

HEC-RAS Version 4.0.0 March 2008
 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      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  X      X
X      X  XXXXXX   XXXX     X   X     X   X     XXXXX
  
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PROJECT DATA

Project Title: Wapping Road Dam
 Project File : Wapping.prj
 Run Date and Time: 10/31/2008 10:07:57 AM

Project in English units

Project Description:
 Project: Wapping Road Dam Feasibility Study
 Start Date: 06-25-08
 By: Raju
 V

Base Model:
 FEMA HEC-2 Model Paper Copy dated April 1980.

PLAN DATA

Plan Title: Corrected Duplicate Model - Revised
 Plan File : h:\3574-01\H & H\HEC-RAS\Wapping.p02

Geometry Title: Corrected Duplicate Model - Revised
 Geometry File : h:\3574-01\H & H\HEC-RAS\Wapping.g03

Flow Title : FEMA Flows
 Flow File : h:\3574-01\H & H\HEC-RAS\Wapping.f01

Plan Summary Information:

Number of: Cross Sections =	35	Multiple Openings =	0
Culverts =	0	Inline Structures =	0
Bridges =	5	Lateral Structures =	0

Computational Information

Water surface calculation tolerance =	0.01
Critical depth calculation tolerance =	0.01
Maximum number of iterations =	20
Maximum difference tolerance =	0.3
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: FEMA Flows
 Flow File : h:\3574-01\H & H\HEC-RAS\Wapping.f01

Flow Data (cfs)

* River	Reach	RS	*	10YR	50YR	100YR	500YR *
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* Jones River	Main Channel	3.919	*	45	60	70	90
* Jones River	Main Channel	3.638	*	45	60	70	85
* Jones River	Main Channel	3.312	*	75	100	116	140
* Jones River	Main Channel	2.740	*	390	540	650	820
* Jones River	Main Channel	2.390	*	460	610	740	940
* Jones River	Main Channel	1.663	*	460	604	730	930
* Jones River	Main Channel	1.394	*	530	682	821	1060
* Jones River	Main Channel	0.874	*	530	680	820	1050
* Jones River	Main Channel	0.803	*	540	700	830	1070
* Jones River	Main Channel	0.598	*	620	810	940	1200

Boundary Conditions

* River	Reach	Profile	*	Upstream	Downstream	*
* Jones River	Main Channel	10YR	*	Normal S = 0.01	Known WS = 19.8	*
* Jones River	Main Channel	50YR	*	Normal S = 0.01	Known WS = 20.6	*
* Jones River	Main Channel	100YR	*	Normal S = 0.01	Known WS = 21.2	*
* Jones River	Main Channel	500YR	*	Normal S = 0.01	Known WS = 22	*

GEOMETRY DATA

Geometry Title: Corrected Duplicate Model - Revised
 Geometry File : h:\3574-01\H & H\HEC-RAS\Wapping.g03

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.919

INPUT

Description: FEMA XS-W

Station Elevation Data		num= 14	
Sta	Elev	Sta	Elev
1650	55	1750	50
1994	33.8	2000	33
2065	36	2160	40
1800	40	2320	50
1940	35.1	2350	55
2010	35.1		
2055	35.5		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
1650	.08	1990	.04
2010	.08		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	1990	2010		100	100	.1	.3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.900

INPUT

Description:

Station Elevation Data		num= 10	
Sta	Elev	Sta	Elev
1770	55	1865	45.9
1998.8	33	2002	33
1956	35.6	2008	35.8
1965	34	2100	42
1967.4	34	2400	50

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
1770	.08	1956	.04
2008	.08		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	1956	2008		62	62	.1	.3

Ineffective Flow		num= 2	
Sta L	Sta R	Elev	Permanent
1770	1956	37.4	F
2008	2400	37.4	F

BRIDGE

RIVER: Jones River
REACH: Main Channel RS: 3.889

INPUT

Description: GROVE ST
Distance from Upstream XS = .1
Deck/Roadway Width = 61.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates

num= 7

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
1865	45.9				1964.9	42.9				37	1965	42.9		37
1982	37.4				2000	42.3				37	2000.1	42.3		0
2100	42													

Upstream Bridge Cross Section Data

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1770	55	1865	45.9	1956	35.6	1965	34	1967.4	34
1998.8	33	2002	33	2008	35.8	2100	42	2400	50

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1770	.08	1956	.04	2008	.08

Bank Sta: Left Right Coeff Contr. Expan.
1956 2008 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1770	1956	37.4	F
2008	2400	37.4	F

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
1865	45.9				1964.9	42.9				37	1965	42.9		37
1982	37.4				2000	42.3				37	2000.1	42.3		0
2100	42													

Downstream Bridge Cross Section Data

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1770	55	1865	45.9	1956	35.6	1965	34	1967.4	34
1998.8	33	2002	33	2008	35.8	2100	42	2400	50

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1770	.08	1956	.025	2008	.08

Bank Sta: Left Right Coeff Contr. Expan.
1956 2008 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1770	1956	37	F
2008	2400	37	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 37.4
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow
 Submerged Inlet Cd =
 Submerged Inlet + Outlet Cd = .8
 Max Low Cord = 37

Additional Bridge Parameters

Add Friction component to Momentum
 Do not add Weight component to Momentum
 Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.888

INPUT

Description:

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1770	55	1865	45.9	1956	35.6	1965	34	1967.4	34
1998.8	33	2002	33	2008	35.8	2100	42	2400	50

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1770	.08	1956	.025	2008	.08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1956 2008 26.4 26.4 26.4 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1770	1956	37	F
2008	2400	37	F

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.883

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1770	55	1800	50	1830	45	1900	40	1911.5	38.7
1961.5	35.9	1963.5	34.2	1965	33.5	1990	32.6	2010	32.6
2022	34.2	2086.5	36.8	2270	40	2400	50		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1770	.08	1965	.025	2010	.08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1965 2010 30 30 30 .3 .5

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.877

INPUT

Description:

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1800	60	1900	55.2	1994.5	39.5	1997	33.8	2000	32.2
2003.6	32.5	2005.5	39.9	2100	55				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1800	.08	1997	.04	2003.6	.08

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	1997	2003.6		61	61	61		.1	.3
Ineffective Flow	num=		2						
Sta L	Sta R	Elev	Permanent						
1800	1997	43.5	F						
2003.6	2100	43.5	F						

