

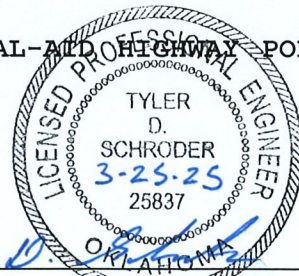
Hydraulic Report
for
Bridges over Turkey Creek
Kingfisher County
J/P No. 29362 (04)

March 25, 2025

prepared by

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The proposed design is in compliance with "FEDERAL-AID HIGHWAY POLICY
GUIDE 23 CFR 650, Subpart A".




Tyler D. Schroder, P.E. 25837

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Exhibits

- A - Proposed backwater calculations
- B - Existing backwater calculations
- C - Natural backwater calculations
- D - Scour calculations

HISTORIC FLOOD:

There are no historic floods on record.

EXISTING STRUCTURES:

The existing Bridge 1 is a 38'-60'-38' I-beam spans by 23.5' wide structure and spans the main channel of Turkey Creek. The average low chord elevation for the existing Bridge 1 is 1038.06 feet.

The existing Bridge 2 is 7 - 40' I-beam spans by 23.5' wide structure and serves as an overflow for Turkey Creek. The average low chord elevation for the existing Bridge 2 is 1038.30 feet.

PROPOSED STRUCTURES:

The proposed Bridge 1 is a 50'-80'-50' Type II and III Pre-stressed Concrete Beam (PCB) Bridge by 28'-2" wide and spans the main channel of Turkey Creek. The low chord elevation is 1037.40 feet. The roadway is located in the floodplain and will overtop at an 11 yr. flood event. The proposed Bridge 1 has an opening large enough to allow up to a 100 yr. flood event to pass beneath it.

The proposed Bridge 2 is 5 - 60' spans, Type II Pre-stressed Concrete Beam (PCB) Bridge by 28'-2" wide and serves as an overflow for Turkey Creek. The low chord elevation is 1037.67 feet. The roadway is located in the floodplain and will overtop at an 11 yr. flood event. The proposed Bridge 2 has an opening large enough to allow up to a 100 yr. flood event to pass beneath it.

CHANNEL SECTION:

The channel is relatively straight with few obstructions. The slope of the channel is 0.000718 ft/ft near the bridge. See appendices A, B, and C for typical sections used.

DESIGN CRITERIA:

The Oklahoma Department of Transportation regulates the design criteria for structures in Oklahoma. The upstream water surface (backwater) shall not exceed 1.0 foot above the existing backwater elevation or natural backwater elevation, whichever is greater. The velocity downstream shall not exceed 12.0 feet per second for culverts and 8.0 feet per second for bridges at or below the 50 year frequency. However, if the existing structure exceeds the criteria, the proposed structure may exceed the design criteria as long as it is an improvement of the existing structure.

DISCHARGES AND FREQUENCIES:

Because of the size of the drainage area and the location of a gaging station within the drainage boundary, multiple regression techniques as outlined in "Methods for Estimating the Magnitude and Frequency of Peak Streamflows for Unregulated Streams in Oklahoma, U.S. Geological Survey Scientific Investigations Report 2010-5137" were used to determine the frequencies along with the USGS StreamStats website.

The main parameters used in the before mentioned method are as follows:

1. Drainage area (A) - 411.53 square miles
2. Main channel slope (S) - 0.000718 feet/feet
3. Mean annual precipitation (P) - 32.60 inches

For subject site:

A = 411.53 square miles S = 3.79 feet/miles P = 32.60 inches
R_C = Correction factor to improve the estimate by using nearby gaging-station data

Q ₂	=	0.064	(A) ^{0.66}	(S) ^{0.16}	(P) ^{2.06}	R _C	=	5,934 cfs
Q ₅	=	0.574	(A) ^{0.66}	(S) ^{0.19}	(P) ^{1.63}	R _C	=	11,864 cfs
Q ₁₀	=	1.74	(A) ^{0.66}	(S) ^{0.21}	(P) ^{1.42}	R _C	=	17,357 cfs
Q ₂₅	=	4.90	(A) ^{0.66}	(S) ^{0.23}	(P) ^{1.24}	R _C	=	26,139 cfs
Q ₅₀	=	13.18	(A) ^{0.66}	(S) ^{0.21}	(P) ^{1.05}	R _C	=	34,886 cfs
Q ₁₀₀	=	26.9	(A) ^{0.65}	(S) ^{0.21}	(P) ^{0.92}	R _C	=	41,342 cfs
Q ₅₀₀	=	126	(A) ^{0.64}	(S) ^{0.19}	(P) ^{0.64}	R _C	=	63,419 cfs

See the graph below for discharge - frequency curve.

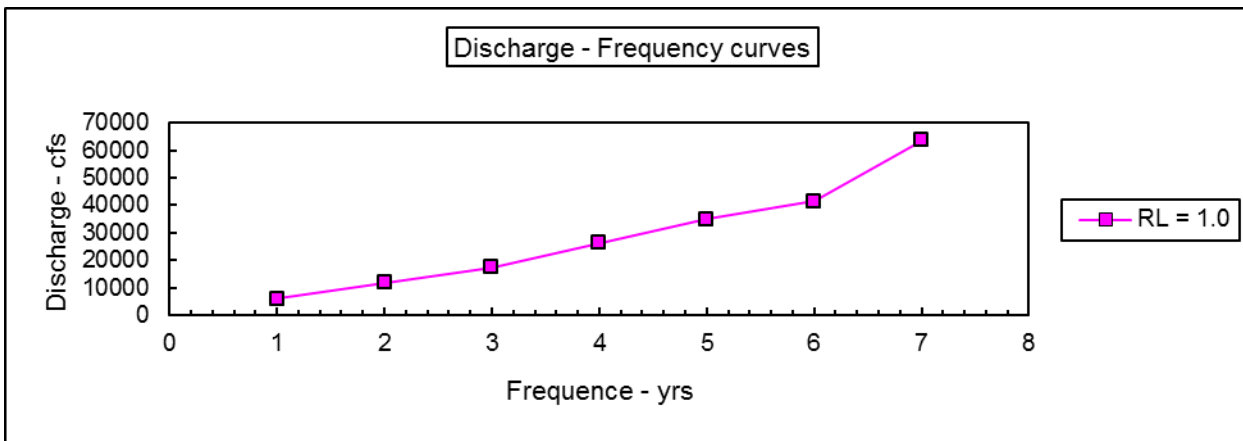


Figure 3: Discharge - Frequency Curve

HYDRAULIC ANALYSIS:

The Army Corps of Engineers' HEC-RAS version 6.0.0 computer program was used to determine the backwater and velocities for the proposed, existing, and natural structures.

The starting water surface slope for the hydraulic analysis was assumed to equal the flowline slope of the channel at 0.000718 ft./ft. See Exhibit A for detailed calculations for the proposed structures, Exhibit B for detailed calculations for the existing structures and Exhibit C for detailed calculations for the natural channel.

Overtopping of the roadway in this area occurs at approximately an 11 yr. flood event. The low beam elevations of the proposed structures are controlled by the backwater elevations. The 50 yr. stream velocities at Bridge 1 are higher than the preferred maximum of 8 ft./sec. but the calculated abutment scour is not considered excessive due to the placement of Rip-Rap.

Summary of natural vs. existing vs. proposed structures in the Floodplain

Return Freq. (yrs.)	Discharge (cfs)	Backwater Elevation (ft.)			Velocity (ft. per sec.)		
		Natural	Existing	Proposed	Natural	Existing	Proposed
2	5,934	1030.49	1030.62	1030.54	5.27	5.27	5.27
5	11,864	1033.26	1033.66	1033.47	6.91	6.91	6.91
10	17,357	1034.18	1035.14	1034.80	7.44	7.44	7.44
25	26,139	1035.10	1036.94	1036.90	7.27	7.28	7.28
50	34,886	1035.84	1037.76	1037.66	6.88	6.88	6.88
100	41,342	1036.35	1038.20	1038.13	6.61	6.61	6.61

See figure below for graphical comparison of the existing and proposed structures.

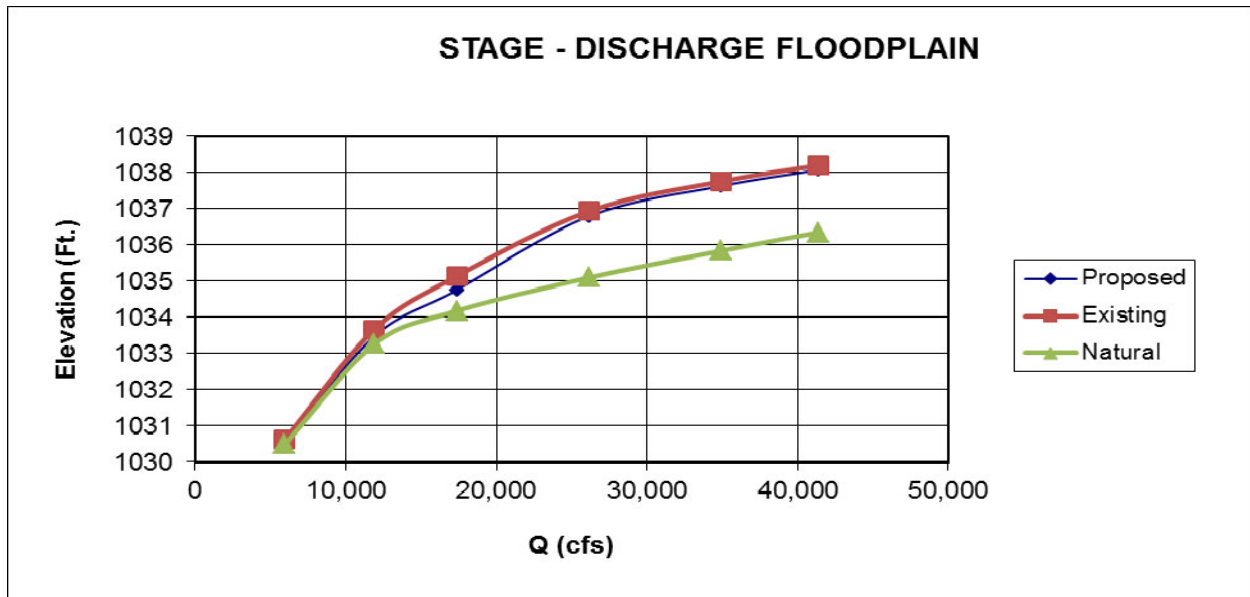


Figure 4: Stage - Discharge Curves for Structures in the Floodplain

Summary of existing vs. proposed structures for Bridge 1

Return Freq. (yrs.)	Discharge (cfs)		Backwater Elevation (ft.)		Velocity (ft. per sec.)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
2	5,934.00	5,934.00	1030.48	1030.40	5.18	5.22
5	11,720.98	11,811.63	1032.57	1032.33	8.58	8.85
10	15,921.82	16,243.75	1033.32	1032.65	10.30	11.76
25	19,377.32	19,752.65	1035.28	1035.10	8.94	9.37
50	20,639.71	21,184.60	1036.35	1036.05	8.19	8.76
100	21,284.34	22,141.79	1036.94	1036.67	7.83	8.43

See figure below for graphical comparison of the existing and proposed structures for Bridge 1.

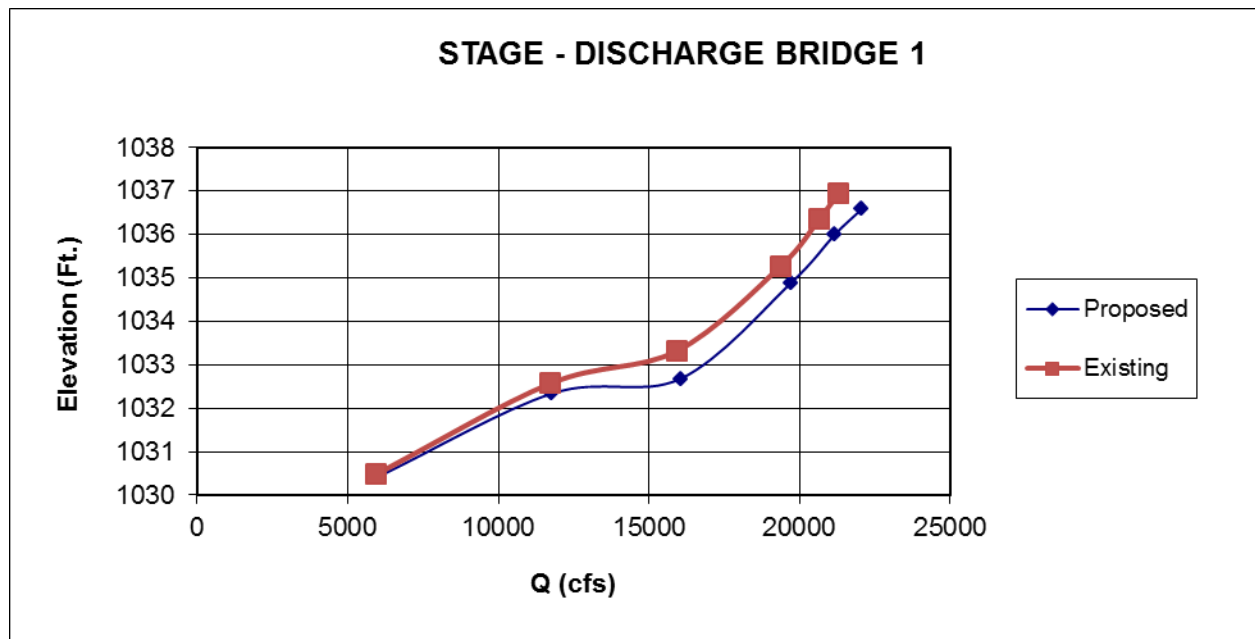


Figure 5: Stage - Discharge Curves For Bridge 1

Summary of existing vs. proposed structures for Bridge 2

Return Freq. (yrs.)	Discharge (cfs)		Backwater Elevation (ft.)		Velocity (ft. per sec.)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
2	0.00	0.00	0.00	0.00	0.00	0.00
5	143.02	52.38	1033.73	1033.59	0.02	0.01
10	1,435.18	1,113.25	1035.13	1034.88	0.12	0.10
25	6,761.68	6,386.35	1036.98	1036.89	0.39	0.37
50	14,246.29	13,701.40	1037.79	1037.71	0.71	0.69
100	20,057.66	19,200.21	1038.21	1038.14	0.94	0.91

See figure below for graphical comparison of the existing and proposed structures for Bridge 2.

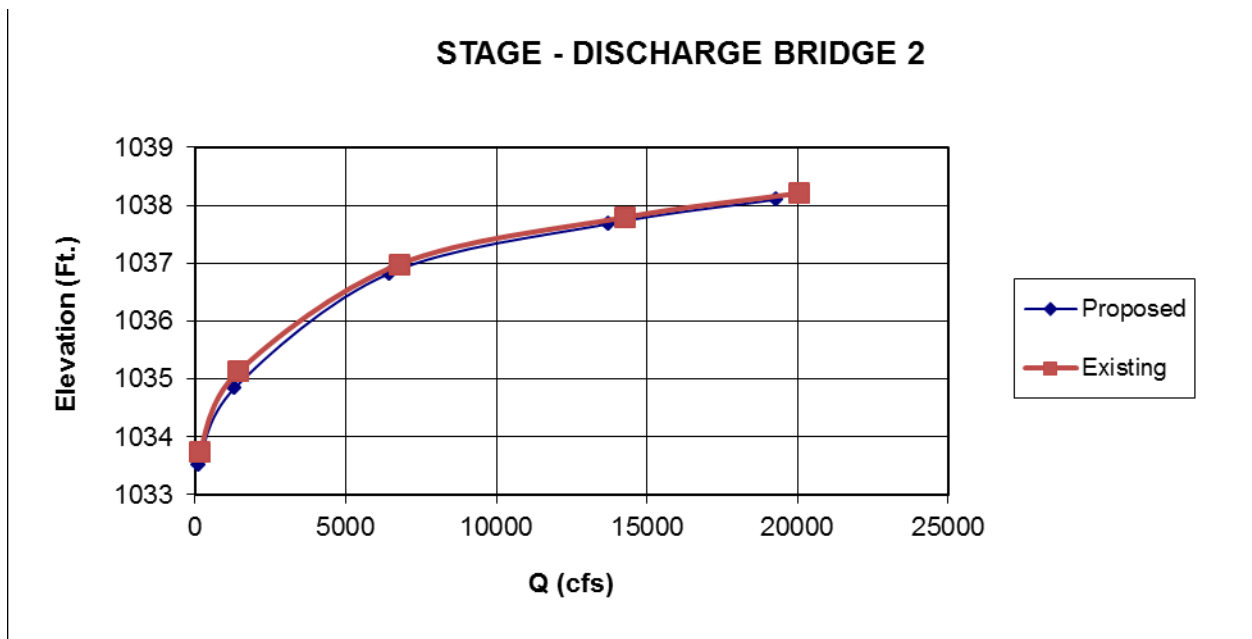


Figure 6: Stage - Discharge Curves For Bridge 2

RISK STATEMENT:

Overtopping in this area occurs at approximately an 11 yr. flood event. The encroachment associated with this bridge structure is considered "low risk", since there are minimal hazards to life or property upstream of the structure. There are no detrimental effects anticipated to the beneficial floodplain.

The proposed design is in compliance with "FEDERAL-AID HIGHWAY POLICY GUIDE 23 CFR 650, Subpart A".

SUMMARY OF HYDRAULIC AND HYDROLOGIC DATA:

Drainage Area..... 411.53 sq. mi.
SCS Controlled area..... 2.50 sq. mi.

