	452.488	91	453.903	94	455.317	95	456.731
98								
458.145	97	459.559	100	462.388	102	463.802	108	465.216
108								
466.631	110	468.045	109	469.459	111	470.873	109	472.287
109								
473.702	111	475.116	112	476.53	111	477.944	113	479.358
113								
480.773	114	482.187	116	483.601	116	485.015	120	489.258
123								
492.086	127	493.5	128	494.915	130	496.329	130	497.743
131								
499.157	133	500.572	136	501.986	137	503.4	139	504.814
140								
506.228	143	507.642	144	509.057	144	510.471	146	511.885
146								
513.299	149	514.714	149	516.128	151	517.542	152	518.956
154								
521.785	154	523.199	155	526.027	155	527.442	156	528.856
155								
530.27	158	533.098	158	535.927	160	537.341	160	540.17
162								
541.584	165	542.998	164	545.826	166	547.241	166	548.655
168								
551.483	170	552.898	169	554.312	169	558.554	172	567.04
172								
568.454	173	576.939	173	578.354	174	579.768	173	582.596
175								
584.01	174	585.425	176	586.839	177	588.253	177	591.082
179								

592.496	178	593.91	178	595.324	180	599.567	180	603.81
183								
605.224	182	606.638	182	608.052	183	609.466	183	610.881
184								
612.295	184	613.709	185	615.123	184	617.952	184	619.366
185								
620.78	187	627.851	192	629.266	196	630.68	196	633.508
198								
634.922	198	636.337	193	639.66	193			

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	369.088	.25	391.715	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	369.088	391.715		515.195	515.195	.1

.3

Left Levee	Station=	368.1	Elevation=	115.11
Right Levee	Station=	394.28	Elevation=	106.17

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	81.37	Element	Left OB
Channel Right OB			
Vel Head (m)	0.03	Wt. n-Val.	
0.250			
W.S. Elev (m)	81.34	Reach Len. (m)	515.19
515.19      515.19			
Crit W.S. (m)	77.84	Flow Area (m2)	
23.84			
E.G. Slope (m/m)	0.017880	Area (m2)	
23.84			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	6.00	Top Width (m)	
6.00			
Vel Total (m/s)	0.77	Avg. Vel. (m/s)	
0.77			
Max Chl Dpth (m)	13.34	Hydr. Depth (m)	
3.98			
Conv. Total (m3/s)	137.8	Conv. (m3/s)	
137.8			
Length Wtd. (m)	515.19	Wetted Per. (m)	
13.74			
Min Ch El (m)	76.00	Shear (N/m2)	
304.35			
Alpha	1.00	Stream Power (N/m s)	
235.11			
Frctn Loss (m)	29.17	Cum Volume (1000 m3)	0.23
67.30			
C & E Loss (m)	0.06	Cum SA (1000 m2)	0.26
22.69			

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.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	79.94	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	79.91	Reach Len. (m)	515.19
515.19 515.19			
Crit W.S. (m)	77.37	Flow Area (m2)	
15.68			
E.G. Slope (m/m)	0.017304	Area (m2)	
15.68			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	5.42	Top Width (m)	
5.42			
Vel Total (m/s)	0.67	Avg. Vel. (m/s)	
0.67			
Max Chl Dpth (m)	11.91	Hydr. Depth (m)	
2.89			
Conv. Total (m3/s)	80.4	Conv. (m3/s)	
80.4			
Length Wtd. (m)	515.19	Wetted Per. (m)	
10.82			
Min Ch El (m)	76.00	Shear (N/m2)	
245.97			
Alpha	1.00	Stream Power (N/m s)	
165.77			
Frctn Loss (m)	28.39	Cum Volume (1000 m3)	0.05
50.09			
C & E Loss (m)	0.05	Cum SA (1000 m2)	0.17
21.98			

Warning: The 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: Bobrek

REACH: Bobrek

RS: 1657.50



271.523	116	272.937	111	275.765	117	277.179	117	278.594
114								
280.008	112	281.422	103	282.836	88	285.665	88	287.079
89								
289.907	89	296.978	94	298.393	94	302.635	97	304.05
97								
305.464	96	306.878	97	308.292	95	309.706	96	311.121
94								
312.535	89	313.949	85	315.363	83	316.777	80	318.192
74								
319.606	71	321.02	69	322.434	68	323.849	68	325.263
66								
326.677	65	328.091	67	329.505	66	330.92	67	332.334
69								
333.748	68	336.577	68	339.405	70	340.819	70	342.233
71								
343.648	71	345.062	72	346.476	75	347.89	76	350.719
76								
352.133	79	353.547	80	356.376	84	357.79	84	360.618
86								
362.032	84	366.275	84	369.104	90	370.518	91	371.932
94								
377.589	98	380.417	98	384.66	101	388.903	101	390.317
102								
391.731	104	393.145	104	394.559	105	395.974	107	397.388
108								
398.802	108	400.216	109	403.045	107	404.459	107	405.873
110								
408.702	108	410.116	105	412.944	103	414.359	103	415.773
101								
420.015	104	421.43	101	424.258	105	427.087	103	428.501
101								
431.329	101	432.743	100	434.158	100	435.572	101	438.4
101								
439.815	100	441.229	105	442.643	104	444.057	106	445.471
106								
448.3	104	449.714	104	451.128	101	452.542	101	453.957
100								
455.371	100	456.785	99	458.199	101	459.614	102	461.028
105								
462.442	111	463.856	118	465.27	124	466.685	127	468.099
127								
469.513	128	470.927	128	473.756	130	476.584	128	477.998
129								
478.91	129							

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
0	.04	233.344	.25 261.623 .04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	233.344	261.623		667.653	667.653	667.653
						.1
.3						
Left Levee	Station=	227.72	Elevation=	79.89		
Right Levee	Station=	265.13	Elevation=	79.36		

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	52.14	Element	Left OB
Channel Right OB			
Vel Head (m)	0.67	Wt. n-Val.	
0.250			
W.S. Elev (m)	51.47	Reach Len. (m)	667.65
667.65 667.65			
Crit W.S. (m)	51.47	Flow Area (m2)	
5.07			
E.G. Slope (m/m)	1.163573	Area (m2)	
5.07			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	3.75	Top Width (m)	
3.75			
Vel Total (m/s)	3.64	Avg. Vel. (m/s)	
3.64			
Max Chl Dpth (m)	2.47	Hydr. Depth (m)	
1.35			
Conv. Total (m3/s)	17.1	Conv. (m3/s)	
17.1			
Length Wtd. (m)	667.65	Wetted Per. (m)	
6.55			
Min Ch El (m)	49.00	Shear (N/m2)	
8828.84			
Alpha	1.00	Stream Power (N/m s)	
32106.42			
Frctn Loss (m)	3.98	Cum Volume (1000 m3)	0.23
59.85			
C & E Loss (m)	0.20	Cum SA (1000 m2)	0.26
20.18			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	51.49	Element	Left OB
Channel Right OB			

Vel Head (m)	0.50	Wt. n-Val.	
0.250			
W.S. Elev (m)	50.99	Reach Len. (m)	667.65
667.65      667.65			
Crit W.S. (m)	50.99	Flow Area (m2)	
3.37			
E.G. Slope (m/m)	1.187495	Area (m2)	
3.37			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	3.38	Top Width (m)	
3.38			
Vel Total (m/s)	3.14	Avg. Vel. (m/s)	
3.14			
Max Chl Dpth (m)	1.99	Hydr. Depth (m)	
1.00			
Conv. Total (m3/s)	9.7	Conv. (m3/s)	
9.7			
Length Wtd. (m)	667.65	Wetted Per. (m)	
5.52			
Min Ch El (m)	49.00	Shear (N/m2)	
7106.32			
Alpha	1.00	Stream Power (N/m s)	
22285.42			
Frctn Loss (m)	2.88	Cum Volume (1000 m3)	0.05
45.18			
C & E Loss (m)	0.15	Cum SA (1000 m2)	0.17
19.71			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: Bobrek

REACH: Bobrek

RS: 989.84

INPUT





255.961	74	257.375	76	258.789	76	263.032	73	264.446
71								
265.861	71	267.275	70	268.689	68	270.103	68	272.932
66								
274.346	67	275.76	67	277.174	66	278.588	69	280.003
73								
281.417	73	282.831	67	284.245	65	285.66	66	288.488
70								
291.316	62	292.731	60	294.145	60	295.559	58	296.973
60								
298.388	59	299.802	59	302.63	57	304.044	64	305.459
70								
306.873	71	308.287	68	309.701	70	311.116	75	312.53
71								
313.944	68	315.358	61	316.772	60	318.187	60	319.601
61								
322.429	59	323.844	60	325.258	63	326.672	61	328.086
61								
329.5	60	330.915	60	332.329	55	333.743	57	335.157
56								
336.572	61	337.986	62	339.4	57	340.814	56	342.228
57								
343.131	59							

Manning's n Values      num=      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	178.179	.25	195.15	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	178.179	195.15		366.962	366.962	.1
	.3					
Left Levee	Station=	176.73	Elevation=	53.4		
Right Levee	Station=	196.75	Elevation=	60.43		

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	47.08	Element	Left OB
Channel Right OB			
Vel Head (m)	0.00	Wt. n-Val.	
0.250			
W.S. Elev (m)	47.07	Reach Len. (m)	366.96
366.96      366.96			
Crit W.S. (m)	43.56	Flow Area (m2)	
59.72			
E.G. Slope (m/m)	0.001604	Area (m2)	
59.72			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	15.19	Top Width (m)	
15.19			
Vel Total (m/s)	0.31	Avg. Vel. (m/s)	
0.31			
Max Chl Dpth (m)	4.07	Hydr. Depth (m)	
3.93			
Conv. Total (m3/s)	459.9	Conv. (m3/s)	
459.9			

Length Wtd. (m)	366.96	Wetted Per. (m)	
22.36			
Min Ch El (m)	43.00	Shear (N/m2)	
42.03			
Alpha	1.00	Stream Power (N/m s)	
12.96			
Frctn Loss (m)	0.65	Cum Volume (1000 m3)	0.23
38.22			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.26
13.86			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	46.14	Element	Left OB
Channel Right OB			
Vel Head (m)	0.00	Wt. n-Val.	
0.250			
W.S. Elev (m)	46.14	Reach Len. (m)	366.96
366.96 366.96			
Crit W.S. (m)	43.38	Flow Area (m2)	
45.70			
E.G. Slope (m/m)	0.001147	Area (m2)	
45.70			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	14.95	Top Width (m)	
14.95			
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	
0.23			
Max Chl Dpth (m)	3.14	Hydr. Depth (m)	
3.06			
Conv. Total (m3/s)	312.2	Conv. (m3/s)	
312.2			
Length Wtd. (m)	366.96	Wetted Per. (m)	
20.48			
Min Ch El (m)	43.00	Shear (N/m2)	
25.09			
Alpha	1.00	Stream Power (N/m s)	
5.80			
Frctn Loss (m)	0.48	Cum Volume (1000 m3)	0.05
28.80			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.17
13.59			

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: Bobrek  
REACH: Bobrek

RS: 622.88

INPUT

Description:

Station	Elevation	Data	num=	91					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	43	152.735	43	154.149	44	155.564	46	156.978	
43	171.12	43	172.534	45	173.948	50	175.363	49	176.777
49	178.191	50	181.019	50	182.434	51	183.848	50	188.091
50	189.505	51	190.919	51	192.333	52	196.576	52	197.99
53	199.404	52	200.819	54	202.233	55	203.647	55	205.061
76	206.475	73	207.89	74	209.304	69	210.718	68	213.42
67.66	214.961	67	216.375	68	217.789	65	219.203	65	220.618
66	222.032	66	223.446	65	224.86	66	230.517	66	233.346
68	234.76	67	236.174	67	239.002	65	250.316	65	253.144
67	254.559	69	257.387	71	258.801	73	260.216	74	263.044
72	278.6	72	280.015	71	282.843	71	284.257	70	285.671
67	287.086	67	288.5	66	289.914	67	291.328	66	292.743
66	294.157	67	296.985	67	298.399	70	299.814	71	301.228
71	304.056	73	305.47	72	308.299	74	309.713	74	311.127
75	312.542	75	313.956	76	318.198	76	319.613	75	321.027
75	322.441	73	323.855	72	325.27	73	326.684	71	328.098
70	329.512	71	333.755	71	335.169	73	336.583	73	337.997
72	339.412	73	343.654	73	345.068	72	347.897	72	349.311
71	351.587	71							

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.04	155.564	.25
		173.948	.04

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	155.564	173.948	427.022	427.022	427.022		.1	

.3	Left Levee	Station=	154.9	Elevation=	46.81
	Right Levee	Station=	175.58	Elevation=	49.36

## CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	46.43	Element	Left OB
Channel Right OB			
Vel Head (m)	0.01	Wt. n-Val.	0.040
0.250			
W.S. Elev (m)	46.42	Reach Len. (m)	427.02
427.02 427.02			
Crit W.S. (m)	43.55	Flow Area (m2)	0.59
54.82			
E.G. Slope (m/m)	0.001957	Area (m2)	0.59
54.82			
Q Total (m3/s)	18.42	Flow (m3/s)	0.25
18.17			
Top Width (m)	18.04	Top Width (m)	0.66
17.37			
Vel Total (m/s)	0.33	Avg. Vel. (m/s)	0.42
0.33			
Max Chl Dpth (m)	3.42	Hydr. Depth (m)	0.89
3.16			
Conv. Total (m3/s)	416.3	Conv. (m3/s)	5.6
410.7			
Length Wtd. (m)	427.02	Wetted Per. (m)	2.51
21.39			
Min Ch El (m)	43.00	Shear (N/m2)	4.53
49.20			
Alpha	1.00	Stream Power (N/m s)	1.91
16.31			
Frctn Loss (m)	2.04	Cum Volume (1000 m3)	0.13
17.21			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.14
7.88			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

## CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	45.66	Element	Left OB
Channel Right OB			
Vel Head (m)	0.00	Wt. n-Val.	0.040
0.250			
W.S. Elev (m)	45.66	Reach Len. (m)	427.02
427.02 427.02			
Crit W.S. (m)	43.38	Flow Area (m2)	0.13
41.66			
E.G. Slope (m/m)	0.001527	Area (m2)	0.13
41.66			
Q Total (m3/s)	10.57	Flow (m3/s)	0.03
10.54			

Top Width (m)	17.42	Top Width (m)	0.42
16.99			
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.20
0.25			
Max Chl Dpth (m)	2.66	Hydr. Depth (m)	0.30
2.45			
Conv. Total (m3/s)	270.5	Conv. (m3/s)	0.7
269.8			
Length Wtd. (m)	427.02	Wetted Per. (m)	1.33
20.21			
Min Ch El (m)	43.00	Shear (N/m2)	1.42
30.86			
Alpha	1.00	Stream Power (N/m s)	0.29
7.81			
Frctn Loss (m)	1.68	Cum Volume (1000 m3)	0.03
12.77			
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.09
7.73			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION

RIVER: Bobrek

REACH: Bobrek RS: 195.86

#### INPUT

Description:

Station Elevation Data				num=	15				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	43	77.782	43	79.196	44	80.61	49	82.024	
50	83.439	45	84.853	43	103.238	43	104.652	53	106.066
52	107.48	53	108.894	47	110.309	46	111.723	43	192.22
43									

Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	82.024	.25	104.652	.04				

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	82.024	104.652	195.859	195.859	195.859	.1

.3					
Left Levee	Station=	81.41	Elevation=	49.79	
Right Levee	Station=	107.15	Elevation=	52.91	

## CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	44.39	Element	Left OB
Channel Right OB			
Vel Head (m)	0.03	Wt. n-Val.	
0.250			
W.S. Elev (m)	44.36	Reach Len. (m)	
Crit W.S. (m)	43.47	Flow Area (m2)	
25.77			
E.G. Slope (m/m)	0.024947	Area (m2)	
25.77			
Q Total (m3/s)	18.42	Flow (m3/s)	
18.42			
Top Width (m)	19.54	Top Width (m)	
19.54			
Vel Total (m/s)	0.71	Avg. Vel. (m/s)	
0.71			
Max Chl Dpth (m)	1.36	Hydr. Depth (m)	
1.32			
Conv. Total (m3/s)	116.6	Conv. (m3/s)	
116.6			
Length Wtd. (m)		Wetted Per. (m)	
21.42			
Min Ch El (m)	43.00	Shear (N/m2)	
294.34			
Alpha	1.00	Stream Power (N/m s)	
210.36			
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

## CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	43.98	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.250			
W.S. Elev (m)	43.97	Reach Len. (m)	
Crit W.S. (m)	43.32	Flow Area (m2)	
18.16			
E.G. Slope (m/m)	0.024940	Area (m2)	
18.16			
Q Total (m3/s)	10.57	Flow (m3/s)	
10.57			
Top Width (m)	19.20	Top Width (m)	
19.20			
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	
0.58			
Max Chl Dpth (m)	0.97	Hydr. Depth (m)	
0.95			
Conv. Total (m3/s)	66.9	Conv. (m3/s)	
66.9			
Length Wtd. (m)		Wetted Per. (m)	
20.54			





181.019	165 185.262	165 190.919	169 192.333	168 195.162
168				
196.576	169 197.99	168 200.818	168 202.233	167 203.647
170				
206.475	170 207.889	171 209.303	171 210.717	167 212.131
159				
213.546	151 214.96	148 216.374	144 217.788	139 219.203
134				
220.617	134 222.031	132 223.445	131 226.274	131 227.688
133				
231.93	133 233.345	135 234.759	133 236.173	134 237.587
143				
241.83	149 243.244	150 246.073	150 247.487	156 248.901
164				
250.315	169 253.144	171 254.558	171 255.972	172 258.801
172				
261.629	170 264.457	170 265.872	168 268.7	168 270.114
170				
271.529	170 272.943	169 274.357	170 277.185	170 278.6
169				
280.014	169 284.256	166 285.671	168 287.085	168 289.913
172				
291.328	182 292.742	184 294.156	184 295.57	183 296.984
178				
298.399	166 299.813	156 301.227	155 304.056	157 305.47
156				
308.298	156 309.712	158 311.127	159 312.541	161 313.955
166				
315.369	167 319.612	164 321.026	159 322.44	158 323.855
160				
325.269	159 326.683	159 328.097	160 329.511	160 333.754
163				
335.168	162 336.583	159 339.411	159 340.825	157 342.239
156				
343.654	151 345.068	147 346.482	158 347.896	158 349.31
157				
350.725	158 352.139	158 354.967	156 357.796	156 359.21
155				
360.624	155 363.453	153 364.867	151 366.281	152 367.695
158				
369.109	157 370.524	157 373.352	155 374.766	156 376.181
155				
377.595	155 379.009	154 381.837	158 383.252	159 384.666
154				
386.08	155 387.494	151 388.909	148 390.323	142 391.737
142				
393.151	140 394.565	140 397.394	136 398.808	132 400.222
131				
401.637	127 403.051	123 404.465	117 405.879	109 407.293
106				
408.708	97 410.122	93 411.536	86 412.95	85 414.365
85				
415.779	83 417.193	79 418.607	82 420.021	79 422.85
75				
425.678	73 427.092	71 428.507	44 429.921	43 431.335
43				
432.749	48 434.164	50 435.578	49 436.992	51 438.406
51				

439.82            54 441.235            52 442.649            45 444.063            43 452.624  
43

Manning's n Values            num=            3  
Sta    n Val            Sta    n Val            Sta    n Val  
0       .04 209.303       .025 250.315       .04

Bank Sta: Left    Right    Lengths: Left Channel    Right    Coeff Contr.  
Expan.  
209.303 250.315            263.805 263.805 263.805            .1

.3  
Left Levee            Station=    207.9            Elevation=    171.69  
Right Levee            Station=    253.61            Elevation=    170.91

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	134.19	Element	Left OB
Channel Right OB			
Vel Head (m)	0.63	Wt. n-Val.	
0.025			
W.S. Elev (m)	133.55	Reach Len. (m)	263.81
263.81       263.81			
Crit W.S. (m)	133.55	Flow Area (m2)	
15.94			
E.G. Slope (m/m)	0.007451	Area (m2)	
15.94			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	12.56	Top Width (m)	
12.56			
Vel Total (m/s)	3.52	Avg. Vel. (m/s)	
3.52			
Max Chl Dpth (m)	90.55	Hydr. Depth (m)	
1.27			
Conv. Total (m3/s)	650.7	Conv. (m3/s)	
650.7			
Length Wtd. (m)	263.81	Wetted Per. (m)	
15.46			
Min Ch El (m)	131.00	Shear (N/m2)	
75.33			
Alpha	1.00	Stream Power (N/m s)	
265.44			
Frctn Loss (m)	0.66	Cum Volume (1000 m3)	
190.32			
C & E Loss (m)	0.14	Cum SA (1000 m2)	
123.14			

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: 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, energy was used.

CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	133.56	Element	Left OB
Channel Right OB			
Vel Head (m)	0.70	Wt. n-Val.	
0.025			
W.S. Elev (m)	132.86	Reach Len. (m)	263.81
263.81 263.81			
Crit W.S. (m)	132.86	Flow Area (m2)	
8.67			
E.G. Slope (m/m)	0.007596	Area (m2)	
8.67			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	6.17	Top Width (m)	
6.17			
Vel Total (m/s)	3.71	Avg. Vel. (m/s)	
3.71			
Max Chl Dpth (m)	89.86	Hydr. Depth (m)	
1.41			
Conv. Total (m3/s)	369.4	Conv. (m3/s)	
369.4			
Length Wtd. (m)	263.81	Wetted Per. (m)	
7.89			
Min Ch El (m)	131.00	Shear (N/m2)	
81.86			
Alpha	1.00	Stream Power (N/m s)	
303.87			
Frctn Loss (m)	0.64	Cum Volume (1000 m3)	
137.56			
C & E Loss (m)	0.17	Cum SA (1000 m2)	
114.83			

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 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