BRIDGE

RIVER: Jones River
 REACH: Main Channel RS: 3.870

INPUT

Description: RAILROAD BRIDGE
 Distance from Upstream XS = .1
 Deck/Roadway Width = 60.8
 Weir Coefficient = 2.7
 Upstream Deck/Roadway Coordinates

num=	7													
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
*****	*****													
1900	55.2				1996.9	55.2				1997	55.2			36.9
2000	55.2	36.9			2003.6	55.2	36.9			2003.7	55.2			0
2100	55													

Upstream Bridge Cross Section Data

Station Elevation Data	num= 8											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
*****	*****											
1800	60	1900	55.2	1994.5	39.5	1997	33.8	2000	32.2			
2003.6	32.5	2005.5	39.9	2100	55							

Manning's n Values	num= 3					
Sta	n Val	Sta	n Val	Sta	n Val	
*****	*****					
1800	.08	1997	.04	2003.6	.08	

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	1997	2003.6		.1	.3
Ineffective Flow	num=		2		
Sta L	Sta R	Elev	Permanent		
1800	1997	43.5	F		
2003.6	2100	43.5	F		

Downstream Deck/Roadway Coordinates	num= 7													
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
*****	*****													
1900	55.2				1996.9	55.2				1997	55.2			36.9
2000	55.2	36.9			2003.6	55.2	36.9			2003.7	55.2			0
2100	55													

Downstream Bridge Cross Section Data

Station Elevation Data	num= 8											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
*****	*****											
1800	60	1900	55.2	1994.5	39.5	1997	33.8	2000	32.2			
2003.6	32.5	2005.5	39.9	2100	55							

Manning's n Values	num= 3					
Sta	n Val	Sta	n Val	Sta	n Val	
*****	*****					
1800	.1	1997	.03	2003.6	.1	

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	1997	2003.6		.1	.3
Ineffective Flow	num=		2		
Sta L	Sta R	Elev	Permanent		
1800	1997	36.9	F		
2003.6	2100	36.9	F		

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .95
 Elevation at which weir flow begins = 43.5
 Energy head used in spillway design =
 Spillway height used in design =

Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow

Submerged Inlet Cd =
Submerged Inlet + Outlet Cd = .8
Max Low Cord = 36.9

Additional Bridge Parameters

Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 3.865

INPUT

Description:

Station Elevation Data num= 8
Table with 10 columns: Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Data points include 1800, 60, 1900, 55.2, 1994.5, 39.5, 1997, 33.8, 2000, 32.2, 2003.6, 32.5, 2005.5, 39.9, 2100, 55.

Manning's n Values num= 3
Table with 6 columns: Sta, n Val, Sta, n Val, Sta, n Val. Data points include 1800, .1, 1997, .03, 2003.6, .1.

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
Table with 7 columns. Data points include 1997, 2003.6, 100, 100, 100, .1, .3.

Ineffective Flow num= 2
Table with 5 columns: Sta L, Sta R, Elev, Permanent. Data points include 1800, 1997, 36.9, F, 2003.6, 2100, 36.9, F.

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 3.846

INPUT

Description: 100' D/S OF RAILROAD BRIDGE (FEMA XS-V)

Station Elevation Data num= 11
Table with 10 columns: Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Data points include 1800, 50, 1850, 35, 1940, 34.3, 1990, 35.6, 1992, 33.3, 2000, 33.1, 2004, 33, 2010, 35.9, 2060, 36.2, 2170, 40, 2300, 50.

Manning's n Values num= 3
Table with 6 columns: Sta, n Val, Sta, n Val, Sta, n Val. Data points include 1800, .1, 1990, .03, 2010, .1.

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
Table with 7 columns. Data points include 1990, 2010, 940, 1100, 1140, .1, .3.

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 3.638

INPUT

Description: FEMA XS-U

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1600	50	1680	40	1880	35	1940	33.4	1980	33.4
1989.5	34.5	1994	32.6	2000	31.6	2004	29.5	2008	30.9
2010.5	34.1	2060	33.6	2100	35	2150	45		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1600	.1	1989.5	.03	2010.5	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1989.5	2010.5		1480	1720	1480	.1	.3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.312

INPUT

Description: FEMA XS-T

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1540	50	1750	45	1800	40	1850	35	1943	31.5
1993	31.3	1995	29.9	2000	29.3	2005	29.8	2007	31
2057	31.4	2100	35	2120	40	2450	45		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1540	.1	1993	.03	2007	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1993	2007		960	1080	960	.1	.3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 3.108

INPUT

Description: FEMA XS-S

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1600	40	1670	35	1941	31.6	1985	31.4	1987	32.8
1991	32.8	1994	25.8	2000	27	2007	28.4	2009	31.5
2059	32.3	2200	35	2250	40				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1600	.1	1991	.03	2009	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1991	2009		720	1120	1020	.1	.3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 2.896

INPUT

Description: FEMA XS-R

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1500	40	1700	35	1943	31	1980	29.3	1983	31.8
1987	32.3	1993	29	2000	27.3	2005	28	2013	29.8
2063	30.2	2450	40						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1500	.1	1987	.03	2013	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1987	2013		820	820		.1	.3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 2.740

INPUT

Description: FEMA XS-Q

Station Elevation Data	num=		9	
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
*****	*****	*****	*****	*****
1600 40	1941 34.6	1991 31.1	1993 28.8	2000 28.8
2008 28.9	2009 30.4	2059 30.8	2380 40	

Manning's n Values	num=		3	
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
*****	*****	*****	*****	*****
1600 .1	1991 .03	2009 .1		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1991	2009		100	100		.1	.3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 2.721

INPUT

Description:

Station Elevation Data	num=		10	
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
*****	*****	*****	*****	*****
1600 40	1900 31.4	1994.7 32.5	1994.8 28.4	1997.2 28.2
2000 28	2005.4 28.6	2005.5 32.5	2100 31	2380 40

Manning's n Values	num=		3	
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
*****	*****	*****	*****	*****
1600 .1	1994.7 .03	2005.5 .1		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1994.7	2005.5		10.6	10.6		.1	.3

Ineffective Flow	num=		2	
Sta L Sta R	Elev	Permanent		
1600 1994.7	31	F		
2005.5 2380	31	F		

BRIDGE

RIVER: Jones River
 REACH: Main Channel RS: 2.720

INPUT

Description: UNKNOWN STRUCTURE

Distance from Upstream XS = .1
 Deck/Roadway Width = 10.4
 Weir Coefficient = 2.8
 Upstream Deck/Roadway Coordinates

num=	7				
Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
*****	*****	*****	*****	*****	*****
1900 31.4	1995.24 32.4	31 1995.25 32.4	31	1997.2 28.2	28.2
2000 32.5	31 2004.75 32.4	31 2004.76 32.4	31	2380 40	40
2100 31					