Structure 1 180' by 28'-2" wide Type II & III PCB Bridge

Q25..... 19,752.65 cfs
Q25 computed BW elev..... 1,035.10 feet
V25..... 9.37 ft/sec

Q50..... 21,184.60 cfs
Q50 computed BW elev..... 1,036.05 feet
V50..... 8.76 ft/sec

Q100..... 22,141.79 cfs
Q100 computed BW elev..... 1,036.67 feet
V100..... 8.43 ft/sec

Qot 16,470.78 cfs
Overtopping elev (low) 1,035.01 feet
Vot (bridge)..... 11.61 ft/sec

Extreme highwater on record..... n/a

Maximum scour depth (Bridge 1 abutment)... 17.83 feet
Maximum scour depth (Bridge 1 pier)..... 7.52 feet

Structure 2 300' by 28'-2" wide Type II PCB Bridge

Q25..... 6,386.35 cfs
Q25 computed BW elev..... 1,036.89 feet
V25..... 0.37 ft/sec

Q50..... 13,701.40 cfs
Q50 computed BW elev..... 1,037.71 feet
V50..... 0.69 ft/sec

Q100..... 19,200.21 cfs
Q100 computed BW elev..... 1,038.14 feet
V100..... 0.91 ft/sec

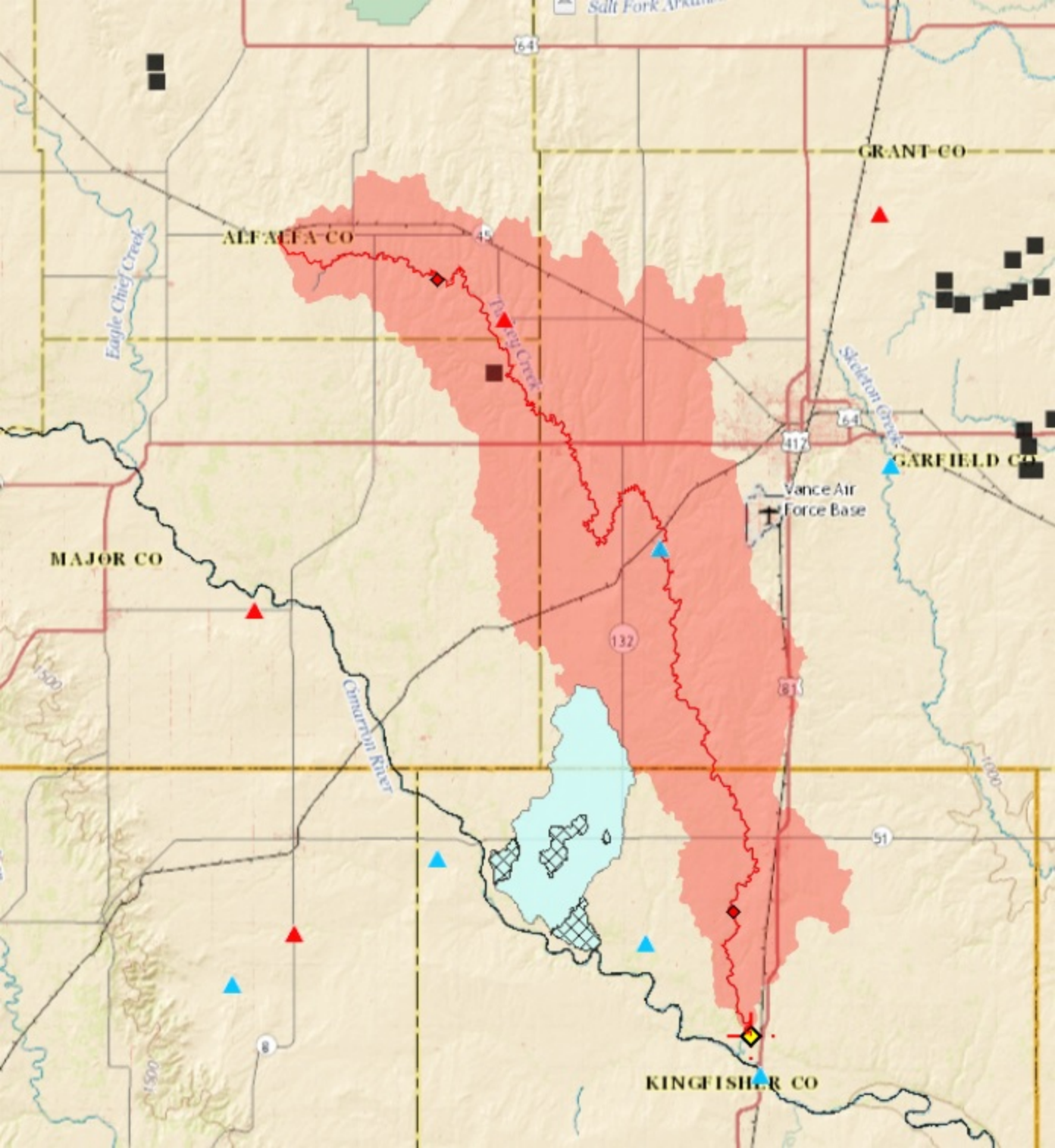
Qot 1,454.42 cfs
Overtopping elev (low) 1,035.01 feet
Vot (bridge)..... 0.12 ft/sec

Extreme highwater on record..... n/a

Maximum scour depth (Bridge 2 abutment)...	12.34 feet
Maximum scour depth (Bridge 2 pier).....	3.99 feet

The proposed structures meet ODOT and FHWA requirements for the hydraulic design of bridge structures in Oklahoma. The proposed backwater elevations are lower than the existing backwater elevations. The proposed structures are also an improvement of the existing structure.

Exhibit A – Proposed Backwater Calculations



Circuit Engineering District #8

County : Kingfisher
 Project Number : CIRB over Turkey Cr.
 J/P Number : 29362(04)

Date : 6/16/2016
 Calculated By : Tyler Schroder

Regression Adjustment for Gaging Station

If the bridge's drainage area is less than half or more than 50% of the gaging station's drainage area than do not use this sheet. Use the regression formula for the bridge site without adjustment.

Regression of Bridge Site		
Cont. Drain. Area	411.53	Sq. Mi.
PRECIP	32.60	Inches
CSL10_85fm	3.79	Ft./Mi.
Q _{2r}	5,510.00	Ft. ³ /s
Q _{5r}	11,500.00	Ft. ³ /s
Q _{10r}	17,200.00	Ft. ³ /s
Q _{25r}	26,600.00	Ft. ³ /s
Q _{50r}	36,000.00	Ft. ³ /s
Q _{100r}	43,900.00	Ft. ³ /s
Q _{500r}	71,100.00	Ft. ³ /s

Regression of Gage Site		
Cont. Drain. Area	254.77	Sq. Mi.
PRECIP	32.37	Inches
CSL10_85fm	4.31	Ft./Mi.
Q _{2r}	4,040.00	Ft. ³ /s
Q _{5r}	8,490.00	Ft. ³ /s
Q _{10r}	12,800.00	Ft. ³ /s
Q _{25r}	19,800.00	Ft. ³ /s
Q _{50r}	26,700.00	Ft. ³ /s
Q _{100r}	32,800.00	Ft. ³ /s
Q _{500r}	53,400.00	Ft. ³ /s

Gage Site Data 07159000		
Cont. Drain. Area	254.76	Sq. Mi.
PRECIP	32.4	Inches
CSL10_85fm	4.31	Ft./Mi.
Q _{2s}	2,630.00	Ft. ³ /s
Q _{5s}	7,190.00	Ft. ³ /s
Q _{10s}	12,200.00	Ft. ³ /s
Q _{25s}	21,600.00	Ft. ³ /s
Q _{50s}	31,200.00	Ft. ³ /s
Q _{100s}	43,400.00	Ft. ³ /s
Q _{500s}	85,400.00	Ft. ³ /s

$$Q_w = [Q_s(N) + Q_r(E)] / (N + E)$$

N (no. of yrs. of records at gage) 43

$$\Delta \text{CONTDA} = 156.76$$

difference in bridge and gage site

Weighted Estimate of Gage Site

Q _{2w}	2692.67	Ft. ³ /s
Q _{5w}	7325.42	Ft. ³ /s
Q _{10w}	12294.12	Ft. ³ /s
Q _{25w}	21288.46	Ft. ³ /s
Q _{50w}	30283.33	Ft. ³ /s
Q _{100w}	41087.27	Ft. ³ /s
Q _{500w}	78418.18	Ft. ³ /s

E (Equivalent years of record)

2
5
8
9
11
12
12

$$R_w = Q_w / Q_r$$

R _{2w}	0.67
R _{5w}	0.86
R _{10w}	0.96
R _{25w}	1.08
R _{50w}	1.13
R _{100w}	1.25
R _{500w}	1.47

$$R_c = R_w - (\Delta \text{CONTDA} / 0.5 \text{CONTDA}_g) * (R_w - 1.00)$$

R _{2c}	1.08
R _{5c}	1.03
R _{10c}	1.01
R _{25c}	0.98
R _{50c}	0.97
R _{100c}	0.94
R _{500c}	0.89

$$Q = Q_r * R_c$$

Q ₂	5934	Ft. ³ /s
Q ₅	11864	Ft. ³ /s
Q ₁₀	17357	Ft. ³ /s
Q ₂₅	26139	Ft. ³ /s
Q ₅₀	34886	Ft. ³ /s
Q ₁₀₀	41342	Ft. ³ /s
Q ₅₀₀	63419	Ft. ³ /s

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs June 16, 2016 4:01:59 PM GMT-5

Study Area: Oklahoma

NAD 1983 Latitude: 35.9786 (35 58 43)

NAD 1983 Longitude: -97.9229 (-97 55 23)

Drainage Area: 411.53 mi²

2001 NLCD Impervious: 0.65 percent

Peak-Flow Basin Characteristics			
100% Peak Statewide Ungaged 2010 5137 (412 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Contributing Drainage Area (square miles)	412	0.1	2510
Stream Slope 10 and 85 Method ft per mi (feet per mi)	3.79	1.98	342
Mean Annual Precipitation (inches)	32.60	16.6	62.1

Floodwater Retarding Structure Regulated Peak-Flow Basin Characteristics			
99% Peak Statewide NRCS Regulated 2010 5137 (409 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Unregulated Drainage Area (square miles)	409	0.1	2510
Stream Slope 10 and 85 Method ft per mi (feet per mi)	3.79	1.98	342
Mean Annual Precipitation (inches)	32.60	16.6	62.1

Flow-Duration Basin Characteristics			
100% Duration Region 1 2009 5267 (412 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Contributing Drainage Area (square miles)	412	3.65	9056
Jun to Oct Gage Precipitation (inches)	15.9	13	17.9
Mean Basin Elevation (feet)	1250	1121	3188
Stream Slope 10 and 85 Method ft per mi (feet per mi)	3.79	3.73	39.3
Mean June Precipitation (inches)	4.31	3.36	4.44
Elevation of Gage (feet)	1010	923	1866
Mean Basin Slope from 10m DEM (percent)	2.20	1.76	8.26
Nov to May Gage Precipitation (inches)	17.4	12.5	19.2
Average Soil Permeability (inches per hour)	2.07	0.26	3.44
Percent Area Under Canopy (percent)	1.75	0.28	15.5
Mean April Precipitation (inches)	3.2	2.16	3.64
Mean Annual Precip at Gage (inches)	33.28	26.1	35.8

Peak-Flow Statistics

Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	5510	ft3/s	47	2		
PK5	11500	ft3/s	35	5		
PK10	17200	ft3/s	32	8		
PK25	26600	ft3/s	35	9		
PK50	36000	ft3/s	34	11		
PK100	43900	ft3/s	36	12		
PK500	71100	ft3/s	43	12		

<http://pubs.usgs.gov/sir/2010/5137/> (<http://pubs.usgs.gov/sir/2010/5137/>)

Lewis_ J.M._ 2010_ Methods for estimating the magnitude and frequency of peak streamflows for unregulated streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report SIR 2010-5137_ 41 p.

Floodwater Retarding Structure Regulated Peak-Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2C	5490	ft3/s	47	2		
PK5C	11500	ft3/s	35	5		
PK10C	17200	ft3/s	32	8		
PK25C	26500	ft3/s	35	9		
PK50C	35800	ft3/s	34	11		
PK100C	43800	ft3/s	36	12		
PK500C	70800	ft3/s	43	12		

<http://pubs.usgs.gov/sir/2010/5137/> (<http://pubs.usgs.gov/sir/2010/5137/>)

Lewis_ J.M._ 2010_ Methods for estimating the magnitude and frequency of peak streamflows for unregulated streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report SIR 2010-5137_ 41 p.

Flow-Duration Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
AVE DV	89.8	ft3/s	34		49.5	157
D20	93	ft3/s	42		41.4	183
D50	39.7	ft3/s	59		13.1	94.5
D80	33.2	ft3/s	200		1.8	198
D90	19.8	ft3/s	280		0.63	178
D95	10.7	ft3/s	350		0.18	99.1
D20SUM	76.6	dim	46		30.1	167
D50SUM	38.1	dim	74		9.12	116
D80SUM	46.5	dim	210		2.01	363
D90SUM	31.2	dim	270		0.81	315
D95SUM	18	dim	280		0.39	177
D20WSP	106	dim	43		46.4	213
D50WSP	44.7	dim	60		14.6	108
D80WSP	22.5	dim	93		4.28	73.3

D90WSP	16	dim	150		1.39	73.9
D95WSP	14.6	dim	190		0.72	72.6
JAND20	84.5	ft3/s	47		34.2	179
JAND50	46.5	ft3/s	69		12.7	126
JAND80	31.9	ft3/s	110		4.71	117
JAND90	30.9	ft3/s	140		2.84	133
JAND95	32.9	ft3/s	180		1.8	157
FEBD20	99.7	ft3/s	48		39.9	210
FEBD50	49.8	ft3/s	60		16.1	121
FEBD80	28.9	ft3/s	77		7.23	83.2
FEBD90	27.1	ft3/s	140		2.8	115
FEBD95	23.6	ft3/s	180		1.46	116
MARD20	143	ft3/s	56		50.5	322
MARD50	61.6	ft3/s	64		19.4	153
MARD80	36.2	ft3/s	89		7.69	112
MARD90	35.7	ft3/s	150		3.6	155
MARD95	36	ft3/s	180		1.99	152
APRD20	183	ft3/s	51		69.6	389
APRD50	65.8	ft3/s	54		23.6	146
APRD80	35.2	ft3/s	78		8.62	98.4
APRD90	33.4	ft3/s	130		3.87	137
APRD95	34.8	ft3/s	210		1.8	194
MAYD20	211	ft3/s	45		90.5	431
MAYD50	69.7	ft3/s	54		24.7	159
MAYD80	31.8	ft3/s	74		8.04	88.8
MAYD90	22.5	ft3/s	100		3.81	81.2
MAYD95	24.3	ft3/s	200		1.11	128
JUND20	199	ft3/s	42		89.3	386
JUND50	65	ft3/s	49		25.7	138
JUND80	29.3	ft3/s	80		6.96	84.3
JUND90	19.6	ft3/s	130		2.26	80.9
JUND95	23.7	ft3/s	180		1.23	101
JULD20	57.3	ft3/s	40		26	119
JULD50	29.3	ft3/s	46		11.7	65.4
JULD80	18.8	ft3/s	150		1.28	88.6
JULD90	13.8	ft3/s	290		0.3	148
JULD95	10.3	ft3/s	340		0.15	139
AUGD20	44.7	ft3/s	48		17.5	106
AUGD50	22.4	ft3/s	64		6.58	64.4
AUGD80	28.9	ft3/s	440		0.28	573
AUGD90	10.5	ft3/s	260		0.28	93.9
AUGD95	7.17	ft3/s	290		0.13	78.1
SEPD20	219	ft3/s	46		82.2	490
SEPD50	430	ft3/s	120		43.8	2150
SEPD80	467	ft3/s	370		5.51	7980
SEPD90	488	ft3/s	230		12.6	3950

SEPD95	334	ft3/s	220		9.08	2690
OCTD20	61.7	ft3/s	50		21	153
OCTD50	43.8	ft3/s	87		7.18	158
OCTD80	24.8	ft3/s	180		0.88	148
OCTD90	15.5	ft3/s	210		0.53	142
OCTD95	5.11	ft3/s	330		0.0573	68.5
NOVD20	82.2	ft3/s	54		27.7	202
NOVD50	36.5	ft3/s	77		7.99	116
NOVD80	36.9	ft3/s	190		2.03	249
NOVD90	33.9	ft3/s	340		0.57	396
NOVD95	11.2	ft3/s	620		0.061	384
DECD20	82.7	ft3/s	42		37.7	159
DECD50	48.3	ft3/s	64		14.9	119
DECD80	34.7	ft3/s	120		4.77	124
DECD90	28.5	ft3/s	150		2.46	114
DECD95	29.6	ft3/s	210		1.34	141

<http://pubs.usgs.gov/sir/2009/5267/> (<http://pubs.usgs.gov/sir/2009/5267/>)

Esralew_ R.A._ Smith_ S.J._ 2009_ Methods for estimating flow-duration and annual mean-flow statistics for ungaged streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report 2009-5267_ 131 p.

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StreamStats Version 3.0

Basin Characteristics Ungaged Site Report

Date: Thurs June 16, 2016 4:00:59 PM GMT-5

Study Area: Oklahoma

NAD 1983 Latitude: 35.9786 (35 58 43)

NAD 1983 Longitude: -97.9229 (-97 55 23)

Label	Value	Units	Definition
OUTLETELEV	1010	feet	Elevation of the stream outlet in feet above NAVD88.
CSL10_85fm	3.79	feet per mi	Change in elevation between points 10 and 85 percent of length along main channel to basin divide divided by length between points ft per mi
PREG_06_10	15.9	inches	Mean precipitation at gaging station location for June to October summer period
PREG_11_05	17.4	inches	Mean monthly precipitation for November through May at the stream outlet
PRECIPOUT	33.28	inches	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)
CONTA	411.53	square miles	Area that contributes flow to a point on a stream (total drainage area minus non-contributing areas within basin)
DAUNREG	409.03	square miles	Unregulated drainage area used in OK regulated equations
JUNEAVPRE	4.31	dimensionless	Mean June Precipitation
NRCSPCT	0.6	percent	Percent of contributing drainage area regulated by NRCS floodwater-retarding structures
MAYAVPRE	5.08	inches	Mean May Precipitation
FEBAVPRE	1.46	inches	Mean February Precipitation
MARAVPRE	2.77	inches	Mean March Precipitation
APRAVPRE	3.2	inches	Mean April Precipitation
DECAVPRE	1.54	inches	Mean December Precipitation
LC01DEV	5.84	percent	Percentage of land-use from NLCD 2001 classes 21-24
CANOPY_PCT	1.75	percent	Percentage of drainage area covered by canopy as described in OK SIR 2009_5267
IMPNLCD01	0.65	percent	Average percentage of impervious area determined from NLCD 2001 impervious dataset
PRECIP	32.6	inches	Mean Annual Precipitation
ELEV	1250	feet	Mean Basin Elevation
SOILPERM	2.07	inches per hour	Average Soil Permeability
BSLDEM10M	2.2	percent	Mean basin slope computed from 10 m DEM

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URL: http://streamstatsags.cr.usgs.gov/v3_beta/BCreport.htm

Page Contact Information: StreamStats Help

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StreamStats Data-Collection Station Report

USGS Station Number 07159000
Station Name Turkey Creek near Drummond, OK

[Click here to link to available data on NWIS-Web for this site.](#)

Descriptive Information

Station Type Streamgauge, continuous record
Location
Gage
Regulation and Diversions
Regulated? False
Period of Record 1947-1970
Remarks
Latitude (degrees NAD83) 36.31809
Longitude (degrees NAD83) -98.00117
Hydrologic unit code 11050002
County 047-Garfield
HCDN2009 No

Physical Characteristics

Characteristic Name	Value	Units	Citation Number
Descriptive Information			
Datum_of_Latitude_Longitude	NAD83	dimensionless	30
District_Code	40	dimensionless	30
Begin_date_of_record	10/1/1947	days	41
End_date_of_record	9/30/1970	days	41
Number_of_days_of_record	8401	days	41
Number_of_days_GT_0	7441	days	41
Precipitation Statistics			
24_Hour_2_Year_Precipitation	3.5000	inches	31
24_Hour_100_Year_Precipitation	8.0500	inches	31
Mean_Annual_Precipitation	32.4	inches	86
Climate Characteristics			
Mean_Annual_Lake_Evaporation	91.500	inches	31
Mean_Annual_Pan_Evaporation	91.500	inches	31
Temperature Statistics			
Mean_Min_January_Temperature	23.000	degrees F	31
Topographical Characteristics			
Elevation_of_10_and_85_points	1251.00	feet	31
Mean_Basin_Elevation	1250.00	feet	31
Land Cover Characteristics			
Percent_Forest	1.0000	percent	31
Percent_Lakes_and_Ponds	0.0000	percent	31
Percent_Storage	0.0000	percent	31
Soil Properties			
Soil_Infiltration	3.9900	inches	31
Stream Channel Properties			
Main_Channel_Length	39.000	miles	31
Stream_Slope_10_and_85_Method	5.7000	feet per mi	31
Stream_Slope_10_and_85_Method_ft_per_mi	4.31	feet per mi	86