217.779	133 219.193	126 220.607	121 222.022	118 223.436
116				
224.85	115 226.264	113 229.093	113 230.507	114 233.335
114				
237.578	117 238.992	115 240.407	117 241.821	121 243.235
127				
244.649	135 246.063	141 247.478	151 248.892	151 250.306
152				
251.72	152 253.134	153 254.549	152 255.963	150 257.377
151				
258.791	149 260.206	152 263.034	148 264.448	147 265.862
145				
267.277	145 268.691	144 270.105	145 272.934	143 275.762
143				
277.176	144 278.59	143 280.005	141 281.419	145 282.833
146				
284.247	144 285.661	146 287.076	144 288.49	144 289.904
145				
291.318	145 294.147	143 296.975	143 298.389	142 299.804
142				
301.218	143 302.632	142 305.461	142 308.289	118 309.703
119				
311.117	123 312.532	133 313.946	144 315.36	148 318.189
148				
319.603	149 321.017	151 322.431	149 323.845	152 325.259
152				
326.674	155 328.088	152 329.502	151 330.916	153 332.331
152				
333.745	149 335.159	157 336.573	158 337.987	152 340.816
148				
342.23	151 343.644	155 346.473	149 347.887	152 349.301
150				
350.715	152 352.13	149 353.544	150 354.958	150 356.372
153				
357.787	149 359.201	149 360.615	151 362.029	155 363.443
150				
364.858	151 366.272	149 367.686	151 370.514	151 371.929
155				
373.343	158 374.757	154 376.171	152 377.586	152 379
154				
380.414	155 381.828	146 383.242	146 384.657	147 386.071
155				
387.485	152 388.899	150 390.313	151 391.728	155 393.142
157				
394.556	163 395.97	152 397.385	148 398.799	147 400.213
147				
403.041	153 404.456	152 405.87	142 407.284	136 408.698
133				
410.113	131 411.527	128 412.941	129 414.355	129 415.769
131				
417.184	132 418.598	130 421.426	128 422.841	129 424.255
135				
425.669	127 428.497	123 429.912	122 431.326	123 432.74
123				
434.154	125 435.568	125 436.983	127 439.811	129 441.225
128				
442.64	128 444.054	129 445.468	131 446.882	131 448.296
130				

451.125	132	452.539	129	453.953	129	455.368	131	458.196
133								
459.61	133	462.439	131	465.267	131	466.681	130	468.095
128								
469.51	125	470.924	127	472.338	131	473.752	130	475.167
128								
476.581	121	477.995	125	479.409	123	480.823	125	482.238
126								
485.066	132	486.48	128	487.894	127	489.309	128	490.723
131								
492.137	132	493.551	124	494.966	119	496.38	108	497.794
96								
499.208	87	500.622	57	502.037	43	572.823	43	

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	216.365	.025	247.478	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.
Expan.					

216.365	247.478	331.828	331.828	331.828	.1
.3					

Left Levee	Station=	211.13	Elevation=	148.05
Right Levee	Station=	249.48	Elevation=	151.69

CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	116.53	Element	Left OB
Channel Right OB			
Vel Head (m)	0.18	Wt. n-Val.	
0.025			
W.S. Elev (m)	116.35	Reach Len. (m)	331.83
331.83      331.83			
Crit W.S. (m)	115.24	Flow Area (m2)	
29.95			
E.G. Slope (m/m)	0.001231	Area (m2)	
29.95			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	15.39	Top Width (m)	
15.39			
Vel Total (m/s)	1.88	Avg. Vel. (m/s)	
1.88			
Max Chl Dpth (m)	73.35	Hydr. Depth (m)	
1.95			
Conv. Total (m3/s)	1601.0	Conv. (m3/s)	
1601.0			
Length Wtd. (m)	331.83	Wetted Per. (m)	
19.39			
Min Ch El (m)	113.00	Shear (N/m2)	
18.65			
Alpha	1.00	Stream Power (N/m s)	
34.97			
Frctn Loss (m)	0.87	Cum Volume (1000 m3)	
184.26			
C & E Loss (m)	0.06	Cum SA (1000 m2)	
119.45			

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.

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	115.76	Element	Left OB
Channel Right OB			
Vel Head (m)	0.14	Wt. n-Val.	
0.025			
W.S. Elev (m)	115.62	Reach Len. (m)	331.83
331.83 331.83			
Crit W.S. (m)	114.71	Flow Area (m2)	
19.71			
E.G. Slope (m/m)	0.001184	Area (m2)	
19.71			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	12.54	Top Width (m)	
12.54			
Vel Total (m/s)	1.63	Avg. Vel. (m/s)	
1.63			
Max Chl Dpth (m)	72.62	Hydr. Depth (m)	
1.57			
Conv. Total (m3/s)	935.7	Conv. (m3/s)	
935.7			
Length Wtd. (m)	331.83	Wetted Per. (m)	
15.25			
Min Ch El (m)	113.00	Shear (N/m2)	
15.01			
Alpha	1.00	Stream Power (N/m s)	
24.52			
Frctn Loss (m)	0.85	Cum Volume (1000 m3)	
133.81			
C & E Loss (m)	0.04	Cum SA (1000 m2)	
112.36			

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.





178.191	129	181.019	129	182.433	131	185.262	131	186.676
129								
189.504	127	192.333	127	193.747	126	195.161	126	196.575
127								
197.99	124	199.404	122	200.818	123	203.647	123	205.061
124								
207.889	124	209.303	125	210.718	125	212.132	126	214.96
126								
216.374	127	217.789	126	219.203	128	220.617	128	222.031
130								
223.445	128	224.86	129	226.274	131	227.688	131	229.102
130								
234.759	130	237.588	132	239.002	132	240.416	131	244.659
131								
246.073	132	247.487	134	248.901	133	251.73	133	253.144
134								
257.387	134	258.8	136	260.215	137	264.457	137	265.872
136								
268.7	136	270.114	137	272.943	137	274.357	136	275.771
138								
277.185	138	278.6	137	280.014	135	281.428	136	288.499
136								
289.913	137	291.327	136	292.742	137	294.156	135	296.984
135								
298.398	134	299.813	131	301.227	132	302.641	134	304.055
137								
305.47	135	306.884	136	309.712	134	311.126	136	312.541
136								
313.955	135	315.369	136	316.783	136	319.612	134	321.026
134								
322.44	135	323.854	134	325.269	132	326.683	132	328.097
131								
332.34	134	333.754	136	335.168	136	336.582	134	337.996
136								
339.411	137	340.825	136	342.239	134	343.653	131	345.067
132								
346.482	134	347.896	133	349.31	133	352.139	131	353.553
131								
356.381	133	357.795	132	359.21	132	360.624	130	362.038
130								
364.866	126	376.18	126	377.594	127	379.009	125	383.251
122								
384.665	120	386.08	116	387.494	114	388.908	105	390.322
95								
391.736	89	393.151	76	395.979	64	397.393	57	398.808
52								
401.636	52	403.05	50	405.879	50	407.293	49	408.707
49								
418.607	56	420.021	58	421.435	59	422.849	59	425.678
61								
427.092	61	428.506	63	429.92	63	431.334	58	432.749
56								
434.163	52	435.577	65	436.991	69	438.405	58	439.82
47								
441.234	43	467.106	43					

Manning's	n Values	num=	3
Sta	n Val	Sta	n Val

0	.04	137.179	.025	171.12	.04	
Bank Sta:	Left	Right	Lengths: Left Channel		Right	Coeff Contr.
Expan.						
	137.179	171.12	291.284	291.284	291.284	.1
.3						
Left Levee	Station=	136.43	Elevation=	147.73		
Right Levee	Station=	173.88	Elevation=	143.26		

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	115.60	Element	Left OB
Channel Right OB			
Vel Head (m)	0.76	Wt. n-Val.	
0.025			
W.S. Elev (m)	114.84	Reach Len. (m)	291.28
291.28 291.28			
Crit W.S. (m)	114.84	Flow Area (m2)	
14.54			
E.G. Slope (m/m)	0.009132	Area (m2)	
14.54			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	9.54	Top Width (m)	
9.54			
Vel Total (m/s)	3.86	Avg. Vel. (m/s)	
3.86			
Max Chl Dpth (m)	71.84	Hydr. Depth (m)	
1.52			
Conv. Total (m3/s)	587.8	Conv. (m3/s)	
587.8			
Length Wtd. (m)	291.28	Wetted Per. (m)	
14.31			
Min Ch El (m)	112.00	Shear (N/m2)	
90.99			
Alpha	1.00	Stream Power (N/m s)	
351.52			
Frctn Loss (m)	2.23	Cum Volume (1000 m3)	
176.88			
C & E Loss (m)	0.06	Cum SA (1000 m2)	
115.31			

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: 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, energy was used.

# CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	114.87	Element	Left OB
Channel Right OB			
Vel Head (m)	0.56	Wt. n-Val.	
0.025			
W.S. Elev (m)	114.31	Reach Len. (m)	291.28
291.28 291.28			
Crit W.S. (m)	114.31	Flow Area (m2)	
9.72			
E.G. Slope (m/m)	0.009094	Area (m2)	
9.72			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	8.68	Top Width (m)	
8.68			
Vel Total (m/s)	3.31	Avg. Vel. (m/s)	
3.31			
Max Chl Dpth (m)	71.31	Hydr. Depth (m)	
1.12			
Conv. Total (m3/s)	337.7	Conv. (m3/s)	
337.7			
Length Wtd. (m)	291.28	Wetted Per. (m)	
12.00			
Min Ch El (m)	112.00	Shear (N/m2)	
72.22			
Alpha	1.00	Stream Power (N/m s)	
239.35			
Frctn Loss (m)	2.35	Cum Volume (1000 m3)	
128.93			
C & E Loss (m)	0.05	Cum SA (1000 m2)	
108.84			

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: 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, energy was used.

CROSS SECTION



231.929	151	234.757	151	236.172	145	237.586	143	239
142								
240.414	143	241.828	145	243.243	145	244.657	144	246.071
142								
247.485	142	248.899	141	250.314	141	253.142	137	254.556
136								
255.971	136	257.385	137	258.799	141	261.627	131	265.87
131								
267.284	134	268.698	135	270.113	132	272.941	130	275.769
130								
277.184	131	278.598	133	281.426	135	284.255	135	285.669
132								
287.083	130	288.497	131	289.912	131	291.326	133	292.74
134								
294.154	133	295.568	133	296.983	134	298.397	136	299.811
136								
301.225	137	302.64	137	305.468	135	306.882	128	308.296
127								
309.711	127	311.125	126	313.953	126	315.368	124	316.782
121								
318.196	119	322.439	116	325.267	118	328.095	118	329.51
120								
330.924	119	332.338	119	333.752	117	335.167	116	336.581
113								
337.995	115	339.409	115	340.823	104	342.238	91	346.48
88								
347.894	85	349.309	81	350.723	81	353.551	83	354.965
80								
356.38	74	357.794	67	359.208	69	360.622	64	362.037
56								
363.451	49	364.865	45	369.108	45	370.522	43	377.593
43								
379.007	44	380.421	43	383.25	43	384.664	44	386.078
43								
387.492	46	388.907	56	390.321	60	391.735	60	393.149
66								
394.564	62	395.978	52	397.392	45	398.806	43	405.347
43								

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	66.468	.025	98.995	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	66.468	98.995	496.101	496.101	496.101	.1

.3					
Left Levee	Station=	62.2	Elevation=	144.61	
Right Levee	Station=	101.72	Elevation=	153.08	

CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	112.95	Element	Left OB
Channel Right OB			
Vel Head (m)	0.55	Wt. n-Val.	
0.025			
W.S. Elev (m)	112.41	Reach Len. (m)	496.10
496.10	496.10		

Crit W.S. (m)	112.41	Flow Area (m2)
17.18		
E.G. Slope (m/m)	0.006531	Area (m2)
17.18		
Q Total (m3/s)	56.17	Flow (m3/s)
56.17		
Top Width (m)	15.71	Top Width (m)
15.71		
Vel Total (m/s)	3.27	Avg. Vel. (m/s)
3.27		
Max Chl Dpth (m)	69.41	Hydr. Depth (m)
1.09		
Conv. Total (m3/s)	695.0	Conv. (m3/s)
695.0		
Length Wtd. (m)	496.10	Wetted Per. (m)
16.89		
Min Ch El (m)	111.00	Shear (N/m2)
65.15		
Alpha	1.00	Stream Power (N/m s)
213.03		
Frctn Loss (m)	3.53	Cum Volume (1000 m3)
172.26		
C & E Loss (m)	0.03	Cum SA (1000 m2)
111.64		