Upstream Bridge Cross Section Data

Station Elevation Data	num=		10	
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
*****	*****	*****	*****	*****
1600 40	1900 31.4	1994.7 32.5	1994.8 28.4	1997.2 28.2
2000 28	2005.4 28.6	2005.5 32.5	2100 31	2380 40

Manning's n Values	num=		3	
--------------------	------	--	---	--

Sta n Val Sta n Val Sta n Val

 1600 .1 1994.7 .03 2005.5 .1

Bank Sta: Left Right Coeff Contr. Expan.
 1994.7 2005.5 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 1600 1994.7 31 F
 2005.5 2380 31 F

Downstream Deck/Roadway Coordinates
 num= 7

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
1900	31.4				1995.24	32.4				31	1995.25	32.4		31
2000	32.5		31		2004.75	32.4				31	2004.76	32.4		31
2100	31													

Downstream Bridge Cross Section Data

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1600	40	1900	31.4	1994.7	32.5	1994.8	28.4	1997.2	28.2
2000	28	2005.4	28.6	2005.5	32.5	2100	31	2380	40

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

 1600 .1 1994.7 .015 2005.5 .1

Bank Sta: Left Right Coeff Contr. Expan.
 1994.7 2005.5 .3 .5

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 1600 1994.7 31 F
 2005.5 2380 31 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .95
 Elevation at which weir flow begins = 32
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Piers = 1

Pier Data

Pier Station Upstream= 2000 Downstream= 2000
 Upstream num= 2
 Width Elev Width Elev

 .5 28 .5 31
 Downstream num= 2
 Width Elev Width Elev

 .5 28 .5 31

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow
 Submerged Inlet Cd =
 Submerged Inlet + Outlet Cd = .8
 Max Low Cord = 31

Additional Bridge Parameters

Add Friction component to Momentum
 Do not add Weight component to Momentum
 Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 2.719

INPUT

Description:

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

1600 40 1900 31.4 1994.7 32.5 1994.8 28.4 1997.2 28.2
2000 28 2005.4 28.6 2005.5 32.5 2100 31 2380 40

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

1600 .1 1994.7 .015 2005.5 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1994.7 2005.5 100 100 100 .3 .5

Ineffective Flow num= 2
Sta L Sta R Elev Permanent
1600 1994.7 31 F
2005.5 2380 31 F

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 2.700

INPUT

Description: FEMA XS-P

Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

1600 40 1944 29.9 1994 30.3 1998 27.8 2000 26.9
2004 28.4 2006 29.9 2054 30.1 2380 40

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

1600 .1 1994 .015 2006 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1994 2006 1500 1640 1800 .3 .5

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 2.390

INPUT

Description: FEMA XS-O

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

1800 35 1850 30 1996 29 1997 27 2000 27
2004 27 2005 29 2150 30 2220 35 2350 40

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

1800 .1 1996 .03 2005 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1996 2005 1720 1600 1040 .1 .3

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 2.087

INPUT

Description: FEMA XS-N

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

```
*****
1450    50    1650    45    1800    35    1936    30.9    1986    28.5
1988    26.3    2000    24.8    2013    26.9    2015    28.3    2018    27.4
2044    27.2    2094    28.7    2350    35    2450    50
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```
Manning's n Values          num=      3
Sta  n Val      Sta  n Val      Sta  n Val
*****
1450      .1    1986      .03    2015      .1
```

```
Bank Sta: Left  Right  Lengths: Left Channel  Right  Coeff Contr.  Expan.
          1986    2015          1880    2240    1320          .1          .3
```

CROSS SECTION

```
RIVER: Jones River
REACH: Main Channel      RS: 1.663
```

INPUT

```
Description: FEMA XS-M
Station Elevation Data          num=     11
Sta  Elev      Sta  Elev      Sta  Elev      Sta  Elev      Sta  Elev
*****
1500    50    1550    40    1680    30    1967    25.5    1970    24
2000    22.8    2030    24    2037    25.5    2150    26.5    2200    30
2800    50
```

```
Manning's n Values          num=      3
Sta  n Val      Sta  n Val      Sta  n Val
*****
1500      .1    1967      .03    2037      .1
```

```
Bank Sta: Left  Right  Lengths: Left Channel  Right  Coeff Contr.  Expan.
          1967    2037          1200    1420    1320          .1          .3
```

CROSS SECTION

```
RIVER: Jones River
REACH: Main Channel      RS: 1.394
```

INPUT

```
Description: FEMA XS-L
Station Elevation Data          num=      9
Sta  Elev      Sta  Elev      Sta  Elev      Sta  Elev      Sta  Elev
*****
1600    35    1750    30    2000    20.5    2017    20.6    2021    22.9
2043    24.9    2071    25.3    2350    30    2450    35
```

```
Manning's n Values          num=      3
Sta  n Val      Sta  n Val      Sta  n Val
*****
1600      .1    2000      .03    2021      .1
```

```
Bank Sta: Left  Right  Lengths: Left Channel  Right  Coeff Contr.  Expan.
          2000    2021          1280    1720    1100          .1          .3
```

CROSS SECTION

```
RIVER: Jones River
REACH: Main Channel      RS: 1.068
```

INPUT

```
Description: FEMA XS-K
Station Elevation Data          num=     10
Sta  Elev      Sta  Elev      Sta  Elev      Sta  Elev      Sta  Elev
*****
1650    35    1750    30    1865    25    1975    24.5    1985    21
2000    19.1    2015    21    2026    24.5    2300    30    2350    35
```

```
Manning's n Values          num=      3
Sta  n Val      Sta  n Val      Sta  n Val
*****
1650      .1    1975      .03    2026      .1
```

```
Bank Sta: Left  Right  Lengths: Left Channel  Right  Coeff Contr.  Expan.
          1975    2026          840    640    440          .1          .3
```

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.947

INPUT

Description: FEMA XS-J

Station Elevation Data num= 12
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
1450 40 1550 35 1800 30 1888 26.4 1938 26.2
1970 21 2000 18.5 2030 21 2062 26.2 2112 29.5
2200 30 2300 35

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
1450 .1 1938 .03 2062 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1938 2062 100 100 100 .1 .3

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.928

INPUT

Description: U/S FACE OF WAPPING ROAD (FEMA XS-I)

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
1500 35 1520 32 1900 31.5 1986 30 1988 18.5
2000 18.4 2012 19 2013 30 2100 30.1 2500 35

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
1500 .1 1988 .03 2012 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1988 2012 57.6 57.6 57.6 .1 .3