Basin Dimensional Characteristics

Contributing_Drainage_Area	254.76	square miles	85
Drainage_Area	254.76	square miles	30

Streamflow Statistics

Statistic Name	Value	Units	Citation Number	Years of Record	Standard Error, percent	Variance log-10	Lower 95% Confidence Interval	Upper 95% Confidence Interval	Start Date	End Date	Remarks
Peak-Flow Statistics											
Mean_Annual_Flood	973.000	cubic feet per second	31	Y							
2_Year_Peak_Flood	2630	cubic feet per second	86	Y							
5_Year_Peak_Flood	7190	cubic feet per second	86	Y							
10_Year_Peak_Flood	12200	cubic feet per second	86	Y							
25_Year_Peak_Flood	21600	cubic feet per second	86	Y							
50_Year_Peak_Flood	31200	cubic feet per second	86	Y							
100_Year_Peak_Flood	43400	cubic feet per second	86	Y							
200_Year_Peak_Flood	58700.0	cubic feet per second	31	Y							
500_Year_Peak_Flood	85400	cubic feet per second	86	Y							
Log_Mean_of_Annual_Peaks	3.4520	Log base 10	31	Y							
Log_STD_of_Annual_Peaks	0.5430	Log base 10	31	Y							
Log_Skew_of_Annual_Peaks	0.0800	Log base 10	31	Y							
WRC_Mean	3.4230	Log base 10	31	Y							
WRC_STD	0.5160	Log base 10	31	Y							
WRC_Skew	0.0310	Log base 10	31	Y							
Equivalent_Years_of_Peak_Record	27	dimensionless	86	Y							
Systematic_peak_years	43	years	86	Y							
Peak_years_with_historic_adjustment	43.000	years	31	Y							
Flood-Volume Statistics											
1_Day_2_Year_Maximum	1514.00	cubic feet per second	31	Y							
1_Day_5_Year_Maximum	3474.00	cubic feet per second	31	Y							
1_Day_10_Year_Maximum	5183.00	cubic feet per second	31	Y							
1_Day_25_Year_Maximum	7744.00	cubic feet per second	31	Y							
1_Day_50_Year_Maximum	9904.00	cubic feet per second	31	Y							
3_Day_2_Year_Maximum	1059.00	cubic feet per second	31	Y							
3_Day_5_Year_Maximum	2370.00	cubic feet per second	31	Y							
3_Day_10_Year_Maximum	3419.00	cubic feet per second	31	Y							
3_Day_25_Year_Maximum	4860.00	cubic feet per second	31	Y							
3_Day_50_Year_Maximum	5976.00	cubic feet per second	31	Y							
3_Day_100_Year_Maximum	7101.00	cubic feet per second	31	Y							
7_Day_2_Year_Maximum	596.000	cubic feet per second	31	Y							

7_Day_5_Year_Maximum	1476.00 cubic feet per second	31	Y
7_Day_10_Year_Maximum	2245.00 cubic feet per second	31	Y
7_Day_25_Year_Maximum	3378.00 cubic feet per second	31	Y
7_Day_50_Year_Maximum	4309.00 cubic feet per second	31	Y
7_Day_100_Year_Maximum	5292.00 cubic feet per second	31	Y
30_Day_2_Year_Maximum	189.000 cubic feet per second	31	Y
30_Day_10_Year_Maximum	775.000 cubic feet per second	31	Y
30_Day_25_Year_Maximum	1205.00 cubic feet per second	31	Y
30_Day_50_Year_Maximum	1571.00 cubic feet per second	31	Y
Low-Flow Statistics			
1_Day_2_Year_Low_Flow	0.00 cubic feet per second	87	Y
1_Day_5_Year_Low_Flow	0.00 cubic feet per second	87	Y
1_Day_10_Year_Low_Flow	0.00 cubic feet per second	87	Y
1_Day_20_Year_Low_Flow	0.00 cubic feet per second	87	Y
3_Day_2_Year_Low_Flow	0.00 cubic feet per second	87	Y
3_Day_5_Year_Low_Flow	0.00 cubic feet per second	87	Y
3_Day_10_Year_Low_Flow	0.00 cubic feet per second	87	Y
3_Day_20_Year_Low_Flow	0.00 cubic feet per second	87	Y
7_Day_2_Year_Low_Flow	0.00 cubic feet per second	87	Y
7_Day_5_Year_Low_Flow	0.00 cubic feet per second	87	Y
7_Day_10_Year_Low_Flow	0.00 cubic feet per second	87	Y
7_Day_20_Year_Low_Flow	0.00 cubic feet per second	87	Y
14_Day_2_Year_Low_Flow	0.0000 cubic feet per second	31	Y
14_Day_10_Year_Low_Flow	0.0000 cubic feet per second	31	Y
14_Day_20_Year_Low_Flow	0.0000 cubic feet per second	31	Y
30_Day_2_Year_Low_Flow	0.20 cubic feet per second	87	Y
30_Day_5_Year_Low_Flow	0.00 cubic feet per second	87	Y
30_Day_10_Year_Low_Flow	0.00 cubic feet per second	87	Y
30_Day_20_Year_Low_Flow	0.00 cubic feet per second	87	Y
Low_flow_years	4.0000 years	31	Y
60_Day_2_Year_Low_Flow	0.58 cubic feet per second	87	Y
60_Day_5_Year_Low_Flow	0.10 cubic feet per second	87	Y
60_Day_10_Year_Low_Flow	0.01 cubic feet per second	87	Y

60_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y	
10_Day_2_Year_Low_Flow	0.00	cubic feet per second	87	Y	
10_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y	
10_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y	
10_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y	
Flow-Duration Statistics					
1_Percent_Duration	1390	cubic feet per second	87	Y	
2_Percent_Duration	716	cubic feet per second	87	Y	
5_Percent_Duration	147	cubic feet per second	87	Y	
10_Percent_Duration	32.8	cubic feet per second	87	Y	
15_Percent_Duration	18.3	cubic feet per second	87	Y	
20_Percent_Duration	12.1	cubic feet per second	87	Y	
25_Percent_Duration	8.1	cubic feet per second	41	Y	23
30_Percent_Duration	6.12	cubic feet per second	87	Y	
40_Percent_Duration	3.54	cubic feet per second	87	Y	
50_Percent_Duration	2.08	cubic feet per second	87	Y	
60_Percent_Duration	1.21	cubic feet per second	87	Y	
70_Percent_Duration	0.50	cubic feet per second	87	Y	
75_Percent_Duration	0.35	cubic feet per second	41	Y	23
80_Percent_Duration	0.22	cubic feet per second	87	Y	
90_Percent_Duration	0.00	cubic feet per second	87	Y	
95_Percent_Duration	0.00	cubic feet per second	87	Y	
98_Percent_Duration	0.00	cubic feet per second	87	Y	
99_Percent_Duration	0.00	cubic feet per second	87	Y	
Annual Flow Statistics					
Mean_Annual_Flow	48.9	cubic feet per second	85	Y	
Median_Annual_Flow	20.5	cubic feet per second	87	Y	
Daily_flow_years	23	years	30	Y	
Stand_Dev_of_Mean_Annual_Flow	52.550	cubic feet per second	31	Y	
Maximum_Annual_Mean_Flow	179	cubic feet per second	87	Y	
Minimum_Annual_Mean_Flow	3.94	cubic feet per second	87	Y	
Monthly Flow Statistics					
January_Mean_Flow	10.8	cubic feet per second	87	Y	
January_STD	26.010	cubic feet per second	31	Y	

February_Mean_Flow	21.9	cubic feet per second	87	Y
February_STD	69.890	cubic feet per second	31	Y
March_Mean_Flow	14.1	cubic feet per second	87	Y
March_STD	29.150	cubic feet per second	31	Y
April_Mean_Flow	40.6	cubic feet per second	87	Y
April_STD	39.320	cubic feet per second	31	Y
May_Mean_Flow	150	cubic feet per second	87	Y
May_STD	256.700	cubic feet per second	31	Y
June_Mean_Flow	133	cubic feet per second	87	Y
June_STD	203.500	cubic feet per second	31	Y
July_Mean_Flow	56.6	cubic feet per second	87	Y
July_STD	116.800	cubic feet per second	31	Y
August_Mean_Flow	44.3	cubic feet per second	87	Y
August_STD	100.600	cubic feet per second	31	Y
September_Mean_Flow	29.6	cubic feet per second	87	Y
September_STD	52.090	cubic feet per second	31	Y
October_Mean_Flow	41.6	cubic feet per second	87	Y
October_STD	110.600	cubic feet per second	31	Y
November_Mean_Flow	36.8	cubic feet per second	87	Y
November_STD	101.600	cubic feet per second	31	Y
December_Mean_Flow	6.36	cubic feet per second	87	Y
December_STD	8.2020	cubic feet per second	31	Y
Jan_Percent_Annual_Runoff	1.8	percent	87	Y
Feb_Percent_Annual_Runoff	3.8	percent	87	Y
Mar_Percent_Annual_Runoff	2.4	percent	87	Y
Apr_Percent_Annual_Runoff	6.9	percent	87	Y
May_Percent_Annual_Runoff	25.6	percent	87	Y
Jun_Percent_Annual_Runoff	22.7	percent	87	Y
Jul_Percent_Annual_Runoff	9.7	percent	87	Y
Aug_Percent_Annual_Runoff	7.6	percent	87	Y
Sep_Percent_Annual_Runoff	5.0	percent	87	Y
Oct_Percent_Annual_Runoff	7.1	percent	87	Y
Nov_Percent_Annual_Runoff	6.3	percent	87	Y
Dec_Percent_Annual_Runoff	1.1	percent	87	Y
Med_Jan_Monthly_Mean_Flow	2.02	cubic feet per second	87	Y
Med_Feb_Monthly_Mean_Flow	2.28	cubic feet per second	87	Y
Med_Mar_Monthly_Mean_Flow	3.73	cubic feet per second	87	Y
Med_Apr_Monthly_Mean_Flow	9.30		87	Y

		cubic feet per second		
Med_May_Monthly_Mean_Flow	33.2	cubic feet per second	87	Y
Med_Jun_Monthly_Mean_Flow	35.5	cubic feet per second	87	Y
Med_Jul_Monthly_Mean_Flow	7.00	cubic feet per second	87	Y
Med_Aug_Monthly_Mean_Flow	5.21	cubic feet per second	87	Y
Med_Sep_Monthly_Mean_Flow	4.86	cubic feet per second	87	Y
Med_Oct_Monthly_Mean_Flow	2.79	cubic feet per second	87	Y
Med_Nov_Monthly_Mean_Flow	1.67	cubic feet per second	87	Y
Med_Dec_Monthly_Mean_Flow	2.69	cubic feet per second	87	Y
Max_Jan_Monthly_Mean_Flow	113	cubic feet per second	87	Y
Max_Feb_Monthly_Mean_Flow	319	cubic feet per second	87	Y
Max_Mar_Monthly_Mean_Flow	136	cubic feet per second	87	Y
Max_Apr_Monthly_Mean_Flow	252	cubic feet per second	87	Y
Max_May_Monthly_Mean_Flow	1030	cubic feet per second	87	Y
Max_Jun_Monthly_Mean_Flow	803	cubic feet per second	87	Y
Max_Jul_Monthly_Mean_Flow	415	cubic feet per second	87	Y
Max_Aug_Monthly_Mean_Flow	401	cubic feet per second	87	Y
Max_Sep_Monthly_Mean_Flow	188	cubic feet per second	87	Y
Max_Oct_Monthly_Mean_Flow	475	cubic feet per second	87	Y
Max_Nov_Monthly_Mean_Flow	362	cubic feet per second	87	Y
Max_Dec_Monthly_Mean_Flow	32.4	cubic feet per second	87	Y
Min_Jan_Monthly_Mean_Flow	0.14	cubic feet per second	87	Y
Min_Feb_Monthly_Mean_Flow	0.36	cubic feet per second	87	Y
Min_Mar_Monthly_Mean_Flow	0.03	cubic feet per second	87	Y
Min_Apr_Monthly_Mean_Flow	0.09	cubic feet per second	87	Y
Min_May_Monthly_Mean_Flow	0.30	cubic feet per second	87	Y
Min_Jun_Monthly_Mean_Flow	1.61	cubic feet per second	87	Y
Min_Jul_Monthly_Mean_Flow	0.00	cubic feet per second	87	Y
Min_Aug_Monthly_Mean_Flow	0.00	cubic feet per second	87	Y
Min_Sep_Monthly_Mean_Flow	0.00	cubic feet per second	87	Y
Min_Oct_Monthly_Mean_Flow	0.00	cubic feet per second	87	Y
Min_Nov_Monthly_Mean_Flow	0.03	cubic feet per second	87	Y

Min_Dec_Monthly_Mean_Flow	0.10	cubic feet per second	87	Y
Seasonal Flow Statistics				
Jun_to_Oct_80_Percent_Flow	0.00	cubic feet per second	85	Y
Jun_to_Oct_90_Percent_Flow	0.00	cubic feet per second	85	Y
Jun_to_Oct_95_Percent_Flow	0.00	cubic feet per second	85	Y
Jun_to_Oct_7_Day_2_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_7_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_20_Percent_Flow	13.7	cubic feet per second	85	Y
Jun_to_Oct_50_Percent_Flow	1.23	cubic feet per second	85	Y
Nov_to_May_20_Percent_Flow	11.3	cubic feet per second	85	Y
Nov_to_May_50_Percent_Flow	2.55	cubic feet per second	85	Y
Nov_to_May_80_Percent_Flow	0.44	cubic feet per second	85	Y
Nov_to_May_90_Percent_Flow	0.20	cubic feet per second	85	Y
Nov_to_May_95_Percent_Flow	0.08	cubic feet per second	85	Y
Nov_to_Mar_1_Day_2_Year_Low_Flow	0.46	cubic feet per second	87	Y
Nov_to_Mar_1_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_1_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_1_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_3_Day_2_Year_Low_Flow	0.62	cubic feet per second	87	Y
Nov_to_Mar_3_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_3_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_3_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_7_Day_2_Year_Low_Flow	0.84	cubic feet per second	87	Y
Nov_to_Mar_7_Day_5_Year_Low_Flow	0.06	cubic feet per second	87	Y
Nov_to_Mar_7_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_7_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_10_Day_2_Year_Low_Flow	0.97	cubic feet per second	87	Y
Nov_to_Mar_10_Day_5_Year_Low_Flow	0.08	cubic feet per second	87	Y
Nov_to_Mar_10_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_10_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Nov_to_Mar_30_Day_2_Year_Low_Flow	1.12	cubic feet per second	87	Y
Nov_to_Mar_30_Day_5_Year_Low_Flow	0.23	cubic feet per second	87	Y
Nov_to_Mar_30_Day_10_Year_Low_Flow	0.09	cubic feet per second	87	Y

Nov_to_Mar_30_Day_20_Year_Low_Flow	0.04	cubic feet per second	87	Y
Nov_to_Mar_60_Day_2_Year_Low_Flow	1.74	cubic feet per second	87	Y
Nov_to_Mar_60_Day_5_Year_Low_Flow	0.45	cubic feet per second	87	Y
Nov_to_Mar_60_Day_10_Year_Low_Flow	0.21	cubic feet per second	87	Y
Nov_to_Mar_60_Day_20_Year_Low_Flow	0.11	cubic feet per second	87	Y
Apr_to_May_1_Day_2_Year_Low_Flow	0.45	cubic feet per second	87	Y
Apr_to_May_1_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_1_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_1_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_3_Day_2_Year_Low_Flow	0.52	cubic feet per second	87	Y
Apr_to_May_3_Day_5_Year_Low_Flow	0.04	cubic feet per second	87	Y
Apr_to_May_3_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_3_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_7_Day_2_Year_Low_Flow	0.67	cubic feet per second	87	Y
Apr_to_May_7_Day_5_Year_Low_Flow	0.07	cubic feet per second	87	Y
Apr_to_May_7_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_7_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_10_Day_2_Year_Low_Flow	0.83	cubic feet per second	87	Y
Apr_to_May_10_Day_5_Year_Low_Flow	0.13	cubic feet per second	87	Y
Apr_to_May_10_Day_10_Year_Low_Flow	0.04	cubic feet per second	87	Y
Apr_to_May_10_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Apr_to_May_30_Day_2_Year_Low_Flow	3.91	cubic feet per second	87	Y
Apr_to_May_30_Day_5_Year_Low_Flow	0.72	cubic feet per second	87	Y
Apr_to_May_30_Day_10_Year_Low_Flow	0.30	cubic feet per second	87	Y
Apr_to_May_30_Day_20_Year_Low_Flow	0.14	cubic feet per second	87	Y
Apr_to_May_60_Day_2_Year_Low_Flow	31.5	cubic feet per second	87	Y
Apr_to_May_60_Day_5_Year_Low_Flow	5.86	cubic feet per second	87	Y
Apr_to_May_60_Day_10_Year_Low_Flow	2.25	cubic feet per second	87	Y
Apr_to_May_60_Day_20_Year_Low_Flow	0.98	cubic feet per second	87	Y
Jun_to_Oct_1_Day_2_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_1_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_1_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y

Jun_to_Oct_1_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_3_Day_2_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_3_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_3_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_3_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_7_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_7_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_10_Day_2_Year_Low_Flow	0.02	cubic feet per second	87	Y
Jun_to_Oct_10_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_10_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_10_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_30_Day_2_Year_Low_Flow	0.26	cubic feet per second	87	Y
Jun_to_Oct_30_Day_5_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_30_Day_10_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_30_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
Jun_to_Oct_60_Day_2_Year_Low_Flow	1.01	cubic feet per second	87	Y
Jun_to_Oct_60_Day_5_Year_Low_Flow	0.12	cubic feet per second	87	Y
Jun_to_Oct_60_Day_10_Year_Low_Flow	0.01	cubic feet per second	87	Y
Jun_to_Oct_60_Day_20_Year_Low_Flow	0.00	cubic feet per second	87	Y
January Flow-Duration Statistics				
January_20_Percent_Duration	7.43	cubic feet per second	85	Y
January_50_Percent_Duration	2.09	cubic feet per second	85	Y
January_80_Percent_Duration	0.41	cubic feet per second	85	Y
January_90_Percent_Duration	0.20	cubic feet per second	85	Y
January_95_Percent_Duration	0.10	cubic feet per second	85	Y
February Flow-Duration Statistics				
February_20_Percent_Duration	8.65	cubic feet per second	85	Y
February_50_Percent_Duration	2.61	cubic feet per second	85	Y
February_80_Percent_Duration	0.55	cubic feet per second	85	Y
February_90_Percent_Duration	0.30	cubic feet per second	85	Y
February_95_Percent_Duration	0.22	cubic feet per second	85	Y
March Flow-Duration Statistics				
March_20_Percent_Duration	11.1	cubic feet per second	85	Y
March_50_Percent_Duration	3.16	cubic feet per second	85	Y