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 OUTPUT Profile #Q10%

E.G. Elev (m)	112.44	Element	Left OB
Channel Right OB			
Vel Head (m)	0.39	Wt. n-Val.	
0.025			
W.S. Elev (m)	112.04	Reach Len. (m)	496.10
496.10 496.10			
Crit W.S. (m)	112.04	Flow Area (m2)	
11.63			
E.G. Slope (m/m)	0.007220	Area (m2)	
11.63			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	14.94	Top Width (m)	
14.94			







316.746	132	318.16	118	319.574	110	320.989	104	326.646
100								
328.06	97	329.474	95	330.888	95	332.302	93	333.717
94								
335.131	89	336.545	76	337.959	68	339.374	67	340.788
67								
342.202	68	343.616	68	345.031	66	347.859	66	349.273
68								
350.687	78	352.102	101	353.516	88	354.93	64	356.344
53								
357.758	44	359.173	43	431.069	43			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	154.149	.025	192.333	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	154.149	192.333		444.017	444.017	.1
	.3					

Left Levee	Station=	152.58	Elevation=	132.05
Right Levee	Station=	194.5	Elevation=	141.36

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	66.61	Element	Left OB
Channel Right OB			
Vel Head (m)	0.80	Wt. n-Val.	
0.025			
W.S. Elev (m)	65.81	Reach Len. (m)	444.02
444.02 444.02			
Crit W.S. (m)	65.81	Flow Area (m2)	
14.21			
E.G. Slope (m/m)	0.007795	Area (m2)	
14.21			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	8.88	Top Width (m)	
8.88			
Vel Total (m/s)	3.95	Avg. Vel. (m/s)	
3.95			
Max Chl Dpth (m)	22.81	Hydr. Depth (m)	
1.60			
Conv. Total (m3/s)	636.2	Conv. (m3/s)	
636.2			
Length Wtd. (m)	444.02	Wetted Per. (m)	
12.00			
Min Ch El (m)	63.00	Shear (N/m2)	
90.51			
Alpha	1.00	Stream Power (N/m s)	
357.73			
Frctn Loss (m)	3.83	Cum Volume (1000 m3)	
164.48			
C & E Loss (m)	0.01	Cum SA (1000 m2)	
105.54			

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.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	65.84	Element	Left OB
Channel Right OB			
Vel Head (m)	0.59	Wt. n-Val.	
0.025			
W.S. Elev (m)	65.25	Reach Len. (m)	444.02
444.02 444.02			
Crit W.S. (m)	65.25	Flow Area (m2)	
9.44			
E.G. Slope (m/m)	0.008308	Area (m2)	
9.44			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	7.95	Top Width (m)	
7.95			
Vel Total (m/s)	3.41	Avg. Vel. (m/s)	
3.41			
Max Chl Dpth (m)	22.25	Hydr. Depth (m)	
1.19			
Conv. Total (m3/s)	353.3	Conv. (m3/s)	
353.3			
Length Wtd. (m)	444.02	Wetted Per. (m)	
10.44			
Min Ch El (m)	63.00	Shear (N/m2)	
73.70			
Alpha	1.00	Stream Power (N/m s)	
251.32			
Frctn Loss (m)	3.76	Cum Volume (1000 m3)	
120.59			
C & E Loss (m)	0.01	Cum SA (1000 m2)	
99.72			

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



206.423	117	207.837	117	209.251	115	210.665	115	213.494
111								
214.908	110	216.322	110	217.736	109	223.393	101	224.807
88								
226.222	86	227.636	86	229.05	84	230.464	85	231.878
85								
233.293	84	236.121	86	237.535	86	238.949	84	243.192
93								
244.606	95	246.02	98	248.849	102	250.263	100	251.677
95								
253.091	84	254.506	78	255.92	77	257.334	72	258.748
71								
260.162	69	264.405	66	265.819	64	267.234	61	268.648
60								
270.062	60	271.476	59	272.89	60	274.305	80	275.719
92								
277.133	111	278.547	125	279.961	126	282.79	126	285.618
128								
287.032	130	288.447	129	289.861	133	291.275	128	292.689
124								
294.104	131	295.518	129	296.932	130	298.346	130	299.76
129								
302.589	129	304.003	128	305.417	130	308.246	126	309.66
125								
312.488	127	313.902	129	315.317	128	318.145	124	322.388
121								
323.802	121	326.63	119	328.044	120	330.873	120	332.287
123								
336.53	126	337.944	128	340.772	130	343.601	134	345.015
134								
346.429	128	347.844	123	349.258	126	349.624	126	

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	101.823	.025	130.107	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	101.823	130.107		766.251	766.251	.1

.3					
Left Levee	Station=	100.79	Elevation=	110.78	
Right Levee	Station=	132.06	Elevation=	119.06	

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	62.77	Element	Left OB
Channel Right OB			
Vel Head (m)	0.88	Wt. n-Val.	
0.025			
W.S. Elev (m)	61.89	Reach Len. (m)	766.25
766.25	766.25		
Crit W.S. (m)	62.08	Flow Area (m2)	
13.49			
E.G. Slope (m/m)	0.009574	Area (m2)	
13.49			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			

Top Width (m)	10.19	Top Width (m)
10.19		
Vel Total (m/s)	4.16	Avg. Vel. (m/s)
4.16		
Max Chl Dpth (m)	2.89	Hydr. Depth (m)
1.32		
Conv. Total (m3/s)	574.1	Conv. (m3/s)
574.1		
Length Wtd. (m)	766.25	Wetted Per. (m)
12.29		
Min Ch El (m)	60.00	Shear (N/m2)
103.06		
Alpha	1.00	Stream Power (N/m s)
429.21		
Frctn Loss (m)	12.46	Cum Volume (1000 m3)
158.33		
C & E Loss (m)	0.10	Cum SA (1000 m2)
101.30		

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	62.07	Element	Left OB
Channel Right OB			
Vel Head (m)	0.57	Wt. n-Val.	
0.025			
W.S. Elev (m)	61.50	Reach Len. (m)	766.25
766.25 766.25			
Crit W.S. (m)	61.54	Flow Area (m2)	
9.60			
E.G. Slope (m/m)	0.008644	Area (m2)	
9.60			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	9.54	Top Width (m)	
9.54			
Vel Total (m/s)	3.36	Avg. Vel. (m/s)	
3.36			
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	
1.01			
Conv. Total (m3/s)	346.3	Conv. (m3/s)	
346.3			
Length Wtd. (m)	766.25	Wetted Per. (m)	
11.20			
Min Ch El (m)	60.00	Shear (N/m2)	
72.64			
Alpha	1.00	Stream Power (N/m s)	
243.73			
Frctn Loss (m)	12.29	Cum Volume (1000 m3)	
116.37			
C & E Loss (m)	0.12	Cum SA (1000 m2)	
95.84			



159.806	90	161.22	97	162.635	99	164.049	95	165.463
86								
166.877	76	168.291	71	169.7	68	171.114	68	172.528
66								
173.942	67	176.771	63	179.599	63	181.013	64	182.428
64								
183.842	61	185.256	59	188.084	63	189.499	64	190.913
63								
195.155	63	197.984	67	199.398	66	200.812	66	202.227
67								
203.641	64	205.055	63	206.469	63	207.883	64	209.298
66								
210.712	64	212.126	63	213.54	65	214.954	65	216.369
74								
219.197	78	222.025	76	223.44	76	224.854	81	226.268
82								
227.682	81	229.097	82	230.511	82	231.925	85	233.339
89								
234.753	95	236.168	97	237.582	95	238.996	97	240.41
96								
241.824	97	243.239	97	244.653	93	246.067	92	247.481
92								
248.895	94	250.31	94	251.724	93	253.138	94	254.552
89								
255.967	86	257.381	87	258.795	93	260.209	92	261.623
92								
264.452	88	265.866	89	267.28	88	271.523	88	272.937
90								
274.351	88	275.766	88	277.18	90	278.594	90	280.008
87								
282.837	87	284.251	88	285.665	90	288.493	88	289.908
89								
294.15	86	296.979	88	299.807	88	301.221	89	302.636
89								
304.05	90	308.292	87	309.707	88	311.121	87	313.949
89								
315.364	89	316.778	88	319.606	90	321.02	86	322.435
85								
328.091	85	330.92	83	335.546	83			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	127.279	.025	161.22	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	127.279	161.22	567.454	567.454	567.454	.1

.3					
Left Levee	Station=	126.05	Elevation=	100.68	
Right Levee	Station=	162.13	Elevation=	98.98	

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	50.22	Element	Left OB
Channel Right OB			
Vel Head (m)	1.84	Wt. n-Val.	
0.025			

W.S. Elev (m)	48.38	Reach Len. (m)	567.45
567.45	567.45		
Crit W.S. (m)	48.93	Flow Area (m2)	
9.35			
E.G. Slope (m/m)	0.033521	Area (m2)	
9.35			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	8.56	Top Width (m)	
8.56			
Vel Total (m/s)	6.01	Avg. Vel. (m/s)	
6.01			
Max Chl Dpth (m)	3.38	Hydr. Depth (m)	
1.09			
Conv. Total (m3/s)	306.8	Conv. (m3/s)	
306.8			
Length Wtd. (m)	567.45	Wetted Per. (m)	
12.59			
Min Ch El (m)	45.00	Shear (N/m2)	
244.13			
Alpha	1.00	Stream Power (N/m s)	
1466.22			
Frctn Loss (m)	3.06	Cum Volume (1000 m3)	
149.58			
C & E Loss (m)	0.03	Cum SA (1000 m2)	
94.12			

Warning: The 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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	49.65	Element	Left OB
Channel Right OB			
Vel Head (m)	1.82	Wt. n-Val.	
0.025			
W.S. Elev (m)	47.83	Reach Len. (m)	567.45
567.45	567.45		
Crit W.S. (m)	48.42	Flow Area (m2)	
5.38			
E.G. Slope (m/m)	0.039438	Area (m2)	
5.38			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	4.80	Top Width (m)	
4.80			
Vel Total (m/s)	5.98	Avg. Vel. (m/s)	
5.98			



Max Chl Dpth (m)	2.83	Hydr. Depth (m)
1.12		
Conv. Total (m3/s)	162.1	Conv. (m3/s)
162.1		
Length Wtd. (m)	567.45	Wetted Per. (m)
8.24		
Min Ch El (m)	45.00	Shear (N/m2)
252.62		
Alpha	1.00	Stream Power (N)
1510.73		
Frctn Loss (m)	3.10	Cum Volume (100
110.63		
C & E Loss (m)	0.03	Cum SA (1000 m2
90.35		

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 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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: Przemsza

REACH: Przemysła

RS: 2562.16

INPUT

Description:

[illegible]



337.994	67	340.823	65	342.237	65	343.651	67	345.065
66								
346.479	66	347.894	67	349.308	65	350.722	68	352.136
65								
356.379	62	357.793	62	360.622	60	362.036	61	363.45
61								
364.864	59	366.459	59					

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	124.451	.025	155.564	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	124.451	155.564		475.209	475.209	.1

.3

Left Levee	Station=	123.16	Elevation=	97.18
Right Levee	Station=	156.15	Elevation=	88.7

# CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	46.74	Element	Left OB
Channel Right OB			
Vel Head (m)	0.69	Wt. n-Val.	
0.025			
W.S. Elev (m)	46.05	Reach Len. (m)	475.21
475.21      475.21			
Crit W.S. (m)	46.05	Flow Area (m2)	
15.29			
E.G. Slope (m/m)	0.007592	Area (m2)	
15.29			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	10.84	Top Width (m)	
10.84			
Vel Total (m/s)	3.67	Avg. Vel. (m/s)	
3.67			
Max Chl Dpth (m)	3.05	Hydr. Depth (m)	
1.41			
Conv. Total (m3/s)	644.6	Conv. (m3/s)	
644.6			
Length Wtd. (m)	475.21	Wetted Per. (m)	
14.12			
Min Ch El (m)	43.00	Shear (N/m2)	
80.61			
Alpha	1.00	Stream Power (N/m s)	
296.22			
Frctn Loss (m)	0.82	Cum Volume (1000 m3)	
142.59			
C & E Loss (m)	0.17	Cum SA (1000 m2)	
88.61			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	46.00	Element	Left OB
Channel Right OB			
Vel Head (m)	0.57	Wt. n-Val.	
0.025			
W.S. Elev (m)	45.42	Reach Len. (m)	475.21
475.21 475.21			
Crit W.S. (m)	45.42	Flow Area (m2)	
9.60			
E.G. Slope (m/m)	0.008379	Area (m2)	
9.60			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	8.35	Top Width (m)	
8.35			
Vel Total (m/s)	3.35	Avg. Vel. (m/s)	
3.35			
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	
1.15			
Conv. Total (m3/s)	351.8	Conv. (m3/s)	
351.8			
Length Wtd. (m)	475.21	Wetted Per. (m)	
10.96			
Min Ch El (m)	43.00	Shear (N/m2)	
72.01			
Alpha	1.00	Stream Power (N/m s)	
241.48			
Frctn Loss (m)	0.68	Cum Volume (1000 m3)	
106.37			
C & E Loss (m)	0.15	Cum SA (1000 m2)	
86.61			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

## CROSS SECTION

RIVER: Przemsza

REACH: Przemsza

RS: 2086.95

## INPUT

Description:

Station	Elevation	Data	num=	168					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	56	1.414	57	4.243	57	5.657	56	9.899	
12.728	54	14.142	56	16.971	56	18.385	55	19.799	
21.213	56	22.627	59	24.042	58	26.87	58	28.284	
29.698	58	31.113	59	35.355	59	36.77	58	39.598	
41.012	68	43.841	70	45.255	70	48.083	72	49.497	
55.154	74	56.569	76	57.983	76	60.811	74	63.64	
65.054	75	66.468	76	67.882	68	69.297	64	70.711	
72.125	51	73.539	52	76.368	52	77.782	51	83.439	
84.853	55	86.267	57	87.681	58	89.095	58	90.51	
93.338	52	94.752	43	137.179	43	138.593	50	140.007	
141.421	74	142.836	81	144.25	87	145.664	90	147.078	
148.492	81	149.907	71	151.321	57	152.735	50	154.149	
156.978	43	173.948	43	175.363	46	176.777	53	178.191	
179.605	70	181.019	79	182.434	85	185.262	91	186.676	
188.091	70	190.919	52	192.333	45	193.747	43	213.546	
214.961	44	216.375	46	217.789	46	219.203	45	220.618	

222.032	47	223.446	49	224.86	48	229.103	48	230.517
46								
233.345	46	237.588	49	239.002	51	240.417	50	243.245
46								
246.073	48	247.488	48	248.902	47	251.73	49	253.144
49								
254.559	47	255.973	46	257.387	47	258.801	47	260.216
46								
261.63	43	268.701	43	270.115	46	271.529	47	272.943
51								
274.358	51	275.772	50	277.186	51	278.6	51	280.014
52								
281.429	56	285.671	53	287.085	54	289.914	52	294.157
55								
296.985	55	298.399	57	299.813	54	301.228	52	304.056
52								
305.47	53	306.884	51	308.299	50	309.713	47	312.541
47								
313.955	49	315.37	49	316.784	46	319.612	46	323.855
49								
325.269	51	326.683	50	333.754	50	335.169	53	336.583
54								
337.997	53	339.411	53	340.825	55	342.24	56	343.654
56								
345.068	54	346.482	55	347.896	54	349.311	54	350.725
55								
353.553	53	354.967	53	356.382	52	357.796	54	359.21
55								
360.624	54	362.038	54	363.453	56	364.867	55	366.281
55								
367.695	54	369.11	54	370.524	53	373.352	53	374.766
52								
376.181	54	379.009	52	380.423	52	381.837	53	383.252
51								
384.666	50	386.08	53	386.739	53			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	145.664	.025	185.262	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	145.664	185.262	252.354	252.354	252.354	.1

.3					
Left Levee	Station=	145.15	Elevation=	90.26	
Right Levee	Station=	185.57	Elevation=	90.75	

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	45.13	Element	Left OB
Channel Right OB			
Vel Head (m)	0.12	Wt. n-Val.	
0.025			
W.S. Elev (m)	45.00	Reach Len. (m)	252.35
252.35	252.35		
Crit W.S. (m)	44.03	Flow Area (m2)	
36.38			

E.G. Slope (m/m)	0.000745	Area (m2)
36.38		
Q Total (m3/s)	56.17	Flow (m3/s)
56.17		
Top Width (m)	19.33	Top Width (m)
19.33		
Vel Total (m/s)	1.54	Avg. Vel. (m/s)
1.54		
Max Chl Dpth (m)	2.00	Hydr. Depth (m)
1.88		
Conv. Total (m3/s)	2057.4	Conv. (m3/s)
2057.4		
Length Wtd. (m)	252.35	Wetted Per. (m)
21.64		
Min Ch El (m)	43.00	Shear (N/m2)
12.29		
Alpha	1.00	Stream Power (N/m s)
18.97		
Frctn Loss (m)	0.21	Cum Volume (1000 m3)
130.31		
C & E Loss (m)	0.00	Cum SA (1000 m2)
81.44		

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	44.61	Element	Left OB
Channel Right OB			
Vel Head (m)	0.07	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.55	Reach Len. (m)	252.35
252.35 252.35			
Crit W.S. (m)	43.71	Flow Area (m2)	
27.63			
E.G. Slope (m/m)	0.000573	Area (m2)	
27.63			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	18.79	Top Width (m)	
18.79			
Vel Total (m/s)	1.17	Avg. Vel. (m/s)	
1.17			
Max Chl Dpth (m)	1.55	Hydr. Depth (m)	
1.47			
Conv. Total (m3/s)	1345.4	Conv. (m3/s)	
1345.4			
Length Wtd. (m)	252.35	Wetted Per. (m)	
20.57			
Min Ch El (m)	43.00	Shear (N/m2)	
7.54			
Alpha	1.00	Stream Power (N/m s)	
8.79			

Frctn Loss (m)	0.17	Cum Volume (1000 m3)
97.53		
C & E Loss (m)	0.00	Cum SA (1000 m2)
80.16		

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION

RIVER: Przemsza

REACH: Przemsza

RS: 1834.59

#### INPUT

Description:

Station	Elevation	Data	num=	77					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev									
0	57	1.414	56	4.243	56	5.657	59	7.071	
58									
8.485	62	9.899	62	11.314	60	12.728	60	15.556	
62									
16.971	62	18.385	61	19.799	61	22.627	65	24.042	
66									
25.456	66	26.87	67	29.698	67	31.113	66	33.941	
66									
35.355	65	36.77	65	38.184	67	39.598	68	41.012	
66									
52.326	66	53.74	67	55.154	73	56.569	72	57.983	
48									
59.397	45	60.811	43	140.007	43	141.421	55	142.836	
64									
144.25	71	145.664	86	147.078	93	149.907	91	151.321	
86									
152.735	77	154.149	64	155.563	57	156.978	49	158.392	
43									
159.806	43	161.22	44	162.635	43	178.191	43	179.605	
45									
181.019	52	182.434	56	183.848	71	185.262	78	186.676	
84									
188.09	87	189.505	87	190.919	83	192.333	72	193.747	
62									
195.162	55	196.576	43	391.737	43	393.151	46	394.565	
46									
395.979	47	397.393	45	398.808	46	400.222	46	401.636	
45									
403.05	43	412.95	43	414.364	44	415.778	43	417.192	
44									
421.435	44	422.661	46						

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	151.321	.025	186.676	.04



Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	151.321	186.676		510.147	510.147	.1
	.3					
Left Levee	Station=	150.52	Elevation=	90.84		
Right Levee	Station=	187.97	Elevation=	86.75		

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	44.91	Element	Left OB
Channel Right OB			
Vel Head (m)	0.13	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.78	Reach Len. (m)	510.15
510.15 510.15			
Crit W.S. (m)	44.00	Flow Area (m2)	
35.41			
E.G. Slope (m/m)	0.000960	Area (m2)	
35.41			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	21.48	Top Width (m)	
21.48			
Vel Total (m/s)	1.59	Avg. Vel. (m/s)	
1.59			
Max Chl Dpth (m)	1.78	Hydr. Depth (m)	
1.65			
Conv. Total (m3/s)	1812.9	Conv. (m3/s)	
1812.9			
Length Wtd. (m)	510.15	Wetted Per. (m)	
24.45			
Min Ch El (m)	43.00	Shear (N/m2)	
13.63			
Alpha	1.00	Stream Power (N/m s)	
21.62			
Frctn Loss (m)	0.05	Cum Volume (1000 m3)	
121.25			
C & E Loss (m)	0.04	Cum SA (1000 m2)	
76.29			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	44.45	Element	Left OB
Channel Right OB			
Vel Head (m)	0.07	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.37	Reach Len. (m)	510.15
510.15 510.15			
Crit W.S. (m)	43.70	Flow Area (m2)	
26.64			

E.G. Slope (m/m)	0.000773	Area (m2)
26.64		
Q Total (m3/s)	32.20	Flow (m3/s)
32.20		
Top Width (m)	21.09	Top Width (m)
21.09		
Vel Total (m/s)	1.21	Avg. Vel. (m/s)
1.21		
Max Chl Dpth (m)	1.37	Hydr. Depth (m)
1.26		
Conv. Total (m3/s)	1158.0	Conv. (m3/s)
1158.0		
Length Wtd. (m)	510.15	Wetted Per. (m)
23.53		
Min Ch El (m)	43.00	Shear (N/m2)
8.59		
Alpha	1.00	Stream Power (N/m s)
10.38		
Frctn Loss (m)	0.04	Cum Volume (1000 m3)
90.68		
C & E Loss (m)	0.02	Cum SA (1000 m2)
75.13		

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: Przemsza

REACH: Przemysła

RS: 1324.45

INPUT

Description:

[illegible]