Ineffective Flow num= 2
Sta L Sta R Elev Permanent
1500 1988 30.1 F
2012 2500 30.1 F

BRIDGE

RIVER: Jones River
REACH: Main Channel RS: 0.920

INPUT

Description: WAPPING ROAD

Distance from Upstream XS = .1
Deck/Roadway Width = 57.4
Weir Coefficient = 2.7

Upstream Deck/Roadway Coordinates

num= 8
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
1900 31.5 1980 30.8 1988 32.4
1989 36 26.5 2012 36 26.5 2013 32.2
2020 30.8 2100 30.1

Upstream Bridge Cross Section Data

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
1500 35 1520 32 1900 31.5 1986 30 1988 18.5
2000 18.4 2012 19 2013 30 2100 30.1 2500 35

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

1500 .1 1988 .03 2012 .1

Bank Sta: Left Right Coeff Contr. Expan.
1988 2012 .1 .3
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
1500 1988 30.1 F
2012 2500 30.1 F

Downstream Deck/Roadway Coordinates
num= 8
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

1900 31.5 1980 30.8 1988 32.4
1989 36 26.5 2012 36 26.5 2013 32.2
2020 30.8 2100 30.1

Downstream Bridge Cross Section Data
Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

1500 35 1520 32 1900 31.5 1986 30 1988 18.5
2000 18.4 2012 19 2013 30 2100 30.1 2500 35

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

1500 .1 1988 .03 2012 .1

Bank Sta: Left Right Coeff Contr. Expan.
1988 2012 .1 .3
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
1500 1988 26.5 F
2012 2500 26.5 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 30.1
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 1

Pier Data
Pier Station Upstream= 2000 Downstream= 2000
Upstream num= 2
Width Elev Width Elev

1 18.4 1 27
Downstream num= 2
Width Elev Width Elev

1 18.4 1 27

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Pressure and Weir flow
Submerged Inlet Cd =
Submerged Inlet + Outlet Cd = .8
Max Low Cord = 26.5

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.917

INPUT

Description: D/S FACE OF WAPPING ROAD

Station Elevation Data		num= 10							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1500	35	1520	32	1900	31.5	1986	30	1988	18.5
2000	18.4	2012	19	2013	30	2100	30.1	2500	35

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
1500	.1	1988	.03	2012	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1988	2012		50	50		.1	.3

Ineffective Flow		num= 2			
Sta L	Sta R	Elev	Permanent		
1500	1988	26.5	F		
2012	2500	26.5	F		

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.907

INPUT

Description: 50' D/S OF WAPPING ROAD

Station Elevation Data		num= 9							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1957.9	45	1958	27.9	1966.5	27.9	1966.6	21.5	2000	18.3
2031.5	25.2	2045	30	2081	30	2600	35		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
1957.9	.1	1966.5	.03	2045	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1966.5	2045		50	50		.1	.3

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.8983

INPUT

Description:

Station Elevation Data		num= 11							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1800	35	1859	30	1860	45	1994	45	1994.5	35
1996.8	18.5	2003.8	18.5	2151	18.5	2151.1	29.5	2300	30
2500	35								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
1800	.1	1996.8	.03	2003.8	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1996.8	2003.8		.1	.1		.1	.3

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.8982

INPUT

Description:

Station Elevation Data		num= 22							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

1800	35	1859	30	1860	45	1994	45	1994.5	35
1996.8	29	1996.9	25.5	1999.6	25.6	1999.7	35	2002.1	35
2002.2	26.5	2003.8	26.5	2003.9	30	2005.2	29.3	2100	29.3
2147	29.3	2147.1	24.5	2151	24.5	2151.1	29.5	2160	29.5
2300	30	2500	35						

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

 1800 .11 1996.8 .03 2151 .11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1996.8 2003.8 1 1 2 .1 .3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.8981

INPUT
 Description: FEMA XS-H
 Station Elevation Data num= 22
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 1800 35 1859 30 1860 45 1994 45 1994.5 35
 1996.8 29 1996.9 25.5 1999.6 25.6 1999.7 35 2002.1 35
 2002.2 26.5 2003.8 26.5 2003.9 30 2005.2 29.3 2100 29.3
 2147 29.3 2147.1 24.5 2151 24.5 2151.1 29.5 2160 29.5
 2300 30 2500 35

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

 1800 .11 1996.8 .02 2151 .11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1996.8 2003.8 .1 .1 .1 .1 .3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.898

INPUT
 Description:
 Station Elevation Data num= 16
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 1800 35 1859 30 1860 45 1994 45 1994.5 35
 1996.8 18 2003.8 18 2003.9 30 2005.2 29.3 2100 29.3
 2100.1 18 2151 18 2151.1 29.5 2160 29.5 2300 30
 2500 35

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

 1800 .11 1994.5 .02 2151.1 .11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1996.8 2003.8 125 125 80 .1 .3

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.874

INPUT
 Description: 50' D/S OF DAM (FEMA XS-I)
 Station Elevation Data num= 23
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 1450 35 1600 25 1936 21.8 1986.5 21.7 1993.5 19.8
 1993.6 17.4 2006.5 17.4 2006.6 19.8 2009 19.8 2009.1 24.7
 2010 24.7 2010.1 21.1 2044.5 21.2 2045 40 2150 40
 2150.1 23 2225 21.6 2250 23.9 2264 18.5 2300 18
 2340 19 2378 24.7 2400 30

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val

 1450 .11 1993.5 .02 2006.6 .06 2150.1 .02 2250 .11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1986.5 2009 50 50 50 .3 .5

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.864

INPUT

Description:

Station Elevation Data num= 22
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 1450 35 1600 25 1900 21.7 1991 21.3 1993.3 21.4
 1995 21.3 1995.1 16.6 2005 16.6 2005.1 21.4 2009.3 21.4
 2076 20.9 2076.1 30 2140 30 2140.1 22 2225 20.6
 2250 22.9 2264 17.5 2300 17 2340 18 2378 24.7
 2385 27.8 2400 30

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val

 1450 .11 1991 .04 2009.3 .08 2250 .03 2378 .11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1995 2005.1 25 25 25 .3 .5

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 1450 1995 17 F
 2005 2400 17 F

BRIDGE

RIVER: Jones River
 REACH: Main Channel RS: 0.862

INPUT

Description: PL BRIDGE

Distance from Upstream XS = .1
 Deck/Roadway Width = 24.8
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 5
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 1900 21.7 17 1995 20.9 17 2000 20.9 17
 2005 20.9 17 2076 20.9