March_80_Percent_Duration	0.53	cubic feet per second	85	Y
March_90_Percent_Duration	0.25	cubic feet per second	85	Y
March_95_Percent_Duration	0.09	cubic feet per second	85	Y
<i>April Flow-Duration Statistics</i>				
April_20_Percent_Duration	14.6	cubic feet per second	85	Y
April_50_Percent_Duration	4.24	cubic feet per second	85	Y
April_80_Percent_Duration	0.51	cubic feet per second	85	Y
April_90_Percent_Duration	0.23	cubic feet per second	85	Y
April_95_Percent_Duration	0.08	cubic feet per second	85	Y
<i>May Flow-Duration Statistics</i>				
May_20_Percent_Duration	45.3	cubic feet per second	85	Y
May_50_Percent_Duration	5.20	cubic feet per second	85	Y
May_80_Percent_Duration	0.53	cubic feet per second	85	Y
May_90_Percent_Duration	0.20	cubic feet per second	85	Y
May_95_Percent_Duration	0.09	cubic feet per second	85	Y
<i>June Flow-Duration Statistics</i>				
June_20_Percent_Duration	65.0	cubic feet per second	85	Y
June_50_Percent_Duration	5.03	cubic feet per second	85	Y
June_80_Percent_Duration	0.29	cubic feet per second	85	Y
June_90_Percent_Duration	0.00	cubic feet per second	85	Y
June_95_Percent_Duration	0.00	cubic feet per second	85	Y
<i>July Flow-Duration Statistics</i>				
July_20_Percent_Duration	14.3	cubic feet per second	85	Y
July_50_Percent_Duration	1.51	cubic feet per second	85	Y
July_80_Percent_Duration	0.00	cubic feet per second	85	Y
July_90_Percent_Duration	0.00	cubic feet per second	85	Y
July_95_Percent_Duration	0.00	cubic feet per second	85	Y
<i>August Flow-Duration Statistics</i>				
August_20_Percent_Duration	8.00	cubic feet per second	85	Y
August_50_Percent_Duration	0.83	cubic feet per second	85	Y
August_80_Percent_Duration	0.00	cubic feet per second	85	Y
August_90_Percent_Duration	0.00	cubic feet per second	85	Y
August_95_Percent_Duration	0.00	cubic feet per second	85	Y
<i>September Flow-Duration Statistics</i>				
September_20_Percent_Duration	9.47	cubic feet per second	85	Y
September_50_Percent_Duration	0.42		85	Y

		cubic feet per second			
September_80_Percent_Duration	0.00	cubic feet per second	85	Y	
September_90_Percent_Duration	0.00	cubic feet per second	85	Y	
September_95_Percent_Duration	0.00	cubic feet per second	85	Y	
October Flow-Duration Statistics					
October_20_Percent_Duration	5.47	cubic feet per second	85	Y	
October_50_Percent_Duration	0.79	cubic feet per second	85	Y	
October_80_Percent_Duration	0.00	cubic feet per second	85	Y	
October_90_Percent_Duration	0.00	cubic feet per second	85	Y	
October_95_Percent_Duration	0.00	cubic feet per second	85	Y	
November Flow-Duration Statistics					
November_20_Percent_Duration	7.87	cubic feet per second	85	Y	
November_50_Percent_Duration	1.31	cubic feet per second	85	Y	
November_80_Percent_Duration	0.24	cubic feet per second	85	Y	
November_90_Percent_Duration	0.00	cubic feet per second	85	Y	
November_95_Percent_Duration	0.00	cubic feet per second	85	Y	
December Flow-Duration Statistics					
December_20_Percent_Duration	7.28	cubic feet per second	85	Y	
December_50_Percent_Duration	2.03	cubic feet per second	85	Y	
December_80_Percent_Duration	0.41	cubic feet per second	85	Y	
December_90_Percent_Duration	0.23	cubic feet per second	85	Y	
December_95_Percent_Duration	0.09	cubic feet per second	85	Y	
General Flow Statistics					
Minimum_daily_flow	0	cubic feet per second	41	Y	23
Maximum_daily_flow	10400	cubic feet per second	41	Y	23
Std_Dev_of_daily_flows	271.349	cubic feet per second	41	Y	23
Average_daily_streamflow	48.9	cubic feet per second	87	Y	
Base Flow Statistics					
Number_of_years_to_compute_BFI	23	years	42	Y	23
Average_BFI_value	0.087	dimensionless	42	Y	23
Std_dev_of_annual_BFI_values	0.095	dimensionless	42	Y	23

Citations

Citation Number Citation Name and URL

30	Imported from NWIS file
31	Imported from Basin Characteristics file
41	Wolock, D.M., 2003, Flow characteristics at U.S. Geological Survey streamgages in the conterminous United States: U.S. Geological Survey Open-File Report 03-146, digital data set

- 42 [Wolock, D.M., 2003, Base-flow index grid for the conterminous United States: U.S. Geological Survey Open-File Report 03-263, digital data set](#)
- 85 [Esralew, R.A., Smith, S.J., 2009, Methods for estimating flow-duration and annual mean-flow statistics for ungaged streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report 2009-5267, 131 p.](#)
- 86 [Lewis, J.M., 2010, Methods for estimating the magnitude and frequency of peak streamflows for unregulated streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report SIR 2010-5137, 41 p.](#)
- 87 [Lewis, J.M., and Esralew, R.A., 2009, Statistical Summaries of Streamflow in and near Oklahoma Through 2007: U.S. Geological Survey Scientific Investigations Report SIR 2009-5135, 633 p.](#)
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StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs June 16, 2016 4:28:44 PM GMT-5

Study Area: Oklahoma

NAD 1983 Latitude: 36.318 (36 19 05)

NAD 1983 Longitude: -98.0009 (-98 00 04)

Drainage Area: 254.77 mi²

2001 NLCD Impervious: 0.59 percent

Peak-Flow Basin Characteristics			
100% Peak Statewide Unregulated 2010 5137 (255 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Contributing Drainage Area (square miles)	255	0.1	2510
Stream Slope 10 and 85 Method ft per mi (feet per mi)	4.31	1.98	342
Mean Annual Precipitation (inches)	32.37	16.6	62.1

Floodwater Retarding Structure Regulated Peak-Flow Basin Characteristics			
99% Peak Statewide NRCS Regulated 2010 5137 (252 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Unregulated Drainage Area (square miles)	252	0.1	2510
Stream Slope 10 and 85 Method ft per mi (feet per mi)	4.31	1.98	342
Mean Annual Precipitation (inches)	32.37	16.6	62.1

Flow-Duration Basin Characteristics			
100% Duration Region 1 2009 5267 (255 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Contributing Drainage Area (square miles)	255	3.65	9056
Jun to Oct Gage Precipitation (inches)	16.2	13	17.9
Mean Basin Elevation (feet)	1300	1121	3188
Stream Slope 10 and 85 Method ft per mi (feet per mi)	4.31	3.73	39.3
Mean June Precipitation (inches)	4.22	3.36	4.44
Elevation of Gage (feet)	1150	923	1866
Mean Basin Slope from 10m DEM (percent)	2.20	1.76	8.26
Nov to May Gage Precipitation (inches)	16.9	12.5	19.2
Average Soil Permeability (inches per hour)	1.77	0.26	3.44
Percent Area Under Canopy (percent)	1.40	0.28	15.5
Mean April Precipitation (inches)	3.1	2.16	3.64
Mean Annual Precip at Gage (inches)	33.09	26.1	35.8

Peak-Flow Statistics

Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	4040	ft3/s	47	2		
PK5	8490	ft3/s	35	5		
PK10	12800	ft3/s	32	8		
PK25	19800	ft3/s	35	9		
PK50	26700	ft3/s	34	11		
PK100	32800	ft3/s	36	12		
PK500	53400	ft3/s	43	12		

<http://pubs.usgs.gov/sir/2010/5137/> (<http://pubs.usgs.gov/sir/2010/5137/>)

Lewis_ J.M._ 2010_ Methods for estimating the magnitude and frequency of peak streamflows for unregulated streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report SIR 2010-5137_ 41 p.

Floodwater Retarding Structure Regulated Peak-Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2C	4020	ft3/s	47	2		
PK5C	8440	ft3/s	35	5		
PK10C	12700	ft3/s	32	8		
PK25C	19700	ft3/s	35	9		
PK50C	26500	ft3/s	34	11		
PK100C	32600	ft3/s	36	12		
PK500C	53000	ft3/s	43	12		

<http://pubs.usgs.gov/sir/2010/5137/> (<http://pubs.usgs.gov/sir/2010/5137/>)

Lewis_ J.M._ 2010_ Methods for estimating the magnitude and frequency of peak streamflows for unregulated streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report SIR 2010-5137_ 41 p.

Flow-Duration Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
AVE DV	69.4	ft3/s	34		38.2	121
D20	65.6	ft3/s	42		29.8	126
D50	27.8	ft3/s	59		9.42	64.1
D80	19.9	ft3/s	200		1.15	111
D90	13.1	ft3/s	280		0.45	108
D95	7.62	ft3/s	350		0.14	63.8
D20SUM	58.6	dim	46		23.1	127
D50SUM	27.4	dim	74		6.58	83.2
D80SUM	25.9	dim	210		1.13	201
D90SUM	15.7	dim	270		0.41	158
D95SUM	8.1	dim	280		0.18	79.6
D20WSP	53.7	dim	43		23.6	107
D50WSP	22.5	dim	60		7.41	53.5
D80WSP	8.66	dim	93		1.67	27.8

D90WSP	4.44	dim	150		0.39	20.1
D95WSP	3.93	dim	190		0.2	19.1
JAND20	52.2	ft3/s	47		21.2	110
JAND50	28.2	ft3/s	69		7.81	75.9
JAND80	17.9	ft3/s	110		2.68	65
JAND90	18.1	ft3/s	140		1.69	76.5
JAND95	19	ft3/s	180		1.06	89.1
FEBD20	52.1	ft3/s	48		21	109
FEBD50	25	ft3/s	60		8.17	60
FEBD80	13.5	ft3/s	77		3.4	38.3
FEBD90	9.79	ft3/s	140		1.03	40.9
FEBD95	8.58	ft3/s	180		0.54	41.6
MARD20	69.7	ft3/s	56		25.1	154
MARD50	30.9	ft3/s	64		9.93	75.5
MARD80	16.9	ft3/s	89		3.69	51.4
MARD90	14.2	ft3/s	150		1.49	59.8
MARD95	14.4	ft3/s	180		0.83	58.6
APRD20	86	ft3/s	51		33.2	181
APRD50	34.4	ft3/s	54		12.5	75.4
APRD80	17.8	ft3/s	78		4.44	48.6
APRD90	13.3	ft3/s	130		1.59	52.9
APRD95	11	ft3/s	210		0.59	59.3
MAYD20	122	ft3/s	45		54	242
MAYD50	42.5	ft3/s	54		15.7	93.8
MAYD80	17	ft3/s	74		4.5	45.2
MAYD90	11.7	ft3/s	100		2.11	39.9
MAYD95	9.91	ft3/s	200		0.5	47.5
JUND20	115	ft3/s	42		53	219
JUND50	37.2	ft3/s	49		15.1	77.3
JUND80	12.9	ft3/s	80		3.18	35.7
JUND90	7.86	ft3/s	130		0.96	30.7
JUND95	7.36	ft3/s	180		0.41	29.3
JULD20	42.8	ft3/s	40		19.5	88.6
JULD50	22.5	ft3/s	46		9.06	49.9
JULD80	17.3	ft3/s	150		1.2	80.3
JULD90	14.4	ft3/s	290		0.32	151
JULD95	9.71	ft3/s	340		0.15	127
AUGD20	33.9	ft3/s	48		13.3	79.7
AUGD50	17.8	ft3/s	64		5.26	50.8
AUGD80	28.7	ft3/s	440		0.29	558
AUGD90	11.1	ft3/s	260		0.3	97.9
AUGD95	6.91	ft3/s	290		0.13	73.4
SEPD20	107	ft3/s	46		39.1	244
SEPD50	231	ft3/s	120		22.4	1220
SEPD80	239	ft3/s	370		2.58	4460
SEPD90	259	ft3/s	230		6.26	2230

SEPD95	205	ft3/s	220		5.28	1750
OCTD20	48.6	ft3/s	50		16.9	118
OCTD50	35.9	ft3/s	87		6.1	125
OCTD80	27.5	ft3/s	190		1.03	154
OCTD90	18.3	ft3/s	210		0.68	157
OCTD95	7.81	ft3/s	330		0.095	96.4
NOVD20	65.1	ft3/s	54		22.1	159
NOVD50	30.6	ft3/s	77		6.78	96.1
NOVD80	38	ft3/s	190		2.14	252
NOVD90	37.9	ft3/s	340		0.65	433
NOVD95	15.8	ft3/s	620		0.0891	524
DECD20	43.9	ft3/s	42		20.3	83
DECD50	24.5	ft3/s	64		7.67	58.9
DECD80	14.6	ft3/s	120		2.07	50.5
DECD90	11.8	ft3/s	150		1.05	45.5
DECD95	10.8	ft3/s	210		0.51	49.1

<http://pubs.usgs.gov/sir/2009/5267/> (<http://pubs.usgs.gov/sir/2009/5267/>)

Esralew_ R.A._ Smith_ S.J._ 2009_ Methods for estimating flow-duration and annual mean-flow statistics for ungaged streams in Oklahoma: U.S. Geological Survey Scientific Investigations Report 2009-5267_ 131 p.

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StreamStats Version 3.0

Basin Characteristics Ungaged Site Report

Date: Thurs June 16, 2016 4:27:21 PM GMT-5

Study Area: Oklahoma

NAD 1983 Latitude: 36.318 (36 19 05)

NAD 1983 Longitude: -98.0009 (-98 00 04)

Label	Value	Units	Definition
OUTLETELEV	1150	feet	Elevation of the stream outlet in feet above NAVD88.
CSL10_85fm	4.31	feet per mi	Change in elevation between points 10 and 85 percent of length along main channel to basin divide divided by length between points ft per mi
PREG_06_10	16.2	inches	Mean precipitation at gaging station location for June to October summer period
PREG_11_05	16.9	inches	Mean monthly precipitation for November through May at the stream outlet
PRECIPOUT	33.09	inches	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)
CONTA	254.77	square miles	Area that contributes flow to a point on a stream (total drainage area minus non-contributing areas within basin)
DAUNREG	252.27	square miles	Unregulated drainage area used in OK regulated equations
JUNEAVPRE	4.22	dimensionless	Mean June Precipitation
NRCSPCT	1	percent	Percent of contributing drainage area regulated by NRCS floodwater-retarding structures
MAYAVPRE	4.89	inches	Mean May Precipitation
FEBAVPRE	1.46	inches	Mean February Precipitation
MARAVPRE	2.73	inches	Mean March Precipitation
APRAVPRE	3.1	inches	Mean April Precipitation
DECAVPRE	1.42	inches	Mean December Precipitation
LC01DEV	5.53	percent	Percentage of land-use from NLCD 2001 classes 21-24
CANOPY_PCT	1.4	percent	Percentage of drainage area covered by canopy as described in OK SIR 2009_5267
IMPNLCD01	0.59	percent	Average percentage of impervious area determined from NLCD 2001 impervious dataset
PRECIP	32.37	inches	Mean Annual Precipitation
ELEV	1300	feet	Mean Basin Elevation
SOILPERM	1.77	inches per hour	Average Soil Permeability
BSLDEM10M	2.2	percent	Mean basin slope computed from 10 m DEM

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HEC-RAS Plan: 5-60 5-8-5 East River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Flowline	600	Q2	5934.00	1015.62	1030.54	1022.74	1030.95	0.000855	5.14	1260.07	523.08	0.27
Flowline	600	Q5	11864.00	1015.62	1033.47	1026.17	1033.62	0.000438	4.15	6029.55	2473.33	0.20
Flowline	600	Q10	17357.00	1015.62	1034.80	1028.69	1034.90	0.000312	3.73	9964.85	3433.88	0.17
Flowline	600	Q25	26139.00	1015.62	1036.90	1033.22	1036.95	0.000164	2.95	17289.17	3528.94	0.13
Flowline	600	Q50	34886.00	1015.62	1037.66	1033.72	1037.72	0.000198	3.33	20002.28	3545.30	0.14
Flowline	600	Q100	41342.00	1015.62	1038.13	1034.03	1038.20	0.000216	3.55	21671.92	3549.20	0.15
Flowline	600	Q500	63419.00	1015.62	1039.37	1034.87	1039.48	0.000284	4.24	26089.77	3583.90	0.17
Flowline	450	Q2	5934.00	1015.90	1030.41	1022.58	1030.82	0.000842	5.16	1310.78	933.27	0.27
Flowline	450	Q5	11864.00	1015.90	1033.48	1026.01	1033.56	0.000238	3.13	8242.96	3220.91	0.15
Flowline	450	Q10	17357.00	1015.90	1034.80	1031.90	1034.85	0.000177	2.86	12624.41	3383.31	0.13
Flowline	450	Q25	26139.00	1015.90	1036.89	1032.54	1036.92	0.000110	2.46	19827.14	3504.37	0.10
Flowline	450	Q50	34886.00	1015.90	1037.65	1032.98	1037.70	0.000136	2.81	22513.81	3533.57	0.12
Flowline	450	Q100	41342.00	1015.90	1038.12	1033.30	1038.17	0.000153	3.03	24169.89	3536.30	0.12
Flowline	450	Q500	63419.00	1015.90	1039.35	1033.90	1039.44	0.000212	3.72	28535.36	3543.86	0.15
Flowline	400		Mult Open									
Flowline	350	Q2	5934.00	1014.41	1030.25	1021.81	1030.68	0.000990	5.27	1138.37	206.80	0.29
Flowline	350	Q5	11864.00	1014.41	1032.54	1025.64	1033.14	0.001462	6.91	2845.58	1528.35	0.36
Flowline	350	Q10	17357.00	1014.41	1033.48	1028.66	1034.06	0.001565	7.44	4711.09	2588.91	0.37
Flowline	350	Q25	26139.00	1014.41	1034.61	1033.77	1035.02	0.001361	7.28	7986.94	3348.08	0.35
Flowline	350	Q50	34886.00	1014.41	1035.49	1034.30	1035.80	0.001135	6.88	10995.17	3446.27	0.32
Flowline	350	Q100	41342.00	1014.41	1036.06	1034.67	1036.33	0.001006	6.61	12965.79	3461.46	0.30
Flowline	350	Q500	63419.00	1014.41	1037.90	1035.45	1038.11	0.000718	5.97	19371.38	3513.22	0.26
Flowline	200	Q2	5934.00	1015.77	1030.18	1022.14	1030.50	0.000719	4.62	1345.96	307.39	0.25
Flowline	200	Q5	11864.00	1015.77	1032.56	1025.38	1032.82	0.000719	4.97	4549.68	2149.00	0.25
Flowline	200	Q10	17357.00	1015.77	1033.50	1027.79	1033.73	0.000719	5.19	6722.80	2527.18	0.26
Flowline	200	Q25	26139.00	1015.77	1034.56	1032.80	1034.78	0.000718	5.47	9490.11	2671.39	0.26
Flowline	200	Q50	34886.00	1015.77	1035.40	1033.32	1035.62	0.000718	5.69	11753.90	2725.77	0.26
Flowline	200	Q100	41342.00	1015.77	1035.95	1033.32	1036.18	0.000718	5.83	13274.26	2762.64	0.26
Flowline	200	Q500	63419.00	1015.77	1037.75	1034.55	1037.99	0.000718	6.28	18649.53	3234.74	0.27