108.894	60	110.309	60	111.723	58	113.137	57	114.551
63								
115.965	65	117.38	68	118.794	70	121.622	70	123.036
76								
124.451	76	125.865	78	127.279	79	128.693	77	130.108
77								
131.522	75	132.936	78	134.35	79	135.764	76	137.179
77								
138.593	76	140.007	78	141.421	77	142.836	74	144.25
64								
145.664	50	147.078	46	148.492	43	226.266	43	227.68
44								
229.094	44	230.508	43	236.165	43	237.58	45	238.994
43								
240.408	44	241.822	43	243.236	44	244.651	48	246.065
51								
247.479	53	248.893	60	250.307	60	253.136	62	254.55
65								
255.964	65	257.378	66	258.793	66	261.621	68	263.035
67								
264.45	68	265.864	68	267.278	71	268.692	71	270.106
70								
271.521	70	272.935	69	274.349	66	275.763	64	278.592
62								
280.006	62	281.42	65	284.249	63	291.32	63	292.734
60								
295.562	58	296.977	60	298.391	63	299.805	65	301.219
65								
302.633	64	304.048	61	305.462	59	308.29	57	309.705
55								
311.119	54	312.533	55	313.947	55	315.361	57	316.776
58								
318.19	61	319.604	60	321.018	61	322.432	59	330.918
65								
332.332	64	333.746	67	335.161	67	336.575	65	337.989
64								
346.474	64	350.717	61	352.131	59	353.545	58	354.96
61								
357.788	65	360.616	65	362.031	64	363.445	66	364.859
64								
366.273	63	369.102	63	370.516	62	371.92	63	

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	144.25	.025	248.893	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	144.25	248.893	259.071	259.071	259.071	.1

.3					
Left Levee	Station=	144.05	Elevation=	65.32	
Right Levee	Station=	250.17	Elevation=	60.06	

CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	44.82	Element	Left OB
Channel	Right OB		

Vel Head (m)	0.01	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.82	Reach Len. (m)	259.07
259.07      259.07			
Crit W.S. (m)	43.36	Flow Area (m2)	
165.25			
E.G. Slope (m/m)	0.000037	Area (m2)	
165.25			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	95.63	Top Width (m)	
95.63			
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	
0.34			
Max Chl Dpth (m)	1.82	Hydr. Depth (m)	
1.73			
Conv. Total (m3/s)	9188.7	Conv. (m3/s)	
9188.7			
Length Wtd. (m)	259.07	Wetted Per. (m)	
100.83			
Min Ch El (m)	43.00	Shear (N/m2)	
0.60			
Alpha	1.00	Stream Power (N/m s)	
0.20			
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	
70.07			
C & E Loss (m)	0.00	Cum SA (1000 m2)	
46.42			

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.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	44.38	Element	Left OB
Channel Right OB			
Vel Head (m)	0.00	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.38	Reach Len. (m)	259.07
259.07      259.07			
Crit W.S. (m)	43.25	Flow Area (m2)	
123.47			
E.G. Slope (m/m)	0.000032	Area (m2)	
123.47			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	94.65	Top Width (m)	
94.65			
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	
0.26			
Max Chl Dpth (m)	1.38	Hydr. Depth (m)	
1.30			
Conv. Total (m3/s)	5730.2	Conv. (m3/s)	
5730.2			

Length Wtd. (m)	259.07	Wetted Per. (m)
98.80		
Min Ch El (m)	43.00	Shear (N/m2)
0.39		
Alpha	1.00	Stream Power (N/m s)
0.10		
Frctn Loss (m)	0.02	Cum Volume (1000 m3)
52.39		
C & E Loss (m)	0.00	Cum SA (1000 m2)
45.61		

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.

CROSS SECTION

RIVER: Przemsza  
REACH: Przemsza RS: 1065.38

INPUT

Description:

Station	Elevation	Data	num=	180					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94	0	91	5.657	91	7.071	92	8.485	92	9.9
91	11.314	92	12.728	89	14.142	89	15.556	88	19.799
97	21.213	87	22.627	92	24.042	96	26.87	96	28.284
100	29.698	97	31.113	98	35.355	104	36.77	104	38.184
103	41.012	102	42.426	101	43.841	102	45.255	102	46.669
97	49.497	101	50.912	101	52.326	99	53.74	100	57.983
99	59.397	98	62.225	98	63.64	100	65.054	99	72.125
102	73.539	101	74.953	101	77.782	103	79.196	103	80.61
87	86.267	102	87.681	104	89.095	96	90.51	88	91.924
76	94.752	79	96.166	79	97.581	77	98.995	76	101.823
68	103.238	75	104.652	73	107.48	73	108.894	70	110.309
64	111.723	67	113.137	68	115.965	66	117.38	66	118.794
59	120.208	64	121.622	63	124.451	63	125.865	62	127.279
60	128.693	59	130.108	60	131.522	59	132.936	59	134.35
60	138.593	60	140.007	61	142.835	61	144.25	60	145.664

147.078	59	148.492	59	151.321	57	152.735	57	154.149
56								
155.563	56	162.634	51	164.049	52	165.463	50	166.877
47								
168.291	45	169.705	45	172.534	43	205.061	43	206.475
45								
207.889	43	209.303	46	210.718	47	212.132	47	213.546
48								
214.96	51	216.374	51	219.203	53	220.617	55	222.031
56								
223.445	56	224.86	58	226.274	59	229.102	59	231.931
61								
233.345	61	234.759	62	236.173	60	237.588	61	240.416
59								
243.244	61	244.659	60	248.901	63	250.315	65	251.73
64								
253.144	62	254.558	63	255.972	63	257.387	62	258.801
62								
260.215	64	261.629	65	263.043	63	265.872	61	267.286
59								
268.7	59	270.114	60	271.529	59	272.943	61	274.357
62								
275.771	61	278.6	61	280.014	59	282.842	59	284.256
58								
285.671	60	287.085	60	288.499	58	289.913	57	291.327
58								
292.742	56	294.156	56	296.984	58	298.399	60	299.813
58								
301.227	57	302.641	59	304.055	58	305.47	58	306.884
56								
308.298	58	309.712	58	311.126	59	313.955	59	315.369
58								
316.783	58	318.197	59	319.612	59	321.026	60	322.44
60								
325.269	58	326.683	58	328.097	59	329.511	59	332.34
61								
333.754	60	335.168	60	336.582	61	337.996	60	342.239
60								
345.067	54	347.896	54	349.31	53	352.139	53	353.553
52								
354.967	52	356.381	51	360.624	54	362.038	56	362.832
55								

Manning's n Values                      num=                      3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	164.049	.025	216.374	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	164.049	216.374	451.962	451.962	451.962	.1
	.3					
Left Levee	Station=	163.02	Elevation=	51.93		
Right Levee	Station=	217.46	Elevation=	51.7		

CROSS SECTION OUTPUT    Profile #Q1%

E.G. Elev (m)	44.80	Element	Left OB
Channel    Right OB			

Vel Head (m)	0.04	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.76	Reach Len. (m)	451.96
451.96      451.96			
Crit W.S. (m)	43.67	Flow Area (m2)	
62.21			
E.G. Slope (m/m)	0.000300	Area (m2)	
62.21			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	38.32	Top Width (m)	
38.32			
Vel Total (m/s)	0.90	Avg. Vel. (m/s)	
0.90			
Max Chl Dpth (m)	1.76	Hydr. Depth (m)	
1.62			
Conv. Total (m3/s)	3243.3	Conv. (m3/s)	
3243.3			
Length Wtd. (m)	451.96	Wetted Per. (m)	
41.81			
Min Ch El (m)	43.00	Shear (N/m2)	
4.38			
Alpha	1.00	Stream Power (N/m s)	
3.95			
Frctn Loss (m)	0.19	Cum Volume (1000 m3)	
40.60			
C & E Loss (m)	0.00	Cum SA (1000 m2)	
29.07			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	44.36	Element	Left OB
Channel Right OB			
Vel Head (m)	0.02	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.34	Reach Len. (m)	451.96
451.96      451.96			
Crit W.S. (m)	43.46	Flow Area (m2)	
46.42			
E.G. Slope (m/m)	0.000243	Area (m2)	
46.42			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	36.94	Top Width (m)	
36.94			
Vel Total (m/s)	0.69	Avg. Vel. (m/s)	
0.69			
Max Chl Dpth (m)	1.34	Hydr. Depth (m)	
1.26			

Conv. Total (m3/s)	2064.7	Conv. (m3/s)
2064.7		
Length Wtd. (m)	451.96	Wetted Per. (m)
39.59		
Min Ch El (m)	43.00	Shear (N/m2)
2.80		
Alpha	1.00	Stream Power (N/m s)
1.94		
Frctn Loss (m)	0.16	Cum Volume (1000 m3)
30.38		
C & E Loss (m)	0.00	Cum SA (1000 m2)
28.56		

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

## CROSS SECTION

RIVER: Przemsza

REACH: Przemysła

RS: 613.41

INPUT

Description:

Station	Elevation	Data	num=	119					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
66	0	68	1.414	67	2.828	67	4.243	66	5.657
68	7.071	65	9.9	65	12.728	67	14.142	67	15.556
70	16.971	68	18.385	67	21.213	69	24.042	69	25.456
67	26.87	70	28.284	69	29.699	69	32.527	67	36.77
63	38.184	68	43.841	68	45.255	66	46.669	65	48.083
67	49.498	63	52.326	67	53.74	68	55.154	68	56.569
62	57.983	67	59.397	61	60.811	60	67.882	60	69.296
56	70.711	62	72.125	61	73.539	61	74.953	60	77.782
49	79.196	55	80.61	51	82.024	50	83.439	50	84.853
49	87.681	49	89.095	50	90.51	50	91.924	49	94.752
50	96.167	50	97.581	50	98.995	49	101.823	53	103.238
51	104.652	49	106.066	49	107.48	50	111.723	50	113.137
50	117.38	51	118.783	52	121.612	52	123.026	50	124.44



125.854	56	127.268	69	128.683	69	130.097	64	131.511
51								
134.34	43	162.624	43	164.038	45	166.866	63	168.281
66								
169.695	68	171.109	64	175.352	61	176.766	58	178.18
58								
181.008	56	182.423	54	185.251	54	186.665	55	192.322
55								
193.736	54	200.807	54	203.636	56	205.05	56	209.293
53								
212.121	53	213.535	52	217.778	52	219.192	51	224.849
51								
226.263	50	227.677	50	229.092	51	231.92	51	233.334
50								
236.163	50	237.577	49	238.991	50	240.405	49	241.819
47								
243.234	46	247.476	46	248.891	45	250.305	45	251.719
44								
254.547	44	255.962	43	267.275	43	268.689	44	270.104
47								
271.518	48	272.932	47	275.76	43	300.577	43	

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	130.097	.025	166.866	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						
	130.097	166.866		237.29	237.29	.1

.3					
Left Levee	Station=	128.69	Elevation=	68.93	
Right Levee	Station=	169.59	Elevation=	68	

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	44.60	Element	Left OB
Channel Right OB			
Vel Head (m)	0.08	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.52	Reach Len. (m)	237.29
237.29	237.29		
Crit W.S. (m)	43.73	Flow Area (m2)	
44.19			
E.G. Slope (m/m)	0.000650	Area (m2)	
44.19			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	29.89	Top Width (m)	
29.89			
Vel Total (m/s)	1.27	Avg. Vel. (m/s)	
1.27			
Max Chl Dpth (m)	1.52	Hydr. Depth (m)	
1.48			
Conv. Total (m3/s)	2202.8	Conv. (m3/s)	
2202.8			
Length Wtd. (m)	237.29	Wetted Per. (m)	
31.76			