Upstream Bridge Cross Section Data

Station Elevation Data num= 22
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 1450 35 1600 25 1900 21.7 1991 21.3 1993.3 21.4
 1995 21.3 1995.1 16.6 2005 16.6 2005.1 21.4 2009.3 21.4
 2076 20.9 2076.1 30 2140 30 2140.1 22 2225 20.6
 2250 22.9 2264 17.5 2300 17 2340 18 2378 24.7
 2385 27.8 2400 30

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val

 1450 .11 1991 .04 2009.3 .08 2250 .03 2378 .11

Bank Sta: Left Right Coeff Contr. Expan.
 1995 2005.1 .3 .5

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 1450 1995 17 F
 2005 2400 17 F

Downstream Deck/Roadway Coordinates

```

num=          5
Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*****
1900      21.7              1995      20.9      17      2000      20.9      17
2005      20.9              17      2076      20.9

```

Downstream Bridge Cross Section Data

```

Station Elevation Data      num=          22
Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
*****
1450      35      1600      25      1900      21.7      1991      21.3      1993.3      21.4
1995      21.3      1995.1      16.6      2005      16.6      2005.1      21.4      2009.3      21.4
2076      20.9      2076.1      30      2140      30      2140.1      22      2225      20.6
2250      22.9      2264      17.5      2300      17      2340      18      2378      24.7
2385      27.8      2400      30

```

Manning's n Values

```

num=          5
Sta      n Val      Sta      n Val      Sta      n Val      Sta      n Val      Sta      n Val
*****
1450      .11      1995      .04      2005.1      .08      2140.1      .03      2340      .11

```

```

Bank Sta: Left      Right      Coeff Contr.      Expan.
          1995      2005.1              .3              .5

```

```

Ineffective Flow      num=          2
Sta L      Sta R      Elev      Permanent
1450      1995      17      F
2005.1      2400      17      F

```

```

Upstream Embankment side slope      =      0 horiz. to 1.0 vertical
Downstream Embankment side slope      =      0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins      =      18.6
Energy head used in spillway design      =
Spillway height used in design      =
Weir crest shape      =      Broad Crested

```

Number of Piers = 1

Pier Data

```

Pier Station      Upstream=      2000      Downstream=      2000
Upstream      num=          2
Width      Elev      Width      Elev
*****
2      16.6      2      17
Downstream      num=          2
Width      Elev      Width      Elev
*****
2      16.6      2      17

```

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

```

Energy
Selected Low Flow Methods = Highest Energy Answer

```

High Flow Method

```

Pressure and Weir flow
Submerged Inlet Cd      =
Submerged Inlet + Outlet Cd =      .8
Max Low Cord      =      17

```

Additional Bridge Parameters

```

Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

```

CROSS SECTION

```

RIVER: Jones River
REACH: Main Channel      RS: 0.860

```

INPUT

Description: D/S FACE PL BRIDGE & 100'D/S OF DAM (FEMA XS-G)

```

Station Elevation Data      num=          22
Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
*****

```

1450	35	1600	25	1900	21.7	1991	21.3	1993.3	21.4
1995	21.3	1995.1	16.6	2005	16.6	2005.1	21.4	2009.3	21.4
2076	20.9	2076.1	30	2140	30	2140.1	22	2225	20.6
2250	22.9	2264	17.5	2300	17	2340	18	2378	24.7
2385	27.8	2400	30						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1450	.11	1995	.04	2005.1	.08	2140.1	.03	2340	.11

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

1995	2005.1	100	100	240		.3	.5
------	--------	-----	-----	-----	--	----	----

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1450	1995	17	F
2005.1	2400	17	F

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.841

INPUT

Description:

Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1500	50	1550	25	1720	22	1933	21.4	1983	21.9
1991	15.7	2009	16.2	2018	20.8	2068	20.1	2100	20.5
2100.1	30	2200	30	2200.1	23	2308	19.7	2338	22.5
2348	19.5	2353	18.8	2358	17	2370	16.7	2382	16.7
2386	17.7	2396	18	2421	21	2433	23.2	2442	25.4
2650	35								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1500	.11	1991	.04	2009	.08	2200.1	.03	2382	.11

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

1983	2018	200	200	200		.3	.5
------	------	-----	-----	-----	--	----	----

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.803

INPUT

Description: FEMA XS-F

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1650	25	1925	19.5	1950	20.3	1974.5	19.3	1993	16.9
1995	16.2	2000	15.4	2023	16.1	2025.5	19.3	2075	20
2600	25								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1650	.11	1974.5	.04	2023	.08	2075	.11

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

1974.5	2025.5	880	1080	880		.1	.3
--------	--------	-----	------	-----	--	----	----

CROSS SECTION

RIVER: Jones River
 REACH: Main Channel RS: 0.598

INPUT

Description: FEMA XS-E

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1523.7	54.3	1624	16.5	1991	16	1993	15	2000	14.8

2007 15 2009 16 2194 17.1 2525 23 2600 25

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

1523.7 .11 1991 .04 2009 .11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1991 2009 2240 2240 2240 .3 .5

CROSS SECTION

RIVER: Jones River
REACH: Main Channel RS: 0.174

INPUT

Description: FEMA XS-D

Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

1700 25 1906 18.9 1915 17.8 1917 17 2000 13.2
2035 17.1 2038 18.8 2058 18.5 2100 25

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

1700 .11 1915 .04 2058 .11

Bank Sta: Left Right Coeff Contr. Expan.
1915 2058 .3 .5

SUMMARY OF MANNING'S N VALUES

River: Jones River

Table with columns: Reach, River Sta., n1, n2, n3, n4, n5. Rows list various channel segments and their Manning's n values.