HEC-RAS Plan: 5-60 5-8-5 East River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Flowline	600	Q2	1030.95	1030.54	0.41	0.13	0.00		5881.51	52.49	523.08
Flowline	600	Q5	1033.62	1033.47	0.15	0.05	0.02	6.31	6023.08	5834.60	2473.33
Flowline	600	Q10	1034.90	1034.80	0.09	0.03	0.01	28.57	5931.17	11397.26	3433.88
Flowline	600	Q25	1036.95	1036.90	0.05	0.02	0.00	72.36	5339.60	20727.04	3528.94
Flowline	600	Q50	1037.72	1037.66	0.06	0.02	0.01	106.69	6306.26	28473.06	3545.30
Flowline	600	Q100	1038.20	1038.13	0.07	0.03	0.01	131.46	6886.88	34323.66	3549.20
Flowline	600	Q500	1039.48	1039.37	0.11	0.04	0.01	192.97	8799.27	54426.76	3583.90
Flowline	450	Q2	1030.82	1030.41	0.41				5868.93	65.07	933.27
Flowline	450	Q5	1033.56	1033.48	0.07			3.21	4535.37	7325.42	3220.91
Flowline	450	Q10	1034.85	1034.80	0.05			15.59	4536.68	12804.73	3383.31
Flowline	450	Q25	1036.92	1036.89	0.03			46.08	4423.08	21669.84	3504.37
Flowline	450	Q50	1037.70	1037.65	0.05			72.81	5282.50	29530.69	3533.57
Flowline	450	Q100	1038.17	1038.12	0.05			92.91	5835.43	35413.66	3536.30
Flowline	450	Q500	1039.44	1039.35	0.09			168.67	7635.31	55615.02	3543.86
Flowline	400		Mult Open								
Flowline	350	Q2	1030.68	1030.25	0.43	0.13	0.05		5930.41	3.59	206.80
Flowline	350	Q5	1033.14	1032.54	0.61	0.15	0.17		9569.08	2294.92	1528.35
Flowline	350	Q10	1034.06	1033.48	0.57	0.15	0.17		11146.64	6210.36	2588.91
Flowline	350	Q25	1035.02	1034.61	0.42	0.14	0.10		11885.47	14253.53	3348.08
Flowline	350	Q50	1035.80	1035.49	0.31	0.13	0.05		11970.60	22915.40	3446.27
Flowline	350	Q100	1036.33	1036.06	0.27	0.13	0.02		11975.25	29366.75	3461.46
Flowline	350	Q500	1038.11	1037.90	0.22	0.11	0.01	0.14	12186.20	51232.65	3513.22
Flowline	200	Q2	1030.50	1030.18	0.33				5857.23	76.77	307.39
Flowline	200	Q5	1032.82	1032.56	0.26				7791.28	4072.72	2149.00
Flowline	200	Q10	1033.73	1033.50	0.23			7.47	8778.72	8570.81	2527.18
Flowline	200	Q25	1034.78	1034.56	0.22			57.60	10028.51	16052.89	2671.39
Flowline	200	Q50	1035.62	1035.40	0.22			123.56	11065.42	23697.01	2725.77
Flowline	200	Q100	1036.18	1035.95	0.23			183.38	11772.22	29386.40	2762.64
Flowline	200	Q500	1037.99	1037.75	0.25			439.60	14178.53	48800.88	3234.74

HEC-RAS Plan: 5-60 5-8-5 East River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Frctn Loss (ft)	C & E Loss (ft)	Top Width (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Vel Chnl (ft/s)
Flowline	600	Q2	1030.95	1030.54	1022.74	0.13	0.00	523.08		5881.51	52.49	5.14
Flowline	600	Q5	1033.62	1033.47	1026.17	0.05	0.02	2473.33	6.31	6023.08	5834.60	4.15
Flowline	600	Q10	1034.90	1034.80	1028.69	0.03	0.01	3433.88	28.57	5931.17	11397.26	3.73
Flowline	600	Q25	1036.95	1036.90	1033.22	0.02	0.00	3528.94	72.36	5339.60	20727.04	2.95
Flowline	600	Q50	1037.72	1037.66	1033.72	0.02	0.01	3545.30	106.69	6306.26	28473.06	3.33
Flowline	600	Q100	1038.20	1038.13	1034.03	0.03	0.01	3549.20	131.46	6886.88	34323.66	3.55
Flowline	600	Q500	1039.48	1039.37	1034.87	0.04	0.01	3583.90	192.97	8799.27	54426.76	4.24
Flowline	450	Q2	1030.82	1030.41	1022.58			933.27		5868.93	65.07	5.16
Flowline	450	Q5	1033.56	1033.48	1026.01			3220.91	3.21	4535.37	7325.42	3.13
Flowline	450	Q10	1034.85	1034.80	1031.90			3383.31	15.59	4536.68	12804.73	2.86
Flowline	450	Q25	1036.92	1036.89	1032.54			3504.37	46.08	4423.08	21669.84	2.46
Flowline	450	Q50	1037.70	1037.65	1032.98			3533.57	72.81	5282.50	29530.69	2.81
Flowline	450	Q100	1038.17	1038.12	1033.30			3536.30	92.91	5835.43	35413.66	3.03
Flowline	450	Q500	1039.44	1039.35	1033.90			3543.86	168.67	7635.31	55615.02	3.72
Flowline	400 BR U #1	Q2	1030.80	1030.34	1022.58	0.03	0.01	92.56		5934.00		5.46
Flowline	400 BR U #2	Q2										
Flowline	400 BR U #1	Q5	1033.48	1032.10	1026.02	0.10	0.03	101.03	0.02	11811.57	0.04	9.43
Flowline	400 BR U #2	Q5	1033.60	1033.59	1033.37			231.85			52.38	
Flowline	400 BR U #1	Q10	1034.65	1032.01	1028.22	0.19	0.05	97.24	0.00	16243.75	0.00	13.06
Flowline	400 BR U #2	Q10	1034.83	1034.68	1034.17	0.27	0.07	272.80			1113.25	
Flowline	400 BR U #1	Q25	1036.46	1033.22	1029.72	0.21	0.08	129.72	10.49	19697.06	45.09	14.47
Flowline	400 BR U #2	Q25	1036.75	1036.68	1036.14	0.17	0.10	1869.59			4369.12	
Flowline	400 BR U #1	Q50	1037.05	1033.44	1030.33	0.23	0.09	136.27	17.49	21102.58	64.53	15.26
Flowline	400 BR U #2	Q50	1037.50	1037.46	1036.84	0.20	0.10	2682.66			6514.23	
Flowline	400 BR U #1	Q100	1037.47	1033.67	1030.79	0.24	0.10	138.26	27.96	22018.58	95.25	15.67
Flowline	400 BR U #2	Q100	1037.87	1037.84	1037.16	0.21	0.12	2713.86			7523.15	
Flowline	400 BR U #1	Q500	1038.94	1036.40	1030.95	0.14	0.08	159.12	250.34	21692.09	614.75	12.99
Flowline	400 BR U #2	Q500	1038.90	1038.88	1037.98	0.27	0.16	2573.26			8419.58	
Flowline	400 BR D #1	Q2	1030.76	1030.31	1021.83	0.07	0.01	102.49		5934.00		5.39
Flowline	400 BR D #2	Q2										
Flowline	400 BR D #1	Q5	1033.35	1032.04	1025.57	0.18	0.02	109.89		11811.63		9.19
Flowline	400 BR D #2	Q5	1033.31	1033.18	1033.18			69.19			52.38	
Flowline	400 BR D #1	Q10	1034.42	1031.87	1028.02	0.37	0.00	109.23		16243.75		12.82
Flowline	400 BR D #2	Q10	1034.48	1034.08	1034.08	0.00	0.20	270.44			1113.25	
Flowline	400 BR D #1	Q25	1036.17	1033.09	1029.87	0.56	0.59	123.79		19746.85	5.80	14.07
Flowline	400 BR D #2	Q25	1036.30	1036.07	1036.07	0.03	0.24	1149.37			4369.12	
Flowline	400 BR D #1	Q50	1036.72	1033.30	1030.64	0.56	0.37	125.46		21171.58	13.02	14.83
Flowline	400 BR D #2	Q50	1036.93	1036.80	1036.80	0.06	0.26	2053.29			6514.23	
Flowline	400 BR D #1	Q100	1037.12	1033.52	1030.99	0.55	0.26	131.67		22120.54	21.25	15.23
Flowline	400 BR D #2	Q100	1037.21	1037.11	1037.11	0.07	0.30	2433.94			7523.15	
Flowline	400 BR D #1	Q500	1038.72	1036.33	1031.17	0.21	0.40	143.10		22178.59	378.59	12.47
Flowline	400 BR D #2	Q500	1037.97	1037.93	1037.93	0.08	0.44	2714.63			8419.58	
Flowline	350	Q2	1030.68	1030.25	1021.81	0.13	0.05	206.80		5930.41	3.59	5.27
Flowline	350	Q5	1033.14	1032.54	1025.64	0.15	0.17	1528.35		9569.08	2294.92	6.91
Flowline	350	Q10	1034.06	1033.48	1028.66	0.15	0.17	2588.91		11146.64	6210.36	7.44
Flowline	350	Q25	1035.02	1034.61	1033.77	0.14	0.10	3348.08		11885.47	14253.53	7.28
Flowline	350	Q50	1035.80	1035.49	1034.30	0.13	0.05	3446.27		11970.60	22915.40	6.88
Flowline	350	Q100	1036.33	1036.06	1034.67	0.13	0.02	3461.46		11975.25	29366.75	6.61
Flowline	350	Q500	1038.11	1037.90	1035.45	0.11	0.01	3513.22	0.14	12186.20	51232.65	5.97
Flowline	200	Q2	1030.50	1030.18	1022.14			307.39		5857.23	76.77	4.62
Flowline	200	Q5	1032.82	1032.56	1025.38			2149.00		7791.28	4072.72	4.97
Flowline	200	Q10	1033.73	1033.50	1027.79			2527.18	7.47	8778.72	8570.81	5.19
Flowline	200	Q25	1034.78	1034.56	1032.80			2671.39	57.60	10028.51	16052.89	5.47
Flowline	200	Q50	1035.62	1035.40	1033.32			2725.77	123.56	11065.42	23697.01	5.69
Flowline	200	Q100	1036.18	1035.95	1033.32			2762.64	183.38	11772.22	29386.40	5.83
Flowline	200	Q500	1037.99	1037.75	1034.55			3234.74	439.60	14178.53	48800.88	6.28

HEC-RAS Plan: 5-60 5-8-5 East River: Turkey Creek Reach: Flowline

Reach	River Sta		Profile	Q Total (cfs)	Flow Area (sq ft)	E.G. US. (ft)	W.S. US. (ft)	Top Wdth Act (ft)	Vel Total (ft/s)	Crit W.S. (ft)	Left Stagn (ft)	Right Stagn (ft)
Flowline	400	Bridge #1	Q2	5934.00	1136.68	1030.82	1030.40	98.73	5.22	1022.58	1456.67	1757.79
Flowline	400	Bridge #2	Q2								1757.79	
Flowline	400	Bridge #1	Q5	11811.63	1334.76	1033.56	1032.33	116.84	8.85	1025.98	1451.72	1757.79
Flowline	400	Bridge #2	Q5	52.38	6951.20	1033.59	1033.59	2949.62	0.01	1030.18	1757.79	4852.43
Flowline	400	Bridge #1	Q10	16243.75	1381.41	1034.85	1032.65	190.93	11.76	1028.08	1448.70	1757.79
Flowline	400	Bridge #2	Q10	1113.25	10852.35	1034.88	1034.88	3074.28	0.10	1030.59	1757.79	4889.32
Flowline	400	Bridge #1	Q25	19752.65	2108.88	1036.93	1035.10	327.59	9.37	1029.57	1430.20	1757.79
Flowline	400	Bridge #2	Q25	6386.35	17122.36	1036.89	1036.89	3166.85	0.37	1031.19	1757.79	4946.70
Flowline	400	Bridge #1	Q50	21184.60	2419.45	1037.68	1036.05	331.62	8.76	1030.15	1426.17	1757.79
Flowline	400	Bridge #2	Q50	13701.40	19753.03	1037.72	1037.71	3192.21	0.69	1031.69	1757.79	4950.00
Flowline	400	Bridge #1	Q100	22141.79	2627.85	1038.19	1036.67	336.30	8.43	1030.52	1421.49	1757.79
Flowline	400	Bridge #2	Q100	19200.21	21121.96	1038.15	1038.14	3192.21	0.91	1031.99	1757.79	4950.00
Flowline	400	Bridge #1	Q500	22557.18	3207.54	1039.41	1038.37	345.64	7.03	1030.69	1412.15	1757.79
Flowline	400	Bridge #2	Q500	40861.82	25176.51	1039.45	1039.41	3192.21	1.62	1032.95	1757.79	4950.00

HEC-RAS HEC-RAS 6.0.0 Beta 3 Dec 2020
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

X	X	XXXXXX	XXXX	XXXX	XX	XXXX
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	XXXXXX	XXXX	X	X	XXXXX

PROJECT DATA

Project Title: 29362 Turkey Creek
Project File : 29362TurkeyCreek.prj
Run Date and Time: 2/19/2025 4:07:14 PM

Project in English units

PLAN DATA

Plan Title: 5-60 50-80-50 M East
Plan File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.p06

Geometry Title: 5-60' and 50-80-50 raise.77 Move E 75'
Geometry File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.g06

Flow Title : Turkey Cr Flow Data
Flow File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.f01

Plan Summary Information:

Number of: Cross Sections = 4 Multiple Openings = 1
Culverts = 0 Inline Structures = 0
Bridges = 0 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: Subcritical Flow

FLOW DATA

Flow Title: Turkey Cr Flow Data

Flow File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec
Ras\29362TurkeyCreek.f01

Flow Data (cfs)

River	Reach	RS	Q2	Q5	Q10	Q25	Q50	Q100	Q500
Turkey Creek	Flowline	600	5934	11864	17357	26139	34886	41342	63419

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Turkey Creek	Flowline	Q2		Normal S = 0.000718
Turkey Creek	Flowline	Q5		Normal S = 0.000718
Turkey Creek	Flowline	Q10		Normal S = 0.000718
Turkey Creek	Flowline	Q25		Normal S = 0.000718
Turkey Creek	Flowline	Q50		Normal S = 0.000718
Turkey Creek	Flowline	Q100		Normal S = 0.000718
Turkey Creek	Flowline	Q500		Normal S = 0.000718

GEOMETRY DATA

Geometry Title: 5-60' and 50-80-50 raise.77 Move E 75'

Geometry File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec
Ras\29362TurkeyCreek.g06

CROSS SECTION

RIVER: Turkey Creek
REACH: Flowline RS: 600

INPUT

Description:

Station Elevation Data num= 256

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1030.53	289.7	1032.01	331.29	1032.41	359.47	1031.72	417.64	1032.85
429.68	1033.08	501.3	1032.59	501.33	1032.61	501.68	1032.56	503.38	1032.52
509.12	1032.41	529.63	1032.41	533.39	1032.95	535.25	1032.38	540.5	1032.37
553.06	1031.94	570.87	1031.52	573.23	1031.41	574.14	1031.4	574.85	1031.26
581.29	1030.34	588.76	1030.37	597.07	1030.39	609.38	1030.42	619.69	1031.81
621.42	1031.91	621.96	1031.82	624.17	1031.34	634.75	1029.41	635.64	1029.55
642.42	1030.86	649.85	1031.84	659.42	1032.65	666.6	1034.08	673.47	1034.73
678.15	1034.97	684.15	1035.3	699.47	1035.4	700.55	1035.41	701.77	1035.37
716.66	1034.9	724.23	1034.64	729.93	1035	733.7	1034.18	735.75	1034.7
754.63	1031.18	760.36	1030.1	761.45	1029.86	761.67	1029.8	762.78	1029.71
772.17	1030.22	775.81	1030.2	786.52	1030.73	797.21	1031.24	804.87	1031.76
807.94	1032.03	812.75	1032.09	824.68	1031.91	838.02	1031.62	842.26	1031.41
847.6	1031.39	859.15	1031.75	879.77	1032.41	881.34	1032.51	885.67	1033.03
891.18	1033.8	895.09	1033.98	898.97	1034.4	908.14	1035.29	915.59	1036.44
920.43	1036.8	926.83	1036.53	927.32	1036.49	935.68	1037.4	939.44	1037.13
953.26	1036.4	965.13	1035.6	966.81	1035.55	974.13	1034.78	978.87	1035.33
1012.41	1034.33	1037.64	1034.39	1083.25	1038.05	1092.89	1037.93	1095.73	1038.92
1106.73	1038.75	1139.71	1038.83	1145.75	1038.5	1162.82	1038.59	1173.92	1038.64
1185.65	1038.65	1191.01	1038.62	1213.66	1038.8	1226.25	1038.57	1235.99	1038.59
1269.41	1038.94	1287.12	1038.55	1297.69	1038.4	1314.38	1038.99	1327.77	1039.45
1360.01	1039.4	1363.81	1039.41	1364.86	1039.41	1374.95	1039.1	1395.7	1038.58
1398.14	1038.41	1402.73	1037.93	1410.28	1036.9	1414.68	1035.93	1420.17	1034.71
1427.35	1033.13	1441.12	1032.41	1444	1032.57	1445.83	1032.48	1447.3	1032.4
1448.19	1031.97	1458	1018.83	1459.93	1016.35	1470.26	1018.14	1485.99	1016.57
1498.47	1015.62	1498.66	1015.62	1520.71	1015.83	1522.59	1016.77	1551.25	1031.29
1552.97	1031.61	1553.94	1031.64	1555.82	1031.7	1558.42	1032.24	1563.47	1031.34
1566.46	1031.8	1571.75	1031.44	1575.5	1031.67	1583.71	1032.4	1585.13	1032.4
1602.27	1032.95	1620.67	1033.41	1629.96	1033.41	1641.63	1033.4	1643.18	1033.4
1667.28	1033.44	1678.47	1033.44	1687.92	1033.47	1693.15	1033.49	1710.37	1033.45
1718.14	1033.41	1725.34	1033.41	1737.11	1033.43	1747.53	1033.45	1764.22	1033.57
1767.28	1033.58	1777.62	1034.22	1781.49	1034.51	1781.94	1034.38	1788.39	1034.38
1794.62	1034.41	1812.1	1034.4	1812.68	1034.3	1813.86	1034.59	1822.81	1033.73
1822.89	1033.7	1823.44	1033.71	1831.48	1034.17	1837.16	1034.22	1850.27	1033.67
1858.47	1033.68	1876.43	1033.87	1877.72	1033.84	1895.38	1033.78	1900.97	1033.77
1918.3	1033.63	1928.93	1033.59	1931.64	1033.54	1939.46	1033.58	1952.47	1033.55
1970.5	1033.85	1980.36	1033.91	1982.38	1033.94	2000.32	1034.04	2002.42	1034.04
2003.16	1034.03	2032.31	1034.05	2032.45	1034.05	2032.64	1034.04	2049.97	1033.77
2062.8	1033.76	2067.79	1033.74	2077.41	1033.73	2091.24	1033.94	2097.94	1033.9
2114.31	1034.14	2116.17	1034.16	2117.34	1034.16	2123.81	1034.23	2141.36	1034.39
2143.62	1034.41	2147.91	1034.41	2154.43	1034.4	2169.19	1034.39	2192.25	1034.39
2201.44	1034.35	2209.64	1034.34	2222.92	1034.27	2226.72	1034.27	2262.09	1034.35