Min Ch El (m)	43.00	Shear (N/m2)
8.87		
Alpha	1.00	Stream Power (N/m s)
11.28		
Frctn Loss (m)	0.17	Cum Volume (1000 m3)
16.56		
C & E Loss (m)	0.00	Cum SA (1000 m2)
13.66		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	44.20	Element	Left OB
Channel Right OB			
Vel Head (m)	0.05	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.16	Reach Len. (m)	237.29
237.29 237.29			
Crit W.S. (m)	43.51	Flow Area (m2)	
33.40			
E.G. Slope (m/m)	0.000524	Area (m2)	
33.40			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	29.51	Top Width (m)	
29.51			
Vel Total (m/s)	0.96	Avg. Vel. (m/s)	
0.96			
Max Chl Dpth (m)	1.16	Hydr. Depth (m)	
1.13			
Conv. Total (m3/s)	1406.4	Conv. (m3/s)	
1406.4			
Length Wtd. (m)	237.29	Wetted Per. (m)	
30.93			
Min Ch El (m)	43.00	Shear (N/m2)	
5.55			
Alpha	1.00	Stream Power (N/m s)	
5.35			
Frctn Loss (m)	0.14	Cum Volume (1000 m3)	
12.34			
C & E Loss (m)	0.00	Cum SA (1000 m2)	
13.55			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION

RIVER: Przemsza  
 REACH: Przemsza RS: 376.12

INPUT  
 Description:

Station Elevation Data			num= 16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	43	56.569	43	57.983	45	60.811	57	62.225
63.64	65	65.054	49	66.468	43	97.581	43	98.995
100.409	64	101.823	67	103.238	59	104.652	52	106.066
141.622	43							

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	63.64	.025	100.409	.04

Bank Sta:	Left	Right	Lengths: Left Channel			Right	Coeff Contr.
Expan.	63.64	100.409	198.819	198.819	198.819	.1	

.3					
Left Levee	Station=	62.57	Elevation=	65.08	
Right Levee	Station=	101.28	Elevation=	65.57	

# CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	44.43	Element	Left OB
Channel Right OB			
Vel Head (m)	0.09	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.33	Reach Len. (m)	198.82
198.82 198.82			
Crit W.S. (m)	43.69	Flow Area (m2)	
41.98			
E.G. Slope (m/m)	0.000840	Area (m2)	
41.98			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	31.80	Top Width (m)	
31.80			
Vel Total (m/s)	1.34	Avg. Vel. (m/s)	
1.34			
Max Chl Dpth (m)	1.33	Hydr. Depth (m)	
1.32			
Conv. Total (m3/s)	1937.6	Conv. (m3/s)	
1937.6			
Length Wtd. (m)	198.82	Wetted Per. (m)	
33.87			
Min Ch El (m)	43.00	Shear (N/m2)	
10.21			
Alpha	1.00	Stream Power (N/m s)	
13.67			
Frctn Loss (m)	0.37	Cum Volume (1000 m3)	
6.34			
C & E Loss (m)	0.02	Cum SA (1000 m2)	
6.34			

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	44.06	Element	Left OB
Channel Right OB			
Vel Head (m)	0.05	Wt. n-Val.	
0.025			
W.S. Elev (m)	44.01	Reach Len. (m)	198.82
198.82 198.82			
Crit W.S. (m)	43.48	Flow Area (m2)	
31.60			
E.G. Slope (m/m)	0.000693	Area (m2)	
31.60			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	31.64	Top Width (m)	
31.64			
Vel Total (m/s)	1.02	Avg. Vel. (m/s)	
1.02			
Max Chl Dpth (m)	1.01	Hydr. Depth (m)	
1.00			
Conv. Total (m3/s)	1223.1	Conv. (m3/s)	
1223.1			
Length Wtd. (m)	198.82	Wetted Per. (m)	
33.19			
Min Ch El (m)	43.00	Shear (N/m2)	
6.47			
Alpha	1.00	Stream Power (N/m s)	
6.59			
Frctn Loss (m)	0.33	Cum Volume (1000 m3)	
4.63			
C & E Loss (m)	0.02	Cum SA (1000 m2)	
6.29			

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.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION

RIVER: Przemsza  
 REACH: Przemsza RS: 177.31

# INPUT

## Description:

Station	Elevation	Data	num=	17					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	43	22.627	43	24.042	48	25.456	56	26.87	
57									
28.284	52	29.698	46	31.113	43	62.225	43	63.64	
45									
65.054	56	66.468	59	67.882	60	69.296	56	70.711	
47									
72.125	43	111.559	43						

Manning's n	Values	num=	3				
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	26.87	.025	65.054	.04		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	26.87	65.054	177.306	177.306	177.306	.1	
.3							
Left Levee	Station=	26.56	Elevation=	56.79			
Right Levee	Station=	65.4	Elevation=	56.44			

## CROSS SECTION OUTPUT Profile #Q1%

E.G. Elev (m)	44.03	Element	Left OB
Channel Right OB			
Vel Head (m)	0.34	Wt. n-Val.	
0.025			
W.S. Elev (m)	43.69	Reach Len. (m)	
Crit W.S. (m)	43.69	Flow Area (m2)	
21.77			
E.G. Slope (m/m)	0.007165	Area (m2)	
21.77			
Q Total (m3/s)	56.17	Flow (m3/s)	
56.17			
Top Width (m)	31.93	Top Width (m)	
31.93			
Vel Total (m/s)	2.58	Avg. Vel. (m/s)	
2.58			
Max Chl Dpth (m)	0.69	Hydr. Depth (m)	
0.68			
Conv. Total (m3/s)	663.6	Conv. (m3/s)	
663.6			
Length Wtd. (m)		Wetted Per. (m)	
32.72			
Min Ch El (m)	43.00	Shear (N/m2)	
46.74			
Alpha	1.00	Stream Power (N/m s)	
120.61			
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth). Water surface set to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### CROSS SECTION OUTPUT Profile #Q10%

E.G. Elev (m)	43.71	Element	Left OB
Channel Right OB			
Vel Head (m)	0.24	Wt. n-Val.	
0.025			
W.S. Elev (m)	43.48	Reach Len. (m)	
Crit W.S. (m)	43.48	Flow Area (m2)	
14.99			
E.G. Slope (m/m)	0.008002	Area (m2)	
14.99			
Q Total (m3/s)	32.20	Flow (m3/s)	
32.20			
Top Width (m)	31.67	Top Width (m)	
31.67			
Vel Total (m/s)	2.15	Avg. Vel. (m/s)	
2.15			
Max Chl Dpth (m)	0.48	Hydr. Depth (m)	
0.47			
Conv. Total (m3/s)	360.0	Conv. (m3/s)	
360.0			
Length Wtd. (m)		Wetted Per. (m)	
32.22			
Min Ch El (m)	43.00	Shear (N/m2)	
36.50			
Alpha	1.00	Stream Power (N/m s)	
78.41			
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth). Water surface set to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

#### SUMMARY OF MANNING'S N VALUES

River:Bobrek

Reach	River Sta.	n1	n2	n3
Bobrek	5746.67	.04	.25	.04
Bobrek	5446.57	.04	.25	.04
Bobrek	5322.93	.04	.25	.04
Bobrek	5135.57	.04	.25	.04
Bobrek	4897.95	.04	.25	.04
Bobrek	4675.98	.04	.25	.04

Bobrek	4495.53	.04	.25	.04
Bobrek	4285.79	.04	.25	.04
Bobrek	4044.69	.04	.25	.04
Bobrek	3738.95	.04	.25	.04
Bobrek	3396.77	.04	.25	.04
Bobrek	3173.83	.04	.25	.04
Bobrek	2939.04	.04	.25	.04
Bobrek	2606.21	.04	.25	.04
Bobrek	2172.69	.04	.25	.04
Bobrek	1657.50	.04	.25	.04
Bobrek	989.84	.04	.25	.04
Bobrek	622.88	.04	.25	.04
Bobrek	195.86	.04	.25	.04

River:Przemsza

Reach	River Sta.	n1	n2	n3
Przemsza	5722.90	.04	.025	.04
Przemsza	5459.09	.04	.025	.04
Przemsza	5127.27	.04	.025	.04
Przemsza	4835.98	.04	.025	.04
Przemsza	4339.88	.04	.025	.04
Przemsza	3895.86	.04	.025	.04
Przemsza	3129.61	.04	.025	.04
Przemsza	2562.16	.04	.025	.04
Przemsza	2086.95	.04	.025	.04
Przemsza	1834.59	.04	.025	.04
Przemsza	1324.45	.04	.025	.04
Przemsza	1065.38	.04	.025	.04
Przemsza	613.41	.04	.025	.04
Przemsza	376.12	.04	.025	.04
Przemsza	177.31	.04	.025	.04

# SUMMARY OF REACH LENGTHS

River: Bobrek

Reach	River Sta.	Left	Channel	Right
Bobrek	5746.67	300.103	300.103	300.103
Bobrek	5446.57	123.642	123.642	123.642
Bobrek	5322.93	187.359	187.359	187.359
Bobrek	5135.57	237.622	237.622	237.622
Bobrek	4897.95	221.965	221.965	221.965
Bobrek	4675.98	180.457	180.457	180.457
Bobrek	4495.53	209.736	209.736	209.736
Bobrek	4285.79	241.104	241.104	241.104
Bobrek	4044.69	305.732	305.732	305.732
Bobrek	3738.95	342.179	342.179	342.179
Bobrek	3396.77	222.945	222.945	222.945
Bobrek	3173.83	234.785	234.785	234.785
Bobrek	2939.04	332.837	332.837	332.837
Bobrek	2606.21	433.513	433.513	433.513

Bobrek	2172.69	515.195	515.195	515.195
Bobrek	1657.50	667.653	667.653	667.653
Bobrek	989.84	366.962	366.962	366.962
Bobrek	622.88	427.022	427.022	427.022
Bobrek	195.86	195.859	195.859	195.859

River: Przemsza

Reach	River Sta.	Left	Channel	Right
Przemsza	5722.90	263.805	263.805	263.805
Przemsza	5459.09	331.828	331.828	331.828
Przemsza	5127.27	291.284	291.284	291.284
Przemsza	4835.98	496.101	496.101	496.101
Przemsza	4339.88	444.017	444.017	444.017
Przemsza	3895.86	766.251	766.251	766.251
Przemsza	3129.61	567.454	567.454	567.454
Przemsza	2562.16	475.209	475.209	475.209
Przemsza	2086.95	252.354	252.354	252.354
Przemsza	1834.59	510.147	510.147	510.147
Przemsza	1324.45	259.071	259.071	259.071
Przemsza	1065.38	451.962	451.962	451.962
Przemsza	613.41	237.29	237.29	237.29
Przemsza	376.12	198.819	198.819	198.819
Przemsza	177.31	177.306	177.306	177.306

#### SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Bobrek

Reach	River Sta.	Contr.	Expan.
Bobrek	5746.67	.1	.3
Bobrek	5446.57	.1	.3
Bobrek	5322.93	.1	.3
Bobrek	5135.57	.1	.3
Bobrek	4897.95	.1	.3
Bobrek	4675.98	.1	.3
Bobrek	4495.53	.1	.3
Bobrek	4285.79	.1	.3
Bobrek	4044.69	.1	.3
Bobrek	3738.95	.1	.3
Bobrek	3396.77	.1	.3
Bobrek	3173.83	.1	.3
Bobrek	2939.04	.1	.3
Bobrek	2606.21	.1	.3
Bobrek	2172.69	.1	.3
Bobrek	1657.50	.1	.3
Bobrek	989.84	.1	.3
Bobrek	622.88	.1	.3
Bobrek	195.86	.1	.3