*Main Channel * 0.174 * .11* .04* .11* * *

SUMMARY OF REACH LENGTHS

River: Jones River

* Reach	* River Sta.	* Left	* Channel	* Right
*Main Channel	* 3.919	* 100*	100*	100*
*Main Channel	* 3.900	* 62*	62*	62*
*Main Channel	* 3.889	*Bridge	*	*
*Main Channel	* 3.888	* 26.4*	26.4*	26.4*
*Main Channel	* 3.883	* 30*	30*	30*
*Main Channel	* 3.877	* 61*	61*	61*
*Main Channel	* 3.870	*Bridge	*	*
*Main Channel	* 3.865	* 100*	100*	100*
*Main Channel	* 3.846	* 940*	1100*	1140*
*Main Channel	* 3.638	* 1480*	1720*	1480*
*Main Channel	* 3.312	* 960*	1080*	960*
*Main Channel	* 3.108	* 720*	1120*	1020*
*Main Channel	* 2.896	* 820*	820*	820*
*Main Channel	* 2.740	* 100*	100*	100*
*Main Channel	* 2.721	* 10.6*	10.6*	10.6*
*Main Channel	* 2.720	*Bridge	*	*
*Main Channel	* 2.719	* 100*	100*	100*
*Main Channel	* 2.700	* 1500*	1640*	1800*
*Main Channel	* 2.390	* 1720*	1600*	1040*
*Main Channel	* 2.087	* 1880*	2240*	1320*
*Main Channel	* 1.663	* 1200*	1420*	1320*
*Main Channel	* 1.394	* 1280*	1720*	1100*
*Main Channel	* 1.068	* 840*	640*	440*
*Main Channel	* 0.947	* 100*	100*	100*
*Main Channel	* 0.928	* 57.6*	57.6*	57.6*
*Main Channel	* 0.920	*Bridge	*	*
*Main Channel	* 0.917	* 50*	50*	50*
*Main Channel	* 0.907	* 50*	50*	100*
*Main Channel	* 0.8983	* .1*	.1*	.1*
*Main Channel	* 0.8982	* 1*	1*	2*
*Main Channel	* 0.8981	* .1*	.1*	.1*
*Main Channel	* 0.898	* 125*	125*	80*
*Main Channel	* 0.874	* 50*	50*	50*
*Main Channel	* 0.864	* 25*	25*	25*
*Main Channel	* 0.862	*Bridge	*	*
*Main Channel	* 0.860	* 100*	100*	240*
*Main Channel	* 0.841	* 200*	200*	200*
*Main Channel	* 0.803	* 880*	1080*	880*
*Main Channel	* 0.598	* 2240*	2240*	2240*
*Main Channel	* 0.174	* *	*	*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Jones River

* Reach	* River Sta.	* Contr.	* Expan.
*Main Channel	* 3.919	* .1*	.3*
*Main Channel	* 3.900	* .1*	.3*
*Main Channel	* 3.889	*Bridge	*
*Main Channel	* 3.888	* .3*	.5*
*Main Channel	* 3.883	* .3*	.5*
*Main Channel	* 3.877	* .1*	.3*
*Main Channel	* 3.870	*Bridge	*
*Main Channel	* 3.865	* .1*	.3*
*Main Channel	* 3.846	* .1*	.3*
*Main Channel	* 3.638	* .1*	.3*
*Main Channel	* 3.312	* .1*	.3*
*Main Channel	* 3.108	* .1*	.3*
*Main Channel	* 2.896	* .1*	.3*
*Main Channel	* 2.740	* .1*	.3*
*Main Channel	* 2.721	* .1*	.3*
*Main Channel	* 2.720	*Bridge	*
*Main Channel	* 2.719	* .3*	.5*
*Main Channel	* 2.700	* .3*	.5*

*Main Channel	*	2.390	*	.1*	.3*
*Main Channel	*	2.087	*	.1*	.3*
*Main Channel	*	1.663	*	.1*	.3*
*Main Channel	*	1.394	*	.1*	.3*
*Main Channel	*	1.068	*	.1*	.3*
*Main Channel	*	0.947	*	.1*	.3*
*Main Channel	*	0.928	*	.1*	.3*
*Main Channel	*	0.920	*Bridge	*	*
*Main Channel	*	0.917	*	.1*	.3*
*Main Channel	*	0.907	*	.1*	.3*
*Main Channel	*	0.8983	*	.1*	.3*
*Main Channel	*	0.8982	*	.1*	.3*
*Main Channel	*	0.8981	*	.1*	.3*
*Main Channel	*	0.898	*	.1*	.3*
*Main Channel	*	0.874	*	.3*	.5*
*Main Channel	*	0.864	*	.3*	.5*
*Main Channel	*	0.862	*Bridge	*	*
*Main Channel	*	0.860	*	.3*	.5*
*Main Channel	*	0.841	*	.3*	.5*
*Main Channel	*	0.803	*	.1*	.3*
*Main Channel	*	0.598	*	.3*	.5*
*Main Channel	*	0.174	*	.3*	.5*