2264.55 1034.38 2273.05 1034.41 2282.13 1034.44 2283.75 1034.45 2304.43 1034.47
 2308.02 1034.46 2316.79 1034.46 2326.81 1034.47 2339.52 1034.41 2352.28 1034.41
 2354.19 1034.37 2355.29 1034.37 2356.52 1034.41 2385.27 1034.41 2412.62 1034.68
 2454.76 1034.88 2482.91 1034.48 2492 1034.42 2528.01 1034.44 2537.1 1034.36
 2546.27 1034.33 2566.05 1033.83 2587.73 1033.85 2598.34 1033.8 2626.84 1033.78
 2641.24 1033.66 2643.84 1033.53 2653.79 1033.43 2676.4 1032.9 2680.72 1032.89
 2688 1032.71 2694.33 1032.65 2817.93 1032.28 2828.62 1032.7 2840.97 1033.78
 2842.5 1033.88 2846.97 1034.45 2860.51 1036.98 2869.26 1037.15 2890.4 1033.67
 2903.33 1033.11 2910.35 1032.66 2921.41 1032.39 2932.2 1032.29 2961.92 1032.25
 2970.72 1032.33 2977.39 1032.34 2992.98 1032.43 2996.99 1032.36 4750 1030
 4950 1036

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .065 1447.3 .04 1552.97 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1447.3 1552.97 150 150 150 .1 .3
 Left Levee Station= 1327.77 Elevation= 1039.45

CROSS SECTION

RIVER: Turkey Creek
 REACH: Flowline RS: 450

INPUT

Description:

Station Elevation Data num= 299

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1029.55	.61	1029.56	10.24	1029.75	69.53	1029.31	115.85	1029.45
127.82	1029.61	150.65	1029.68	204.92	1029.91	229.76	1029.5	257.68	1029.11
288.53	1029.54	347.61	1029.4	430.13	1029.39	452.04	1029.54	462.04	1029.6
471.74	1029.63	501.92	1029.71	511.26	1029.76	629.52	1030.5	629.57	1030.46
629.59	1030.57	630.24	1030.68	649.2	1030.43	653.52	1029.93	655.9	1029.43
662.72	1028.84	668.28	1028.27	678.59	1026.65	679.97	1026.55	683.84	1027.7
693.34	1028.51	702.15	1026.81	704.14	1026.39	704.8	1026.41	717.26	1028.19
724.29	1029.25	728.83	1030.69	733.69	1031.37	738.03	1031.69	741.86	1031.96
744.37	1032.31	753.13	1032.46	753.49	1032.36	753.88	1032.49	765.15	1033.09
769.13	1032.86	771.17	1032.88	776.19	1032.39	783.86	1033.13	788.59	1033.08
795.3	1032.7	801.28	1031.41	817.58	1031.43	821.26	1031.37	822.51	1031.36
824.56	1031.41	829.12	1032.1	838.89	1033.41	838.95	1033.41	863.85	1035.59
868.52	1035.81	871.61	1035.97	877.78	1036.5	898.05	1037.11	901.23	1037.11
904.54	1037.1	913.87	1037.12	927.23	1037.2	932.51	1037.15	939.64	1037.05
952.49	1036.91	961.23	1036.88	976.8	1036.73	981.59	1036.87	993.51	1036.87

1011.81 1037.44 1014.61 1037.44 1019.59 1037.5 1034.62 1037.4 1035.73 1037.39
1043.87 1037.65 1047.29 1037.72 1067 1038.4 1073.12 1038.43 1075.97 1038.43
1079.89 1038.46 1085.31 1038.58 1107.59 1038.9 1129.43 1039.38 1130.97 1039.4
1133.2 1039.42 1142.16 1039.4 1155.32 1039.42 1159.59 1039.41 1174.46 1039.42
1181.11 1039.42 1184.39 1039.43 1199.89 1039.88 1206.35 1039.9 1228.33 1038.76
1233.6 1038.73 1242.81 1038.55 1244.47 1038.53 1254.91 1039.36 1259.82 1039.4
1263.68 1040.07 1269.85 1039.95 1278.97 1039.6 1301.01 1040.13 1301.46 1040.13
1301.84 1040.11 1314.62 1039.56 1322.7 1039.41 1390.3 1039.41 1405.53 1039.45
1414.17 1038.04 1414.53 1038.02 1421.33 1036.69 1426.43 1036.01 1430.79 1034.96
1439.44 1033.4 1445.37 1033 1455.2 1031.97 1462.27 1024.39 1471.34 1015.9
1498.33 1016.52 1500 1016.56 1500.04 1016.56 1502.22 1016.52 1531.22 1015.93
1543.93 1023.2 1557.94 1032 1570.34 1032.39 1570.72 1032.35 1573.58 1032.72
1579.7 1033.44 1580.97 1033.43 1587.94 1033.33 1593.52 1033.36 1609.36 1032.81
1614.46 1032.94 1628.73 1032.64 1646.22 1032.73 1649.53 1032.52 1659.33 1032.54
1661.35 1032.75 1677.63 1032.49 1686.17 1032.45 1692.55 1032.47 1701.42 1032.5
1713.98 1032.56 1717.35 1032.6 1740.81 1033.53 1744.58 1033.59 1748.1 1033.83
1757.79 1034.91 1770.4 1034.83 1775.55 1034.83 1780.24 1034.47 1796.73 1033.54
1798.2 1033.48 1799.01 1033.4 1811.47 1032.77 1822.98 1032.59 1841.59 1032.63
1843.48 1032.63 1847.85 1032.61 1852.27 1032.58 1857.15 1032.66 1858.32 1032.66
1875.77 1032.63 1877.22 1032.63 1890.26 1032.71 1891.91 1032.75 1893.97 1032.66
1913.94 1032.67 1926.32 1032.79 1936.43 1032.76 1964.44 1033.21 1974.21 1033.19
1982.59 1033.21 1994.2 1033.31 2002.11 1033.28 2021.19 1033.33 2033.22 1033.26
2037.58 1033.24 2052.65 1033.34 2053.96 1033.34 2066.54 1033.42 2086.17 1033.42
2096.04 1033.41 2103.72 1033.41 2130.48 1033.42 2134.49 1033.42 2141.34 1033.41
2154.98 1033.51 2158.72 1033.53 2159.54 1033.52 2169.42 1033.89 2174.4 1033.91
2196.23 1033.61 2196.61 1033.6 2196.77 1033.6 2214.95 1033.45 2218.74 1033.41
2221.01 1033.36 2221.93 1033.34 2241.32 1032.96 2252.73 1032.85 2258.41 1032.75
2266.71 1032.55 2269.26 1032.53 2282.58 1032.42 2291.96 1032.38 2293 1032.41
2309.61 1032.42 2314.18 1032.44 2321.05 1032.41 2324.42 1032.45 2325.34 1032.44
2325.69 1032.44 2327.68 1032.42 2341.77 1032.43 2351.64 1032.45 2356.15 1032.42
2362.85 1032.41 2372.17 1031.8 2376.3 1031.78 2378.41 1031.69 2383.5 1032.41
2393.03 1032.41 2406.31 1031.78 2408.52 1031.81 2414.38 1032.22 2418.7 1032.36
2420.01 1032.38 2433.54 1031.55 2433.57 1031.55 2446.76 1031.67 2449.13 1031.5
2463.48 1031.36 2471.73 1031.32 2473.47 1031.41 2481.23 1031.48 2485.87 1031.82
2493.58 1031.91 2505.41 1031.92 2531.48 1032.19 2553.12 1032.41 2561.2 1032.53
2563.08 1032.52 2590.31 1032.98 2599.28 1032.97 2613.06 1032.67 2623.24 1032.43
2640.03 1032.41 2640.31 1032.41 2662.74 1032.22 2663.96 1032.26 2664.67 1032.26
2676.59 1031.91 2710.52 1031.51 2716.67 1031.5 2723.46 1031.49 2724.48 1031.42
2731.1 1031.09 2741.54 1030.83 2743.17 1030.84 2744.27 1030.79 2753.78 1030.98
2771.22 1031.4 2777.5 1031.41 2782.97 1031.41 2790.26 1031.43 2797.74 1031.43
2802.16 1031.42 2809.41 1031.41 2818.21 1031.55 2835.66 1031.71 2855.09 1032.32
2866.71 1032.85 2870.29 1033.15 2880.22 1034.94 2889.07 1036.36 2897.31 1037.1
2899.97 1037.35 2909.24 1037.33 2914 1037.29 2926.17 1035.63 2933.21 1034.69
2935.08 1034.33 2936.72 1034.19 2938.71 1033.98 2943.48 1033.45 2956.35 1032.21

2976.6 1031.43 3000 1030.88 4750 1030 4950 1037

Manning's n Values num= 3

Sta n Val Sta n Val Sta n Val

0 .065 1455.2 .04 1557.94 .04

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

1455.2 1557.94 100 100 100 .3 .5

Left Levee Station= 1301.01 Elevation= 1040.13

MULTIPLE OPENING

RIVER: Turkey Creek

REACH: Flowline RS: 400

INPUT

Description:

Distance from Upstream XS = 11

Deck/Roadway Width = 28

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 92

Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

27.69 1028.61 1010 50.74 1028.23 1010 76.66 1027.87 1010

105.3 1028.27 1010 160.16 1028.14 1010 236.83 1028.13 1010

257.19 1028.27 1010 266.48 1028.33 1010 275.5 1028.36 1010

303.55 1028.43 1010 312.23 1028.48 1010 473.9 1029.5 1010

523.55 1029.21 1010 528.78 1028.65 1010 562.25 1027.66 1010

647.9 1032.22 1010 695.81 1032.81 1010 696.65 1032.82 1010

696.66 1032.81 1010 727.08 1032.53 1010 730.05 1032.51 1010

756.92 1032.5 1010 759.8 1032.52 1010 784.54 1032.82 1010

786.17 1032.85 1010 813.28 1033.14 1010 815.9 1033.17 1010

839.46 1033.46 1010 848.7 1033.7 1010 913.68 1035.26 1010

935.38 1036.07 1010 952.88 1036.56 1010 970.7 1037.21 1010

987.32 1037.6 1010 1026.19 1038.87 1010 1039.14 1039.02 1010

1045.09 1039.07 1010 1059.97 1039.22 1010 1067.85 1039.29 1010

1071.05 1039.32 1010 1087.35 1039.4 1010 1095.09 1039.41 1010

1105.51 1039.41 1010 1117.45 1039.49 1010 1125.24 1039.54 1010

1141.34 1039.56 1010 1144.84 1039.57 1010 1163.97 1039.81 1010

1166.14 1039.81 1010 1189.28 1039.91 1010 1219.28 1040.24 1010

1269.28 1040.77 1010 1319.28 1041.3 1010 1369.28 1041.85 1010

1411.44 1042.27 1010 1411.44 1042.27 1038.44 1461.78 1042.61 1038.78

1461.78 1042.61 1037.99 1501.78 1042.51 1037.89 1541.78 1042.48 1037.86

1541.78 1042.48 1038.65 1592.12 1041.96 1038.13 1592.12 1041.96 1010

1619.28	1041.61	1010	1669.28	1040.92	1010	1719.28	1040.47	1010
1769.28	1040.03	1010	1819.28	1040.52	1010	1869.28	1041.01	1010
1920.2	1041.71	1010	1920.2	1041.71	1037.88	1980.53	1042.39	1038.56
2040.53	1042.72	1038.89	2100.53	1042.77	1038.94	2160.53	1042.51	1038.68
2220.86	1041.93	1038.1	2220.86	1041.93	1010	2319.28	1040.61	1010
2419.28	1039.26	1010	2519.28	1037.91	1010	2619.28	1036.55	1010
2669.28	1035.9	1010	2719.28	1035.42	1010	2769.28	1035.14	1010
2819.28	1035.06	1010	2869.28	1035.16	1010	2919.28	1035.28	1010
2940.48	1035.44	1010	2942.74	1035.45	1010	2990.59	1035.57	1010
2997.49	1035.62	1010	4950	1037.3	1010			

Upstream Bridge Cross Section Data

Station Elevation Data num= 299

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1029.55	.61	1029.56	10.24	1029.75	69.53	1029.31	115.85	1029.45
127.82	1029.61	150.65	1029.68	204.92	1029.91	229.76	1029.5	257.68	1029.11
288.53	1029.54	347.61	1029.4	430.13	1029.39	452.04	1029.54	462.04	1029.6
471.74	1029.63	501.92	1029.71	511.26	1029.76	629.52	1030.5	629.57	1030.46
629.59	1030.57	630.24	1030.68	649.2	1030.43	653.52	1029.93	655.9	1029.43
662.72	1028.84	668.28	1028.27	678.59	1026.65	679.97	1026.55	683.84	1027.7
693.34	1028.51	702.15	1026.81	704.14	1026.39	704.8	1026.41	717.26	1028.19
724.29	1029.25	728.83	1030.69	733.69	1031.37	738.03	1031.69	741.86	1031.96
744.37	1032.31	753.13	1032.46	753.49	1032.36	753.88	1032.49	765.15	1033.09
769.13	1032.86	771.17	1032.88	776.19	1032.39	783.86	1033.13	788.59	1033.08
795.3	1032.7	801.28	1031.41	817.58	1031.43	821.26	1031.37	822.51	1031.36
824.56	1031.41	829.12	1032.1	838.89	1033.41	838.95	1033.41	863.85	1035.59
868.52	1035.81	871.61	1035.97	877.78	1036.5	898.05	1037.11	901.23	1037.11
904.54	1037.1	913.87	1037.12	927.23	1037.2	932.51	1037.15	939.64	1037.05
952.49	1036.91	961.23	1036.88	976.8	1036.73	981.59	1036.87	993.51	1036.87
1011.81	1037.44	1014.61	1037.44	1019.59	1037.5	1034.62	1037.4	1035.73	1037.39
1043.87	1037.65	1047.29	1037.72	1067	1038.4	1073.12	1038.43	1075.97	1038.43
1079.89	1038.46	1085.31	1038.58	1107.59	1038.9	1129.43	1039.38	1130.97	1039.4
1133.2	1039.42	1142.16	1039.4	1155.32	1039.42	1159.59	1039.41	1174.46	1039.42
1181.11	1039.42	1184.39	1039.43	1199.89	1039.88	1206.35	1039.9	1228.33	1038.76
1233.6	1038.73	1242.81	1038.55	1244.47	1038.53	1254.91	1039.36	1259.82	1039.4
1263.68	1040.07	1269.85	1039.95	1278.97	1039.6	1301.01	1040.13	1301.46	1040.13
1301.84	1040.11	1314.62	1039.56	1322.7	1039.41	1390.3	1039.41	1405.53	1039.45
1414.17	1038.04	1414.53	1038.02	1421.33	1036.69	1426.43	1036.01	1430.79	1034.96
1439.44	1033.4	1445.37	1033	1455.2	1031.97	1462.27	1024.39	1471.34	1015.9
1498.33	1016.52	1500	1016.56	1500.04	1016.56	1502.22	1016.52	1531.22	1015.93
1543.93	1023.2	1557.94	1032	1570.34	1032.39	1570.72	1032.35	1573.58	1032.72
1579.7	1033.44	1580.97	1033.43	1587.94	1033.33	1593.52	1033.36	1609.36	1032.81
1614.46	1032.94	1628.73	1032.64	1646.22	1032.73	1649.53	1032.52	1659.33	1032.54
1661.35	1032.75	1677.63	1032.49	1686.17	1032.45	1692.55	1032.47	1701.42	1032.5

1713.98 1032.56 1717.35 1032.6 1740.81 1033.53 1744.58 1033.59 1748.1 1033.83
 1757.79 1034.91 1770.4 1034.83 1775.55 1034.83 1780.24 1034.47 1796.73 1033.54
 1798.2 1033.48 1799.01 1033.4 1811.47 1032.77 1822.98 1032.59 1841.59 1032.63
 1843.48 1032.63 1847.85 1032.61 1852.27 1032.58 1857.15 1032.66 1858.32 1032.66
 1875.77 1032.63 1877.22 1032.63 1890.26 1032.71 1891.91 1032.75 1893.97 1032.66
 1913.94 1032.67 1926.32 1032.79 1936.43 1032.76 1964.44 1033.21 1974.21 1033.19
 1982.59 1033.21 1994.2 1033.31 2002.11 1033.28 2021.19 1033.33 2033.22 1033.26
 2037.58 1033.24 2052.65 1033.34 2053.96 1033.34 2066.54 1033.42 2086.17 1033.42
 2096.04 1033.41 2103.72 1033.41 2130.48 1033.42 2134.49 1033.42 2141.34 1033.41
 2154.98 1033.51 2158.72 1033.53 2159.54 1033.52 2169.42 1033.89 2174.4 1033.91
 2196.23 1033.61 2196.61 1033.6 2196.77 1033.6 2214.95 1033.45 2218.74 1033.41
 2221.01 1033.36 2221.93 1033.34 2241.32 1032.96 2252.73 1032.85 2258.41 1032.75
 2266.71 1032.55 2269.26 1032.53 2282.58 1032.42 2291.96 1032.38 2293 1032.41
 2309.61 1032.42 2314.18 1032.44 2321.05 1032.41 2324.42 1032.45 2325.34 1032.44
 2325.69 1032.44 2327.68 1032.42 2341.77 1032.43 2351.64 1032.45 2356.15 1032.42
 2362.85 1032.41 2372.17 1031.8 2376.3 1031.78 2378.41 1031.69 2383.5 1032.41
 2393.03 1032.41 2406.31 1031.78 2408.52 1031.81 2414.38 1032.22 2418.7 1032.36
 2420.01 1032.38 2433.54 1031.55 2433.57 1031.55 2446.76 1031.67 2449.13 1031.5
 2463.48 1031.36 2471.73 1031.32 2473.47 1031.41 2481.23 1031.48 2485.87 1031.82
 2493.58 1031.91 2505.41 1031.92 2531.48 1032.19 2553.12 1032.41 2561.2 1032.53
 2563.08 1032.52 2590.31 1032.98 2599.28 1032.97 2613.06 1032.67 2623.24 1032.43
 2640.03 1032.41 2640.31 1032.41 2662.74 1032.22 2663.96 1032.26 2664.67 1032.26
 2676.59 1031.91 2710.52 1031.51 2716.67 1031.5 2723.46 1031.49 2724.48 1031.42
 2731.1 1031.09 2741.54 1030.83 2743.17 1030.84 2744.27 1030.79 2753.78 1030.98
 2771.22 1031.4 2777.5 1031.41 2782.97 1031.41 2790.26 1031.43 2797.74 1031.43
 2802.16 1031.42 2809.41 1031.41 2818.21 1031.55 2835.66 1031.71 2855.09 1032.32
 2866.71 1032.85 2870.29 1033.15 2880.22 1034.94 2889.07 1036.36 2897.31 1037.1
 2899.97 1037.35 2909.24 1037.33 2914 1037.29 2926.17 1035.63 2933.21 1034.69
 2935.08 1034.33 2936.72 1034.19 2938.71 1033.98 2943.48 1033.45 2956.35 1032.21
 2976.6 1031.43 3000 1030.88 4750 1030 4950 1037

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .065 1455.2 .04 1557.94 .04

Bank Sta: Left Right Coeff Contr. Expan.
 1455.2 1557.94 .3 .5
 Left Levee Station= 1301.01 Elevation= 1040.13

Downstream Deck/Roadway Coordinates
 num= 92
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 27.69 1028.61 1010 50.74 1028.23 1010 76.66 1027.87 1010
 105.3 1028.27 1010 160.16 1028.14 1010 236.83 1028.13 1010