River: Przemsza



Reach	River Sta.	Contr.	Expan.
Przemsza	5722.90	.1	.3
Przemsza	5459.09	.1	.3
Przemsza	5127.27	.1	.3
Przemsza	4835.98	.1	.3
Przemsza	4339.88	.1	.3
Przemsza	3895.86	.1	.3
Przemsza	3129.61	.1	.3
Przemsza	2562.16	.1	.3
Przemsza	2086.95	.1	.3
Przemsza	1834.59	.1	.3
Przemsza	1324.45	.1	.3
Przemsza	1065.38	.1	.3
Przemsza	613.41	.1	.3
Przemsza	376.12	.1	.3
Przemsza	177.31	.1	.3

Profile Output Table - Standard Table 1

River W.S. Elev Top Width	Reach Crit W.S. Froude # Chl	River Sta E.G. Elev E.G.	Profile Slope	Q Total Vel Chnl	Min Ch El Flow Area
(m)	(m)	(m)	(m/m)	(m/s)	(m3/s) (m2)
(m)					(m)
Przemsza	Przemsza	5722.90	Q1%	56.17	131.00
133.55	133.55	134.19	0.007451	3.52	15.94
12.56	1.00				
Przemsza	Przemsza	5722.90	Q10%	32.20	131.00
132.86	132.86	133.56	0.007596	3.71	8.67
6.17	1.00				
Przemsza	Przemsza	5459.09	Q1%	56.17	113.00
116.35	115.24	116.53	0.001231	1.88	29.95
15.39	0.43				
Przemsza	Przemsza	5459.09	Q10%	32.20	113.00
115.62	114.71	115.76	0.001184	1.63	19.71
12.54	0.42				
Przemsza	Przemsza	5127.27	Q1%	56.17	112.00
114.84	114.84	115.60	0.009132	3.86	14.54
9.54	1.00				
Przemsza	Przemsza	5127.27	Q10%	32.20	112.00
114.31	114.31	114.87	0.009094	3.31	9.72
8.68	1.00				
Przemsza	Przemsza	4835.98	Q1%	56.17	111.00
112.41	112.41	112.95	0.006531	3.27	17.18
15.71	1.00				
Przemsza	Przemsza	4835.98	Q10%	32.20	111.00
112.04	112.04	112.44	0.007220	2.77	11.63
14.94	1.00				

Przemsza	Przemsza	4339.88	Q1%	56.17	63.00
65.81	65.81	66.61	0.007795	3.95	14.21
8.88	1.00				
Przemsza	Przemsza	4339.88	Q10%	32.20	63.00
65.25	65.25	65.84	0.008308	3.41	9.44
7.95	1.00				
Przemsza	Przemsza	3895.86	Q1%	56.17	60.00
61.89	62.08	62.77	0.009574	4.16	13.49
10.19	1.16				
Przemsza	Przemsza	3895.86	Q10%	32.20	60.00
61.50	61.54	62.07	0.008644	3.36	9.60
9.54	1.07				
Przemsza	Przemsza	3129.61	Q1%	56.17	45.00
48.38	48.93	50.22	0.033521	6.01	9.35
8.56	1.84				
Przemsza	Przemsza	3129.61	Q10%	32.20	45.00
47.83	48.42	49.65	0.039438	5.98	5.38
4.80	1.80				
Przemsza	Przemsza	2562.16	Q1%	56.17	43.00
46.05	46.05	46.74	0.007592	3.67	15.29
10.84	0.99				
Przemsza	Przemsza	2562.16	Q10%	32.20	43.00
45.42	45.42	46.00	0.008379	3.35	9.60
8.35	1.00				
Przemsza	Przemsza	2086.95	Q1%	56.17	43.00
45.00	44.03	45.13	0.000745	1.54	36.38
19.33	0.36				
Przemsza	Przemsza	2086.95	Q10%	32.20	43.00
44.55	43.71	44.61	0.000573	1.17	27.63
18.79	0.31				
Przemsza	Przemsza	1834.59	Q1%	56.17	43.00
44.78	44.00	44.91	0.000960	1.59	35.41
21.48	0.39				
Przemsza	Przemsza	1834.59	Q10%	32.20	43.00
44.37	43.70	44.45	0.000773	1.21	26.64
21.09	0.34				
Przemsza	Przemsza	1324.45	Q1%	56.17	43.00
44.82	43.36	44.82	0.000037	0.34	165.25
95.63	0.08				
Przemsza	Przemsza	1324.45	Q10%	32.20	43.00
44.38	43.25	44.38	0.000032	0.26	123.47
94.65	0.07				
Przemsza	Przemsza	1065.38	Q1%	56.17	43.00
44.76	43.67	44.80	0.000300	0.90	62.21
38.32	0.23				
Przemsza	Przemsza	1065.38	Q10%	32.20	43.00
44.34	43.46	44.36	0.000243	0.69	46.42
36.94	0.20				

Przemsza	Przemsza	613.41	Q1%	56.17	43.00
44.52	43.73	44.60	0.000650	1.27	44.19
29.89	0.33				
Przemsza	Przemsza	613.41	Q10%	32.20	43.00
44.16	43.51	44.20	0.000524	0.96	33.40
29.51	0.29				
Przemsza	Przemsza	376.12	Q1%	56.17	43.00
44.33	43.69	44.43	0.000840	1.34	41.98
31.80	0.37				
Przemsza	Przemsza	376.12	Q10%	32.20	43.00
44.01	43.48	44.06	0.000693	1.02	31.60
31.64	0.33				
Przemsza	Przemsza	177.31	Q1%	56.17	43.00
43.69	43.69	44.03	0.007165	2.58	21.77
31.93	1.00				
Przemsza	Przemsza	177.31	Q10%	32.20	43.00
43.48	43.48	43.71	0.008002	2.15	14.99
31.67	1.00				
Bobrek	Bobrek	5746.67	Q1%	18.42	152.00
156.43	153.66	156.46	0.019306	0.80	22.89
7.47	0.15				
Bobrek	Bobrek	5746.67	Q10%	10.57	152.00
155.32	153.31	155.35	0.018718	0.69	15.23
6.43	0.14				
Bobrek	Bobrek	5446.57	Q1%	18.42	148.00
152.46	149.14	152.48	0.009672	0.63	29.08
7.90	0.11				
Bobrek	Bobrek	5446.57	Q10%	10.57	148.00
150.94	148.81	150.96	0.011755	0.59	17.77
7.04	0.12				
Bobrek	Bobrek	5322.93	Q1%	18.42	143.00
151.39	146.72	151.40	0.007867	0.52	35.60
7.77	0.08				
Bobrek	Bobrek	5322.93	Q10%	10.57	143.00
149.75	146.25	149.76	0.008105	0.45	23.50
7.01	0.08				
Bobrek	Bobrek	5135.57	Q1%	18.42	142.00
149.53	144.52	149.55	0.012704	0.64	28.75
6.74	0.10				
Bobrek	Bobrek	5135.57	Q10%	10.57	142.00
147.88	143.96	147.90	0.012430	0.56	18.80
5.32	0.10				
Bobrek	Bobrek	4897.95	Q1%	18.42	140.00
147.01	142.60	147.03	0.009019	0.58	31.92
7.03	0.09				
Bobrek	Bobrek	4897.95	Q10%	10.57	140.00
145.60	142.09	145.61	0.007648	0.47	22.34
6.59	0.08				

Bobrek	Bobrek	4675.98	Q1%	18.42	138.00
139.74	139.74	140.25	1.079788	3.16	5.82
5.68	1.00				
Bobrek	Bobrek	4675.98	Q10%	10.57	138.00
139.40	139.40	139.77	1.154333	2.68	3.94
5.40	1.00				
Bobrek	Bobrek	4495.53	Q1%	18.42	126.00
139.94	128.28	139.94	0.000037	0.07	266.57
31.79	0.01				
Bobrek	Bobrek	4495.53	Q10%	10.57	126.00
138.31	127.87	138.31	0.000022	0.05	215.65
30.85	0.01				
Bobrek	Bobrek	4285.79	Q1%	18.42	134.00
139.89	135.58	139.91	0.011882	0.66	27.78
5.97	0.10				
Bobrek	Bobrek	4285.79	Q10%	10.57	134.00
138.28	135.20	138.30	0.010613	0.57	18.64
5.40	0.10				
Bobrek	Bobrek	4044.69	Q1%	18.42	128.00
129.80	129.80	130.49	1.042203	3.68	5.01
3.63	1.00				
Bobrek	Bobrek	4044.69	Q10%	10.57	128.00
129.33	129.33	129.83	1.007762	3.13	3.37
3.36	1.00				
Bobrek	Bobrek	3738.95	Q1%	18.42	114.00
123.68	116.14	123.69	0.005417	0.45	40.80
6.46	0.06				
Bobrek	Bobrek	3738.95	Q10%	10.57	114.00
121.58	115.56	121.58	0.004539	0.37	28.20
5.54	0.05				
Bobrek	Bobrek	3396.77	Q1%	18.42	113.00
119.78	115.69	119.83	0.036343	0.93	19.81
4.55	0.14				
Bobrek	Bobrek	3396.77	Q10%	10.57	113.00
118.12	115.06	118.16	0.037712	0.84	12.65
4.01	0.15				
Bobrek	Bobrek	3173.83	Q1%	18.42	107.00
114.32	109.88	114.35	0.017680	0.72	25.42
6.11	0.11				
Bobrek	Bobrek	3173.83	Q10%	10.57	107.00
112.90	109.29	112.92	0.015991	0.61	17.30
5.30	0.11				
Bobrek	Bobrek	2939.04	Q1%	18.42	98.00
100.80	100.73	101.34	1.016592	3.25	5.67
4.52	0.93				
Bobrek	Bobrek	2939.04	Q10%	10.57	98.00
100.32	100.32	100.76	1.252051	2.94	3.60
4.07	1.00				

Bobrek	Bobrek	2606.21	Q1%	18.42	82.00
87.76	83.99	87.78	0.012416	0.66	27.83
6.77	0.10				
Bobrek	Bobrek	2606.21	Q10%	10.57	82.00
86.26	83.63	86.28	0.012540	0.58	18.20
6.11	0.11				
Bobrek	Bobrek	2172.69	Q1%	18.42	76.00
81.34	77.84	81.37	0.017880	0.77	23.84
6.00	0.12				
Bobrek	Bobrek	2172.69	Q10%	10.57	76.00
79.91	77.37	79.94	0.017304	0.67	15.68
5.42	0.13				
Bobrek	Bobrek	1657.50	Q1%	18.42	49.00
51.47	51.47	52.14	1.163573	3.64	5.07
3.75	1.00				
Bobrek	Bobrek	1657.50	Q10%	10.57	49.00
50.99	50.99	51.49	1.187495	3.14	3.37
3.38	1.00				
Bobrek	Bobrek	989.84	Q1%	18.42	43.00
47.07	43.56	47.08	0.001604	0.31	59.72
15.19	0.05				
Bobrek	Bobrek	989.84	Q10%	10.57	43.00
46.14	43.38	46.14	0.001147	0.23	45.70
14.95	0.04				
Bobrek	Bobrek	622.88	Q1%	18.42	43.00
46.42	43.55	46.43	0.001957	0.33	55.41
18.04	0.06				
Bobrek	Bobrek	622.88	Q10%	10.57	43.00
45.66	43.38	45.66	0.001527	0.25	41.78
17.42	0.05				
Bobrek	Bobrek	195.86	Q1%	18.42	43.00
44.36	43.47	44.39	0.024947	0.71	25.77
19.54	0.20				
Bobrek	Bobrek	195.86	Q10%	10.57	43.00
43.97	43.32	43.98	0.024940	0.58	18.16
19.20	0.19				