Profile Output Table - Summary Output

* Reach	* River Sta	* Profile	* Q Total	* Min Ch El	* W.S. Elev	* Crit W.S.	* E.G. Elev	* Vel Chnl	* Top Width
*	*	*	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)
* Main Channel	* 0.174	* 10YR	* 620.00	* 13.20	* 19.80	* 15.70	* 19.82	* 1.05	* 190.79
* Main Channel	* 0.174	* 50YR	* 810.00	* 13.20	* 20.60	* 16.00	* 20.62	* 1.14	* 222.98
* Main Channel	* 0.174	* 100YR	* 940.00	* 13.20	* 21.20	* 16.17	* 21.22	* 1.17	* 247.12
* Main Channel	* 0.598	* 10YR	* 620.00	* 14.80	* 20.01	*	* 20.02	* 0.86	* 742.86
* Main Channel	* 0.598	* 50YR	* 810.00	* 14.80	* 20.80	*	* 20.80	* 0.89	* 788.90
* Main Channel	* 0.598	* 100YR	* 940.00	* 14.80	* 21.38	*	* 21.38	* 0.89	* 823.05
* Main Channel	* 0.803	* 10YR	* 540.00	* 15.40	* 20.08	*	* 20.22	* 3.08	* 175.24
* Main Channel	* 0.803	* 50YR	* 700.00	* 15.40	* 20.86	*	* 20.97	* 2.90	* 307.82
* Main Channel	* 0.803	* 100YR	* 830.00	* 15.40	* 21.44	*	* 21.53	* 2.71	* 397.43
* Main Channel	* 0.841	* 10YR	* 530.00	* 15.70	* 20.44	*	* 20.49	* 1.39	* 187.87
* Main Channel	* 0.841	* 50YR	* 680.00	* 15.70	* 21.13	*	* 21.17	* 1.28	* 257.30
* Main Channel	* 0.841	* 100YR	* 820.00	* 15.70	* 21.65	*	* 21.68	* 1.21	* 397.35
* Main Channel	* 0.860	* 10YR	* 530.00	* 16.60	* 20.56	* 18.35	* 20.60	* 1.16	* 108.48
* Main Channel	* 0.860	* 50YR	* 680.00	* 16.60	* 21.22	* 18.54	* 21.26	* 1.14	* 200.28
* Main Channel	* 0.860	* 100YR	* 820.00	* 16.60	* 21.72	* 18.71	* 21.76	* 1.15	* 366.18
* Main Channel	* 0.862		Bridge	*	*	*	*	*	*
* Main Channel	* 0.864	* 10YR	* 530.00	* 16.60	* 20.58	* 18.35	* 20.62	* 1.15	* 108.65
* Main Channel	* 0.864	* 50YR	* 680.00	* 16.60	* 21.23	* 18.54	* 21.28	* 1.13	* 204.06
* Main Channel	* 0.864	* 100YR	* 820.00	* 16.60	* 21.74	* 18.71	* 21.77	* 1.15	* 368.59
* Main Channel	* 0.874	* 10YR	* 530.00	* 17.40	* 20.56	* 20.06	* 20.73	* 4.75	* 110.05
* Main Channel	* 0.874	* 50YR	* 680.00	* 17.40	* 21.24	* 20.21	* 21.35	* 3.87	* 153.27
* Main Channel	* 0.874	* 100YR	* 820.00	* 17.40	* 21.74	* 20.37	* 21.83	* 3.49	* 190.22
* Main Channel	* 0.898	* 10YR	* 530.00	* 18.00	* 18.35	* 19.37	* 29.09	* 26.51	* 57.96
* Main Channel	* 0.898	* 50YR	* 682.00	* 18.00	* 18.45	* 19.62	* 29.20	* 26.59	* 57.97
* Main Channel	* 0.898	* 100YR	* 821.00	* 18.00	* 18.54	* 19.84	* 29.31	* 26.66	* 57.99
* Main Channel	* 0.8981	* 10YR	* 530.00	* 25.50	* 29.85	* 29.85	* 30.12	* 5.99	* 259.98
* Main Channel	* 0.8981	* 50YR	* 682.00	* 25.50	* 29.96	* 29.96	* 30.25	* 6.30	* 289.94
* Main Channel	* 0.8981	* 100YR	* 821.00	* 25.50	* 30.03	* 30.03	* 30.36	* 6.84	* 302.38
* Main Channel	* 0.8982	* 10YR	* 530.00	* 25.50	* 29.95	*	* 30.13	* 4.91	* 288.10
* Main Channel	* 0.8982	* 50YR	* 682.00	* 25.50	* 30.06	* 29.95	* 30.26	* 5.24	* 304.43
* Main Channel	* 0.8982	* 100YR	* 821.00	* 25.50	* 30.17	* 30.05	* 30.38	* 5.30	* 310.04
* Main Channel	* 0.8983	* 10YR	* 530.00	* 18.50	* 30.14	*	* 30.15	* 1.29	* 312.23
* Main Channel	* 0.8983	* 50YR	* 682.00	* 18.50	* 30.27	*	* 30.28	* 1.63	* 319.09
* Main Channel	* 0.8983	* 100YR	* 821.00	* 18.50	* 30.39	*	* 30.40	* 1.93	* 324.98

*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 0.907	* 10YR	* 530.00	* 18.30	* 30.14	*	*	30.15	* 0.82	* 137.66	*
* Main Channel	* 0.907	* 50YR	* 682.00	* 18.30	* 30.27	*	*	30.29	* 1.04	* 151.24	*
* Main Channel	* 0.907	* 100YR	* 821.00	* 18.30	* 30.38	*	*	30.41	* 1.24	* 162.85	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 0.917	* 10YR	* 530.00	* 18.40	* 30.11	* 21.05	*	30.17	* 1.91	* 121.18	*
* Main Channel	* 0.917	* 50YR	* 682.00	* 18.40	* 30.22	* 21.50	*	30.31	* 2.43	* 136.69	*
* Main Channel	* 0.917	* 100YR	* 821.00	* 18.40	* 30.31	* 21.89	*	30.44	* 2.90	* 149.28	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 0.920	*	* Bridge	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 0.928	* 10YR	* 530.00	* 18.40	* 30.28	* 21.05	*	30.33	* 1.88	* 144.25	*
* Main Channel	* 0.928	* 50YR	* 682.00	* 18.40	* 30.48	* 21.50	*	30.57	* 2.37	* 172.81	*
* Main Channel	* 0.928	* 100YR	* 821.00	* 18.40	* 30.64	* 21.88	*	30.77	* 2.80	* 195.44	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 0.947	* 10YR	* 530.00	* 18.50	* 30.33	*	*	30.34	* 0.47	* 423.39	*
* Main Channel	* 0.947	* 50YR	* 682.00	* 18.50	* 30.57	*	*	30.58	* 0.58	* 440.14	*
* Main Channel	* 0.947	* 100YR	* 821.00	* 18.50	* 30.77	*	*	30.78	* 0.68	* 454.06	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 1.068	* 10YR	* 530.00	* 19.10	* 30.34	*	*	30.34	* 0.70	* 560.13	*
* Main Channel	* 1.068	* 50YR	* 682.00	* 19.10	* 30.58	*	*	30.59	* 0.86	* 567.36	*
* Main Channel	* 1.068	* 100YR	* 821.00	* 19.10	* 30.78	*	*	30.79	* 0.99	* 573.39	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 1.394	* 10YR	* 530.00	* 20.50	* 30.36	*	*	30.36	* 0.88	* 617.86	*
* Main Channel	* 1.394	* 50YR	* 682.00	* 20.50	* 30.61	*	*	30.61	* 1.07	* 630.34	*
* Main Channel	* 1.394	* 100YR	* 821.00	* 20.50	* 30.82	*	*	30.82	* 1.23	* 640.80	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 1.663	* 10YR	* 460.00	* 22.80	* 30.38	*	*	30.38	* 0.65	* 536.20	*
* Main Channel	* 1.663	* 50YR	* 604.00	* 22.80	* 30.63	*	*	30.64	* 0.80	* 547.30	*
* Main Channel	* 1.663	* 100YR	* 730.00	* 22.80	* 30.85	*	*	30.86	* 0.92	* 556.64	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.087	* 10YR	* 460.00	* 24.80	* 30.41	*	*	30.48	* 2.56	* 216.98	*
* Main Channel	* 2.087	* 50YR	* 610.00	* 24.80	* 30.68	*	*	30.78	* 3.10	* 233.71	*
* Main Channel	* 2.087	* 100YR	* 740.00	* 24.80	* 30.91	*	*	31.04	* 3.49	* 247.92	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.390	* 10YR	* 460.00	* 27.00	* 31.27	*	*	31.32	* 3.27	* 330.49	*
* Main Channel	* 2.390	* 50YR	* 610.00	* 27.00	* 31.70	*	*	31.75	* 3.36	* 340.91	*
* Main Channel	* 2.390	* 100YR	* 740.00	* 27.00	* 32.04	*	*	32.08	* 3.46	* 348.87	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.700	* 10YR	* 390.00	* 26.90	* 32.25	* 31.27	*	32.46	* 4.81	* 260.86	*
* Main Channel	* 2.700	* 50YR	* 540.00	* 26.90	* 32.70	* 31.69	*	32.95	* 5.50	* 290.79	*
* Main Channel	* 2.700	* 100YR	* 650.00	* 26.90	* 33.01	* 31.93	*	33.29	* 5.84	* 312.05	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.719	* 10YR	* 390.00	* 28.00	* 32.38	* 32.38	*	33.08	* 7.37	* 258.33	*
* Main Channel	* 2.719	* 50YR	* 540.00	* 28.00	* 32.85	* 32.85	*	33.49	* 7.68	* 308.01	*
* Main Channel	* 2.719	* 100YR	* 650.00	* 28.00	* 33.06	* 33.06	*	33.73	* 8.16	* 322.24	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.720	*	* Bridge	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.721	* 10YR	* 390.00	* 28.00	* 33.10	* 32.33	*	33.19	* 3.52	* 324.67	*
* Main Channel	* 2.721	* 50YR	* 540.00	* 28.00	* 33.51	* 32.68	*	33.59	* 3.70	* 351.51	*

* Main Channel	* 2.721	* 100YR	* 650.00	* 28.00	* 33.75	* 32.81	* 33.84	* 3.85	* 367.71
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.740	* 10YR	* 390.00	* 28.80	* 33.19	*	* 33.29	* 3.26	* 181.10
* Main Channel	* 2.740	* 50YR	* 540.00	* 28.80	* 33.58	*	* 33.72	* 3.88	* 200.27
* Main Channel	* 2.740	* 100YR	* 650.00	* 28.80	* 33.81	*	* 33.98	* 4.28	* 211.87
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 2.896	* 10YR	* 75.00	* 27.30	* 33.39	*	* 33.39	* 0.32	* 391.07
* Main Channel	* 2.896	* 50YR	* 100.00	* 27.30	* 33.84	*	* 33.84	* 0.36	* 435.87
* Main Channel	* 2.896	* 100YR	* 116.00	* 27.30	* 34.11	*	* 34.11	* 0.38	* 463.42
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.108	* 10YR	* 75.00	* 25.80	* 33.40	*	* 33.40	* 0.53	* 318.53
* Main Channel	* 3.108	* 50YR	* 100.00	* 25.80	* 33.84	*	* 33.85	* 0.58	* 377.60
* Main Channel	* 3.108	* 100YR	* 116.00	* 25.80	* 34.12	*	* 34.12	* 0.60	* 413.88
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.312	* 10YR	* 75.00	* 29.30	* 33.42	*	* 33.43	* 0.73	* 189.27
* Main Channel	* 3.312	* 50YR	* 100.00	* 29.30	* 33.87	*	* 33.88	* 0.79	* 206.56
* Main Channel	* 3.312	* 100YR	* 116.00	* 29.30	* 34.15	*	* 34.15	* 0.82	* 217.13
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.638	* 10YR	* 45.00	* 29.50	* 33.53	*	* 33.55	* 1.19	* 64.07
* Main Channel	* 3.638	* 50YR	* 60.00	* 29.50	* 33.97	*	* 33.99	* 1.20	* 133.63
* Main Channel	* 3.638	* 100YR	* 70.00	* 29.50	* 34.24	*	* 34.26	* 1.16	* 167.20
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.846	* 10YR	* 45.00	* 33.00	* 34.18	*	* 34.34	* 3.17	* 15.22
* Main Channel	* 3.846	* 50YR	* 60.00	* 33.00	* 34.50	*	* 34.65	* 3.09	* 50.25
* Main Channel	* 3.846	* 100YR	* 70.00	* 33.00	* 34.68	*	* 34.82	* 3.02	* 80.23
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.865	* 10YR	* 45.00	* 32.20	* 34.49	* 33.77	* 34.70	* 3.69	* 7.42
* Main Channel	* 3.865	* 50YR	* 60.00	* 32.20	* 34.72	* 34.02	* 35.02	* 4.37	* 7.58
* Main Channel	* 3.865	* 100YR	* 70.00	* 32.20	* 34.84	* 34.16	* 35.20	* 4.84	* 7.65
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.870	*	Bridge	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.877	* 10YR	* 45.00	* 32.20	* 34.72	* 33.77	* 34.89	* 3.29	* 7.57
* Main Channel	* 3.877	* 50YR	* 60.00	* 32.20	* 35.01	* 34.02	* 35.24	* 3.85	* 7.77
* Main Channel	* 3.877	* 100YR	* 70.00	* 32.20	* 35.17	* 34.16	* 35.44	* 4.20	* 7.89
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.883	* 10YR	* 45.00	* 32.60	* 34.94	*	* 34.94	* 0.46	* 77.61
* Main Channel	* 3.883	* 50YR	* 60.00	* 32.60	* 35.30	*	* 35.31	* 0.51	* 87.17
* Main Channel	* 3.883	* 100YR	* 70.00	* 32.60	* 35.52	*	* 35.53	* 0.54	* 92.85
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.888	* 10YR	* 45.00	* 33.00	* 34.93	* 33.77	* 34.94	* 0.75	* 46.40
* Main Channel	* 3.888	* 50YR	* 60.00	* 33.00	* 35.30	* 33.86	* 35.31	* 0.77	* 49.25
* Main Channel	* 3.888	* 100YR	* 70.00	* 33.00	* 35.52	* 33.92	* 35.53	* 0.79	* 50.95
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.889	*	Bridge	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.900	* 10YR	* 45.00	* 33.00	* 34.95	* 33.76	* 34.96	* 0.74	* 46.53
* Main Channel	* 3.900	* 50YR	* 60.00	* 33.00	* 35.32	* 33.87	* 35.33	* 0.77	* 49.37
* Main Channel	* 3.900	* 100YR	* 70.00	* 33.00	* 35.53	* 33.93	* 35.54	* 0.78	* 51.07
*	*	*	*	*	*	*	*	*	*
* Main Channel	* 3.919	* 10YR	* 45.00	* 33.00	* 34.98	* 34.04	* 35.03	* 1.76	* 39.58

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* Main Channel * 3.919      * 50YR      * 60.00 * 33.00 * 35.34 * 34.19 * 35.38 * 1.67 * 103.73 *
* Main Channel * 3.919      * 100YR     * 70.00 * 33.00 * 35.56 * 34.29 * 35.59 * 1.55 * 129.21 *
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