257.19	1028.27	1010	266.48	1028.33	1010	275.5	1028.36	1010
303.55	1028.43	1010	312.23	1028.48	1010	473.9	1029.5	1010
523.55	1029.21	1010	528.78	1028.65	1010	562.25	1027.66	1010
647.9	1032.22	1010	695.81	1032.81	1010	696.65	1032.82	1010
696.66	1032.81	1010	727.08	1032.53	1010	730.05	1032.51	1010
756.92	1032.5	1010	759.8	1032.52	1010	784.54	1032.82	1010
786.17	1032.85	1010	813.28	1033.14	1010	815.9	1033.17	1010
839.46	1033.46	1010	848.7	1033.7	1010	913.68	1035.26	1010
935.38	1036.07	1010	952.88	1036.56	1010	970.7	1037.21	1010
987.32	1037.6	1010	1026.19	1038.87	1010	1039.14	1039.02	1010
1045.09	1039.07	1010	1059.97	1039.22	1010	1067.85	1039.29	1010
1071.05	1039.32	1010	1087.35	1039.4	1010	1095.09	1039.41	1010
1105.51	1039.41	1010	1117.45	1039.49	1010	1125.24	1039.54	1010
1141.34	1039.56	1010	1144.84	1039.57	1010	1163.97	1039.81	1010
1166.14	1039.81	1010	1189.28	1039.91	1010	1219.28	1040.24	1010
1269.28	1040.77	1010	1319.28	1041.3	1010	1369.28	1041.85	1010
1411.44	1042.27	1010	1411.44	1042.27	1038.44	1461.78	1042.61	1038.78
1461.78	1042.61	1037.99	1501.78	1042.51	1037.89	1541.78	1042.48	1037.86
1541.78	1042.48	1038.65	1592.12	1041.96	1038.13	1592.12	1041.96	1010
1619.28	1041.61	1010	1669.28	1040.92	1010	1719.28	1040.47	1010
1769.28	1040.03	1010	1819.28	1040.52	1010	1869.28	1041.01	1010
1920.2	1041.71	1010	1920.2	1041.71	1037.88	1980.53	1042.39	1038.56
2040.53	1042.72	1038.89	2100.53	1042.77	1038.94	2160.53	1042.51	1038.68
2220.86	1041.93	1038.1	2220.86	1041.93	1010	2319.28	1040.61	1010
2419.28	1039.26	1010	2519.28	1037.91	1010	2619.28	1036.55	1010
2669.28	1035.9	1010	2719.28	1035.42	1010	2769.28	1035.14	1010
2819.28	1035.06	1010	2869.28	1035.16	1010	2919.28	1035.28	1010
2940.48	1035.44	1010	2942.74	1035.45	1010	2990.59	1035.57	1010
2997.49	1035.62	1010	4950	1037.3	1010			

Downstream Bridge Cross Section Data

Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.28	22.13	1027.22	92.01	1027.2	110.55	1027.33	119	1027.38
127.2	1027.4	152.71	1027.47	160.61	1027.51	307.25	1028.44	352.16	1028.16
356.89	1027.63	387.13	1026.7	464.4	1030.94	507.56	1031.49	641.11	1032.77
673.44	1031.06	695.58	1031.13	763.37	1031.48	765.34	1031.64	765.41	1031.65
767.89	1031.44	769.88	1031.51	771.92	1031.51	772.01	1031.46	773.28	1031.53
777.7	1031.58	783.34	1031.58	795.76	1031.56	799.6	1031.52	802.74	1031.56
818.59	1031.65	830.5	1031.65	833.15	1031.4	835.95	1031.25	851.36	1031.3
863.29	1031.54	872.36	1031.53	883.32	1031.5	894.84	1031.56	905.51	1031.52
918.98	1031.53	924.2	1031.69	934.09	1031.76	939.09	1031.82	958.85	1032.44
961.08	1032.56	967.38	1033.04	973	1033.41	977.79	1033.76	979.87	1033.98
1000	1036.41	1003.93	1036.98	1010.2	1037.91	1016.73	1038.77	1020.8	1039.38

1025.84 1039.9 1039.6 1040.41 1045.86 1041.1 1049.65 1041.31 1054.96 1041.69
1069.77 1042.3 1070.63 1042.35 1072.65 1042.28 1087.09 1041.43 1094.05 1040.94
1100.45 1040.4 1114.01 1040.42 1115.1 1040.42 1116.52 1040.51 1132.92 1041.41
1148.46 1042.05 1156.53 1042.36 1157.11 1042.45 1157.42 1042.47 1172.65 1042.48
1174.77 1042.57 1182.26 1042.53 1182.46 1042.52 1194.19 1042.76 1200.63 1042.21
1202.98 1041.93 1208 1041.14 1208.88 1041.1 1225.65 1039.61 1227.14 1039.41
1233.5 1039.38 1236.99 1039.39 1250.56 1038.51 1251.36 1038.5 1252.49 1038.55
1270.73 1039.4 1273.07 1038.97 1282.04 1038.62 1286.88 1039 1289.56 1038.86
1290.41 1038.91 1300.79 1039.53 1302.68 1039.47 1313.41 1039.15 1315.82 1039.24
1321.24 1039.31 1324.19 1039.41 1328.67 1039.64 1336.67 1040.43 1341.22 1040.41
1357.12 1040.41 1367.8 1040.68 1373.71 1040.5 1375.89 1040.41 1388.63 1039.98
1399.54 1039.62 1402.67 1039.52 1404.77 1039.5 1412.67 1039.41 1418.93 1039.54
1421.8 1039.29 1437.63 1037.5 1445.55 1032.61 1449.42 1028.4 1457.54 1027.37
1457.59 1027.36 1457.65 1027.33 1461.33 1023.84 1470.74 1015.49 1481.13 1015.08
1499.47 1014.41 1511.82 1014.45 1523.08 1015.11 1532.86 1022.13 1548.43 1030.39
1554.24 1029.44 1563.83 1032.66 1572.43 1032.75 1576.26 1033.36 1577.11 1033.41
1583.62 1033.43 1584.52 1033.02 1587.3 1032.77 1592.61 1032.77 1596.65 1032.99
1608.37 1032.8 1623.65 1033.12 1628.26 1033.4 1643.98 1032.92 1645.13 1032.89
1663.79 1033.35 1670.53 1033.38 1683.34 1033.37 1687.47 1033.2 1689.88 1032.99
1697.12 1032.29 1705.01 1032.85 1712.48 1032.9 1720.74 1032.94 1745.21 1035.11
1748.77 1034.99 1754.49 1033.32 1755.24 1033.36 1755.57 1033.39 1763.86 1033.41
1775.08 1033.41 1775.96 1033.38 1793.92 1032.61 1795.86 1032.56 1799.58 1032.47
1814.26 1033.28 1829.04 1033.76 1847.05 1034.14 1848.37 1034.11 1850.83 1034.41
1852.26 1034.41 1862.89 1034.28 1862.93 1034.27 1873.74 1033.21 1880.96 1033.36
1881.82 1033.05 1888.98 1033.48 1895.17 1032.85 1903.1 1033.32 1907.85 1033.36
1909.64 1033.31 1919.31 1032.82 1924.81 1032.78 1941.2 1033.23 1948.74 1033.41
1968.27 1033.42 1980.19 1033.38 1987.31 1033.07 1998.73 1032.99 2019.44 1033.41
2053.08 1033.41 2055.37 1033.4 2082 1033.41 2082.36 1033.41 2096 1033.4
2104.57 1033.4 2107.45 1033.33 2112.94 1033.41 2118.59 1033.42 2124.15 1033.41
2143.35 1033.4 2154.1 1033.41 2162.18 1033.43 2168.18 1033.4 2178.88 1032.72
2185.53 1032.45 2193.87 1032.87 2198.06 1032.9 2201.09 1032.97 2204.74 1032.95
2210.88 1032.47 2215.65 1032.45 2228.13 1033.24 2230.35 1033.3 2231.65 1033.14
2237.79 1032.4 2250.16 1032.41 2252.87 1032.2 2271.56 1031.47 2276.52 1031.44
2282.77 1031.44 2293.65 1031.41 2298.81 1031.56 2305.59 1032.78 2318.36 1033.98
2319.75 1034.11 2333.65 1034.3 2345.7 1034.49 2350.68 1033.41 2356.61 1033.28
2364.99 1032.79 2371.63 1032.07 2383.22 1031.36 2394.03 1031.7 2401.09 1031.68
2406.72 1031.64 2419.87 1032.05 2484.91 1032.18 2491.13 1032.45 2494.76 1032.41
2497.14 1032.17 2502.59 1032.21 2505.73 1032.61 2587.21 1032.24 2592.57 1031.77
2595.83 1031.98 2596.91 1031.83 2602.73 1031.79 2626.92 1031.83 2682.36 1032.81
2704.98 1032.84 2712.9 1032.9 2726.69 1032.5 2732.21 1032.41 2736.85 1032.33
2744.87 1032.31 2757.87 1032.62 2760.41 1032.78 2761.83 1033.17 2767.05 1033.93
2771.48 1034.68 2773.7 1035.07 2780.27 1034.94 2791.48 1035.29 2800.81 1033.76
2805.22 1033.58 2831.57 1034.42 2868.92 1034.44 2946.79 1034.37 2990.89 1034.59
2995.09 1034.61 2998.97 1034.7 4750 1030 4950 1038

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .065 1437.63 .04 1563.83 .04

Bank Sta: Left Right Coeff Contr. Expan.
 1437.63 1563.83 .3 .5
 Left Levee Station= 1194.19 Elevation= 1042.76

Upstream Embankment side slope = 3 horiz. to 1.0 vertical
 Downstream Embankment side slope = 3 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Abutments = 4

Abutment Data

Upstream num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 1411.44 1038.47 1411.44 1037.98 1414.94 1037.98 1414.94 1035.1 1417.94 1035.1
 1421.59 1034.28 1452.85 1015.59
 Downstream num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 1411.44 1038.47 1411.44 1037.98 1414.94 1037.98 1414.94 1035.1 1417.94 1035.1
 1421.59 1034.28 1452.85 1015.59

Abutment Data

Upstream num= 8
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 1527.24 1015.02 1564.25 1030.99 1580 1032.97 1585.62 1034.76 1588.62 1034.76
 1588.62 1037.64 1592.12 1037.64 1592.12 1038.13
 Downstream num= 8
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 1527.24 1015.02 1564.25 1030.99 1580 1032.97 1585.62 1034.76 1588.62 1034.76
 1588.62 1037.64 1592.12 1037.64 1592.12 1038.13

Abutment Data

Upstream num= 6
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 1920.2 1037.88 1920.2 1037.45 1923.7 1037.45 1923.7 1035.28 1926.7 1035.28
 1931 1033.13

Downstream num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1920.2	1037.88	1920.2	1037.45	1923.7	1037.45	1923.7	1035.28	1926.7	1035.28
1931	1033.13								

Abutment Data

Upstream num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2208.06	1032.35	2214.36	1035.5	2217.36	1035.5	2217.36	1037.67	2220.86	1037.67
2220.86	1038.1								

Downstream num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2208.06	1032.35	2214.36	1035.5	2217.36	1035.5	2217.36	1037.67	2220.86	1037.67
2220.86	1038.1								

Number of Piers = 6

Pier Data

Pier Station Upstream= 1461.78 Downstream= 1461.78

Upstream num= 2

Width	Elev	Width	Elev
3	1010	3	1039

Downstream num= 2

Width	Elev	Width	Elev
3	1010	3	1039

Pier Data

Pier Station Upstream= 1541.78 Downstream= 1541.78

Upstream num= 2

Width	Elev	Width	Elev
3	1010	3	1039

Downstream num= 2

Width	Elev	Width	Elev
3	1010	3	1039

Pier Data

Pier Station Upstream= 1980.53 Downstream= 1980.53

Upstream num= 2

Width	Elev	Width	Elev
3	1010	3	1039

Downstream num= 2

Width	Elev	Width	Elev
3	1010	3	1039

Pier Data

Pier Station Upstream= 2040.53 Downstream= 2040.53

Upstream num= 2

Width Elev Width Elev

3 1010 3 1039

Downstream num= 2

Width Elev Width Elev

3 1010 3 1039

Pier Data

Pier Station Upstream= 2100.53 Downstream= 2100.53

Upstream num= 2

Width Elev Width Elev

3 1010 3 1039

Downstream num= 2

Width Elev Width Elev

3 1010 3 1039

Pier Data

Pier Station Upstream= 2160.53 Downstream= 2160.53

Upstream num= 2

Width Elev Width Elev

3 1010 3 1039

Downstream num= 2

Width Elev Width Elev

3 1010 3 1039

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

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

Multiple Opening Stagnation Limits

Upstream Downstream

Opening Type Sta. Left Sta. Right Sta. Left Sta. Right

Bridge	0	1757.79	0	1757.79
Bridge	1757.79	5000	1757.79	5000

CROSS SECTION

RIVER: Turkey Creek

REACH: Flowline RS: 350

INPUT

Description:

Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.28	22.13	1027.22	92.01	1027.2	110.55	1027.33	119	1027.38
127.2	1027.4	152.71	1027.47	160.61	1027.51	307.25	1028.44	352.16	1028.16
356.89	1027.63	387.13	1026.7	464.4	1030.94	507.56	1031.49	641.11	1032.77
673.44	1031.06	695.58	1031.13	763.37	1031.48	765.34	1031.64	765.41	1031.65
767.89	1031.44	769.88	1031.51	771.92	1031.51	772.01	1031.46	773.28	1031.53
777.7	1031.58	783.34	1031.58	795.76	1031.56	799.6	1031.52	802.74	1031.56
818.59	1031.65	830.5	1031.65	833.15	1031.4	835.95	1031.25	851.36	1031.3
863.29	1031.54	872.36	1031.53	883.32	1031.5	894.84	1031.56	905.51	1031.52
918.98	1031.53	924.2	1031.69	934.09	1031.76	939.09	1031.82	958.85	1032.44
961.08	1032.56	967.38	1033.04	973	1033.41	977.79	1033.76	979.87	1033.98
1000	1036.41	1003.93	1036.98	1010.2	1037.91	1016.73	1038.77	1020.8	1039.38
1025.84	1039.9	1039.6	1040.41	1045.86	1041.1	1049.65	1041.31	1054.96	1041.69
1069.77	1042.3	1070.63	1042.35	1072.65	1042.28	1087.09	1041.43	1094.05	1040.94
1100.45	1040.4	1114.01	1040.42	1115.1	1040.42	1116.52	1040.51	1132.92	1041.41
1148.46	1042.05	1156.53	1042.36	1157.11	1042.45	1157.42	1042.47	1172.65	1042.48
1174.77	1042.57	1182.26	1042.53	1182.46	1042.52	1194.19	1042.76	1200.63	1042.21
1202.98	1041.93	1208	1041.14	1208.88	1041.1	1225.65	1039.61	1227.14	1039.41
1233.5	1039.38	1236.99	1039.39	1250.56	1038.51	1251.36	1038.5	1252.49	1038.55
1270.73	1039.4	1273.07	1038.97	1282.04	1038.62	1286.88	1039	1289.56	1038.86
1290.41	1038.91	1300.79	1039.53	1302.68	1039.47	1313.41	1039.15	1315.82	1039.24
1321.24	1039.31	1324.19	1039.41	1328.67	1039.64	1336.67	1040.43	1341.22	1040.41
1357.12	1040.41	1367.8	1040.68	1373.71	1040.5	1375.89	1040.41	1388.63	1039.98
1399.54	1039.62	1402.67	1039.52	1404.77	1039.5	1412.67	1039.41	1418.93	1039.54
1421.8	1039.29	1437.63	1037.5	1445.55	1032.61	1449.42	1028.4	1457.54	1027.37
1457.59	1027.36	1457.65	1027.33	1461.33	1023.84	1470.74	1015.49	1481.13	1015.08
1499.47	1014.41	1511.82	1014.45	1523.08	1015.11	1532.86	1022.13	1548.43	1030.39
1554.24	1029.44	1563.83	1032.66	1572.43	1032.75	1576.26	1033.36	1577.11	1033.41

1583.62 1033.43 1584.52 1033.02 1587.3 1032.77 1592.61 1032.77 1596.65 1032.99
 1608.37 1032.8 1623.65 1033.12 1628.26 1033.4 1643.98 1032.92 1645.13 1032.89
 1663.79 1033.35 1670.53 1033.38 1683.34 1033.37 1687.47 1033.2 1689.88 1032.99
 1697.12 1032.29 1705.01 1032.85 1712.48 1032.9 1720.74 1032.94 1745.21 1035.11
 1748.77 1034.99 1754.49 1033.32 1755.24 1033.36 1755.57 1033.39 1763.86 1033.41
 1775.08 1033.41 1775.96 1033.38 1793.92 1032.61 1795.86 1032.56 1799.58 1032.47
 1814.26 1033.28 1829.04 1033.76 1847.05 1034.14 1848.37 1034.11 1850.83 1034.41
 1852.26 1034.41 1862.89 1034.28 1862.93 1034.27 1873.74 1033.21 1880.96 1033.36
 1881.82 1033.05 1888.98 1033.48 1895.17 1032.85 1903.1 1033.32 1907.85 1033.36
 1909.64 1033.31 1919.31 1032.82 1924.81 1032.78 1941.2 1033.23 1948.74 1033.41
 1968.27 1033.42 1980.19 1033.38 1987.31 1033.07 1998.73 1032.99 2019.44 1033.41
 2053.08 1033.41 2055.37 1033.4 2082 1033.41 2082.36 1033.41 2096 1033.4
 2104.57 1033.4 2107.45 1033.33 2112.94 1033.41 2118.59 1033.42 2124.15 1033.41
 2143.35 1033.4 2154.1 1033.41 2162.18 1033.43 2168.18 1033.4 2178.88 1032.72
 2185.53 1032.45 2193.87 1032.87 2198.06 1032.9 2201.09 1032.97 2204.74 1032.95
 2210.88 1032.47 2215.65 1032.45 2228.13 1033.24 2230.35 1033.3 2231.65 1033.14
 2237.79 1032.4 2250.16 1032.41 2252.87 1032.2 2271.56 1031.47 2276.52 1031.44
 2282.77 1031.44 2293.65 1031.41 2298.81 1031.56 2305.59 1032.78 2318.36 1033.98
 2319.75 1034.11 2333.65 1034.3 2345.7 1034.49 2350.68 1033.41 2356.61 1033.28
 2364.99 1032.79 2371.63 1032.07 2383.22 1031.36 2394.03 1031.7 2401.09 1031.68
 2406.72 1031.64 2419.87 1032.05 2484.91 1032.18 2491.13 1032.45 2494.76 1032.41
 2497.14 1032.17 2502.59 1032.21 2505.73 1032.61 2587.21 1032.24 2592.57 1031.77
 2595.83 1031.98 2596.91 1031.83 2602.73 1031.79 2626.92 1031.83 2682.36 1032.81
 2704.98 1032.84 2712.9 1032.9 2726.69 1032.5 2732.21 1032.41 2736.85 1032.33
 2744.87 1032.31 2757.87 1032.62 2760.41 1032.78 2761.83 1033.17 2767.05 1033.93
 2771.48 1034.68 2773.7 1035.07 2780.27 1034.94 2791.48 1035.29 2800.81 1033.76
 2805.22 1033.58 2831.57 1034.42 2868.92 1034.44 2946.79 1034.37 2990.89 1034.59
 2995.09 1034.61 2998.97 1034.7 4750 1030 4950 1038

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .065 1437.63 .04 1563.83 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1437.63 1563.83 150 150 150 .3 .5
 Left Levee Station= 1194.19 Elevation= 1042.76

CROSS SECTION

RIVER: Turkey Creek
 REACH: Flowline RS: 200

INPUT

Description:

Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.16	9.33	1027.72	40.94	1028.14	138.06	1029.11	161.4	1027.69
177.36	1027.73	922.07	1031.44	923.57	1031.56	924.77	1031.61	926.64	1031.46
928.15	1031.51	930.05	1031.51	930.93	1031.57	933.2	1031.45	934.71	1031.46
938.07	1031.5	947.59	1031.52	953.01	1031.59	953.48	1031.49	956.19	1031.54
956.3	1031.58	958.02	1031.83	960.17	1031.75	962.25	1031.7	970.43	1031.75
976.74	1031.74	987.01	1031.45	989.82	1031.54	991.32	1031.51	999.89	1030.95
1003.79	1030.93	1007.84	1031.07	1020.85	1031.46	1021.03	1031.47	1027.61	1031.53
1035.14	1031.43	1049.07	1031.83	1063.65	1031.81	1068.6	1032.5	1072.26	1033
1076.83	1034.18	1083.43	1035.05	1087.01	1036.12	1090.95	1037.84	1097.08	1039.21
1109.87	1042.7	1120.28	1043.68	1126.69	1043.69	1138.42	1042.6	1140.72	1042.02
1150.21	1041.11	1157.73	1040.91	1160.67	1040.88	1170.54	1041.69	1194.23	1041.02
1199.39	1041.93	1204.33	1042.21	1208.52	1042.3	1216.07	1042.99	1230.14	1043.05
1247.11	1041.44	1263.2	1041.63	1271.2	1041.16	1280.71	1041.12	1310.35	1041.62
1321.81	1041.44	1331.57	1041.67	1336.71	1042.41	1340.88	1043.16	1344.83	1043.53
1351.73	1043.75	1362.53	1043.46	1368.62	1043.37	1373.12	1042.73	1377.41	1041.45
1383.35	1039.12	1387.19	1037.76	1391.55	1035.92	1392.65	1035.43	1393.9	1035.25
1404.94	1033.93	1409.2	1033.14	1413.35	1032.62	1422.41	1033.25	1429.77	1033.29
1437	1032.76	1451.48	1033.21	1455.36	1033.43	1456.1	1033.44	1456.34	1033.43
1459.48	1030.65	1474.59	1017.42	1475.58	1016.8	1476.68	1015.9	1499.63	1015.79
1500	1015.77	1507.58	1016	1544.15	1016.98	1568.11	1027.47	1570.92	1028.66
1576.62	1029.23	1579.37	1030.22	1584.7	1031.56	1588.9	1032.4	1596.38	1032.06
1597.2	1032.05	1603.23	1033.21	1605.41	1033.35	1618.15	1033.98	1621.25	1033.37
1630.1	1033.39	1642.82	1032.2	1644.85	1032.07	1649.17	1032.1	1657.45	1032.35
1665.28	1031.9	1669.03	1032.33	1678.3	1031.43	1679.8	1031.44	1686.18	1031.41
1691.54	1030.75	1695.45	1030.24	1695.97	1030.22	1704.08	1030.24	1714.23	1030.28
1715.12	1030.41	1727.51	1029.01	1732.34	1028.47	1733.9	1028.42	1735.3	1028.39
1741.07	1028.31	1743.83	1028.27	1750.12	1028.48	1756.38	1028.7	1759.88	1029.46
1762.11	1029.58	1762.71	1029.94	1769.02	1031.57	1770.5	1031.32	1783.06	1033.09
1784.96	1033.22	1789.97	1032.71	1794.16	1033.33	1799.07	1033.26	1808.33	1032.9
1818.37	1033.38	1824.14	1033.09	1830.8	1034.03	1837.66	1034.04	1839.67	1033.41
1845.01	1032.95	1850.3	1033.11	1858.39	1033.07	1879.99	1033.75	1887.74	1033.05
1893.67	1033.41	1903.99	1033.43	1911.52	1032.82	1926.74	1032.39	1933.97	1032.31
1936.53	1032.04	1948.92	1032.02	1952.18	1032.4	1955.45	1032.4	1961.87	1032.41
1965.68	1032.32	1973.05	1032.44	1981.81	1032.45	1987.78	1032.43	1996.69	1032.37
2000.13	1032.36	2009.99	1032.38	2019.32	1032.64	2024.64	1032.86	2039.14	1034.12
2040.47	1034.1	2042.73	1034.3	2044.3	1034.21	2057.86	1034.4	2061.93	1034.35
2063.49	1034.06	2066.82	1033.78	2077.53	1032.46	2084.33	1032.41	2093.15	1032.41
2097.24	1032.29	2099.81	1032.41	2114.27	1033.39	2115.37	1033.45	2115.87	1033.45
2124.62	1033.41	2126.59	1033.04	2136.07	1033.27	2137.9	1033.36	2138.78	1033.35
2144.96	1033.11	2159.62	1032.65	2166.72	1032.46	2178.48	1032.47	2192.97	1032.97
2198.75	1033.15	2201.63	1033.08	2210.43	1032.57	2211.43	1032.56	2226.21	1032.46
2236.04	1032.47	2250.63	1032.41	2270.58	1032.41	2277.89	1032.45	2280.16	1032.47

2284.44 1031.66 2285.9 1031.52 2287.33 1031.26 2293.58 1030.12 2303.89 1029.65
 2308.67 1029.81 2324.13 1031.39 2324.26 1031.39 2324.92 1031.45 2342.78 1032.42
 2346.27 1032.36 2351.59 1032.26 2354.09 1032.24 2373.55 1031.87 2385.8 1031.86
 2421.27 1030.8 2451.83 1031.41 2469.15 1031.41 2492.16 1030.44 2535.12 1030.46
 2542.62 1030.84 2558.08 1030.82 2570.17 1031 2579.38 1031.33 2591.39 1031.58
 2609.47 1031.26 2622.3 1031.09 2625.74 1031.07 2636.6 1030.69 2653.42 1030.83
 2676.8 1031.2 2691.93 1031.32 2708.39 1031.36 2722.63 1031.62 2745.48 1031.57
 2755.93 1031.48 2760.93 1031.52 2774.79 1031.41 2780.33 1031.66 2783.97 1031.47
 2798.18 1031.3 2802.23 1031.44 2810.51 1031.87 2828.62 1031.45 2836.43 1031.25
 2867.07 1033.71 2878.25 1034.97 2884.81 1036.18 2900.05 1035.74 2914.93 1034.42
 2932.44 1033.03 2940.34 1033.23 2956.47 1031.78 2985.71 1031.5 3000 1031.41
 3935 1030 4165 1036 4950 1039

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .065 1456.1 .04 1588.9 .04

Bank Sta: Left Right Coeff Contr. Expan.
 1456.1 1588.9 .1 .3
 Left Levee Station= 1126.69 Elevation= 1043.69

SUMMARY OF MANNING'S N VALUES

River: Turkey Creek

Reach	River Sta.	n1	n2	n3
Flowline	600	.065	.04	.04
Flowline	450	.065	.04	.04
Flowline	400	Mult Open		
Flowline	350	.065	.04	.04
Flowline	200	.065	.04	.04

SUMMARY OF REACH LENGTHS

River: Turkey Creek

Reach	River Sta.	Left	Channel	Right
Flowline	600	150	150	150
Flowline	450	100	100	100
Flowline	400	Mult Open		
Flowline	350	150	150	150
Flowline	200			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Turkey Creek

Reach	River Sta.	Contr.	Expan.
Flowline	600	.1	.3
Flowline	450	.3	.5
Flowline	400	Mult Open	
Flowline	350	.3	.5
Flowline	200	.1	.3

Exhibit B – Existing Backwater Calculations

HEC-RAS Plan: Existing Bridge River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Flowline	600	Q2	5934.00	1015.62	1030.62	1022.74	1031.02	0.000833	5.08	1303.53	584.21	0.26
Flowline	600	Q5	11864.00	1015.62	1033.66	1026.17	1033.79	0.000372	3.86	6505.25	2568.91	0.18
Flowline	600	Q10	17357.00	1015.62	1035.14	1028.69	1035.21	0.000240	3.32	11123.01	3472.15	0.15
Flowline	600	Q25	26139.00	1015.62	1036.94	1033.23	1036.99	0.000160	2.91	17441.68	3529.74	0.12
Flowline	600	Q50	34886.00	1015.62	1037.76	1033.72	1037.82	0.000188	3.26	20335.98	3545.99	0.14
Flowline	600	Q100	41342.00	1015.62	1038.20	1034.03	1038.27	0.000210	3.50	21895.93	3549.80	0.14
Flowline	600	Q500	63419.00	1015.62	1039.47	1034.87	1039.55	0.000209	3.65	34077.93	4950.00	0.14
Flowline	450	Q2	5934.00	1015.90	1030.50	1022.58	1030.90	0.000812	5.08	1400.34	1110.29	0.26
Flowline	450	Q5	11864.00	1015.90	1033.67	1026.01	1033.73	0.000203	2.91	8846.82	3271.17	0.14
Flowline	450	Q10	17357.00	1015.90	1035.13	1031.90	1035.17	0.000140	2.58	13760.20	3418.08	0.11
Flowline	450	Q25	26139.00	1015.90	1036.93	1032.54	1036.96	0.000108	2.43	19978.62	3506.62	0.10
Flowline	450	Q50	34886.00	1015.90	1037.74	1033.04	1037.79	0.000130	2.76	22847.69	3534.06	0.11
Flowline	450	Q100	41342.00	1015.90	1038.18	1033.31	1038.23	0.000149	2.99	24394.81	3536.69	0.12
Flowline	450	Q500	63419.00	1015.90	1039.43	1033.90	1039.51	0.000206	3.67	28810.04	3619.59	0.14
Flowline	400		Mult Open									
Flowline	350	Q2	5934.00	1014.41	1030.25	1021.81	1030.68	0.000990	5.27	1138.37	206.80	0.29
Flowline	350	Q5	11864.00	1014.41	1032.54	1025.65	1033.14	0.001462	6.91	2845.58	1528.35	0.36
Flowline	350	Q10	17357.00	1014.41	1033.48	1028.66	1034.06	0.001565	7.44	4711.09	2588.91	0.37
Flowline	350	Q25	26139.00	1014.41	1034.61	1033.77	1035.02	0.001362	7.28	7985.30	3347.76	0.35
Flowline	350	Q50	34886.00	1014.41	1035.49	1034.30	1035.80	0.001135	6.88	10995.17	3446.27	0.32
Flowline	350	Q100	41342.00	1014.41	1036.06	1034.67	1036.33	0.001006	6.61	12965.79	3461.46	0.30
Flowline	350	Q500	63419.00	1014.41	1037.90	1035.45	1038.11	0.000718	5.97	19371.38	3513.22	0.26
Flowline	200	Q2	5934.00	1015.77	1030.18	1022.14	1030.50	0.000719	4.62	1345.96	307.39	0.25
Flowline	200	Q5	11864.00	1015.77	1032.56	1025.38	1032.82	0.000719	4.97	4549.68	2149.00	0.25
Flowline	200	Q10	17357.00	1015.77	1033.50	1027.79	1033.73	0.000719	5.19	6722.80	2527.18	0.26
Flowline	200	Q25	26139.00	1015.77	1034.56	1032.80	1034.78	0.000718	5.47	9490.11	2671.39	0.26
Flowline	200	Q50	34886.00	1015.77	1035.40	1033.32	1035.62	0.000718	5.69	11753.90	2725.77	0.26
Flowline	200	Q100	41342.00	1015.77	1035.95	1033.32	1036.18	0.000718	5.83	13274.26	2762.64	0.26
Flowline	200	Q500	63419.00	1015.77	1037.75	1034.55	1037.99	0.000718	6.28	18649.53	3234.74	0.27

HEC-RAS Plan: Existing Bridge River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Flowline	600	Q2	1031.02	1030.62	0.40	0.12	0.00		5859.84	74.16	584.21
Flowline	600	Q5	1033.79	1033.66	0.12	0.04	0.02	8.29	5675.01	6180.70	2568.91
Flowline	600	Q10	1035.21	1035.14	0.07	0.03	0.01	32.52	5396.96	11927.52	3472.15
Flowline	600	Q25	1036.99	1036.94	0.05	0.02	0.00	72.69	5293.57	20772.74	3529.74
Flowline	600	Q50	1037.82	1037.76	0.06	0.02	0.00	107.64	6200.18	28578.18	3545.99
Flowline	600	Q100	1038.27	1038.20	0.07	0.03	0.01	132.05	6815.71	34394.23	3549.80
Flowline	600	Q500	1039.55	1039.47	0.07	0.03	0.00	8016.21	7610.36	47792.44	4950.00
Flowline	450	Q2	1030.90	1030.50	0.39				5827.32	106.68	1110.29
Flowline	450	Q5	1033.73	1033.67	0.06			4.24	4275.94	7583.82	3271.17
Flowline	450	Q10	1035.17	1035.13	0.04			18.37	4181.04	13157.59	3418.08
Flowline	450	Q25	1036.96	1036.93	0.03			46.54	4391.23	21701.23	3506.62
Flowline	450	Q50	1037.79	1037.74	0.04			74.03	5205.56	29606.41	3534.06
Flowline	450	Q100	1038.23	1038.18	0.05			93.79	5782.73	35465.48	3536.69
Flowline	450	Q500	1039.51	1039.43	0.09			170.33	7567.73	55680.95	3619.59
Flowline	400		Mult Open								
Flowline	350	Q2	1030.68	1030.25	0.43	0.13	0.05		5930.41	3.59	206.80
Flowline	350	Q5	1033.14	1032.54	0.61	0.15	0.17		9569.08	2294.92	1528.35
Flowline	350	Q10	1034.06	1033.48	0.57	0.15	0.17		11146.64	6210.36	2588.91
Flowline	350	Q25	1035.02	1034.61	0.42	0.14	0.10		11887.30	14251.69	3347.76
Flowline	350	Q50	1035.80	1035.49	0.31	0.13	0.05		11970.60	22915.40	3446.27
Flowline	350	Q100	1036.33	1036.06	0.27	0.13	0.02		11975.25	29366.75	3461.46
Flowline	350	Q500	1038.11	1037.90	0.22	0.11	0.01	0.14	12186.20	51232.65	3513.22
Flowline	200	Q2	1030.50	1030.18	0.33				5857.23	76.77	307.39
Flowline	200	Q5	1032.82	1032.56	0.26				7791.28	4072.72	2149.00
Flowline	200	Q10	1033.73	1033.50	0.23			7.47	8778.72	8570.81	2527.18
Flowline	200	Q25	1034.78	1034.56	0.22			57.60	10028.51	16052.89	2671.39
Flowline	200	Q50	1035.62	1035.40	0.22			123.56	11065.42	23697.01	2725.77
Flowline	200	Q100	1036.18	1035.95	0.23			183.38	11772.22	29386.40	2762.64
Flowline	200	Q500	1037.99	1037.75	0.25			439.60	14178.53	48800.88	3234.74

HEC-RAS Plan: Existing Bridge River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Frctn Loss (ft)	C & E Loss (ft)	Top Width (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Vel Chnl (ft/s)
Flowline	600	Q2	1031.02	1030.62	1022.74	0.12	0.00	584.21		5859.84	74.16	5.08
Flowline	600	Q5	1033.79	1033.66	1026.17	0.04	0.02	2568.91	8.29	5675.01	6180.70	3.86
Flowline	600	Q10	1035.21	1035.14	1028.69	0.03	0.01	3472.15	32.52	5396.96	11927.52	3.32
Flowline	600	Q25	1036.99	1036.94	1033.23	0.02	0.00	3529.74	72.69	5293.57	20772.74	2.91
Flowline	600	Q50	1037.82	1037.76	1033.72	0.02	0.00	3545.99	107.64	6200.18	28578.18	3.26
Flowline	600	Q100	1038.27	1038.20	1034.03	0.03	0.01	3549.80	132.05	6815.71	34394.23	3.50
Flowline	600	Q500	1039.55	1039.47	1034.87	0.03	0.00	4950.00	8016.21	7610.36	47792.44	3.65
Flowline	450	Q2	1030.90	1030.50	1022.58			1110.29		5827.32	106.68	5.08
Flowline	450	Q5	1033.73	1033.67	1026.01			3271.17	4.24	4275.94	7583.82	2.91
Flowline	450	Q10	1035.17	1035.13	1031.90			3418.08	18.37	4181.04	13157.59	2.58
Flowline	450	Q25	1036.96	1036.93	1032.54			3506.62	46.54	4391.23	21701.23	2.43
Flowline	450	Q50	1037.79	1037.74	1033.04			3534.06	74.03	5205.56	29606.41	2.76
Flowline	450	Q100	1038.23	1038.18	1033.31			3536.69	93.79	5782.73	35465.48	2.99
Flowline	450	Q500	1039.51	1039.43	1033.90			3619.59	170.33	7567.73	55680.95	3.67
Flowline	400 BR U #1	Q2	1030.85	1030.33	1023.20	0.04	0.02	93.55		5934.00		5.78
Flowline	400 BR U #2	Q2										
Flowline	400 BR U #1	Q5	1033.59	1032.10	1026.76	0.11	0.07	102.00	0.02	11720.91	0.05	9.80
Flowline	400 BR U #1	Q5	1033.71	1033.63	1033.56	0.40	0.05	209.19			143.02	
Flowline	400 BR U #1	Q10	1034.84	1032.08	1028.82	0.21	0.12	101.36	0.02	15921.76	0.04	13.33
Flowline	400 BR U #2	Q10	1035.05	1034.77	1034.41	0.32	0.07	250.32			1435.18	
Flowline	400 BR U #1	Q25	1036.18	1032.11	1030.38	0.30	0.15	102.16	0.04	19377.15	0.13	16.18
Flowline	400 BR U #2	Q25	1036.82	1036.75	1036.27	0.17	0.09	1923.57			4203.99	
Flowline	400 BR U #1	Q50	1036.91	1032.74	1030.90	0.30	0.18	109.53	3.85	20628.55	7.31	16.39
Flowline	400 BR U #2	Q50	1037.56	1037.52	1036.93	0.19	0.11	2714.22			5927.02	
Flowline	400 BR U #1	Q100	1037.40	1033.41	1031.17	0.27	0.20	118.77	19.79	21240.51	24.05	16.04
Flowline	400 BR U #2	Q100	1037.90	1037.87	1037.28	0.20	0.10	2755.45			6904.87	
Flowline	400 BR U #1	Q500	1039.01	1036.61	1031.05	0.14	0.13	130.60	258.92	20541.38	204.27	12.55
Flowline	400 BR U #2	Q500	1038.90	1038.89	1038.07	0.25	0.14	2604.14			6368.18	
Flowline	400 BR D #1	Q2	1030.79	1030.31	1022.02	0.08	0.02	103.49		5934.00		5.55
Flowline	400 BR D #2	Q2										
Flowline	400 BR D #1	Q5	1033.41	1032.06	1025.93	0.21	0.06	109.83		11720.98		9.33
Flowline	400 BR D #2	Q5	1033.27	1033.04	1033.04	0.00	0.11	81.97			143.02	
Flowline	400 BR D #1	Q10	1034.52	1031.99	1028.44	0.40	0.07	109.63		15921.82		12.74
Flowline	400 BR D #2	Q10	1034.66	1034.15	1034.15	0.01	0.25	245.35			1435.18	
Flowline	400 BR D #1	Q25	1035.72	1031.96	1030.27	0.65	0.05	109.53		19377.32		15.55
Flowline	400 BR D #2	Q25	1036.36	1036.17	1036.17	0.04	0.24	1228.00			4203.99	
Flowline	400 BR D #1	Q50	1036.43	1032.62	1030.80	0.61	0.02	111.63		20639.71		15.65
Flowline	400 BR D #2	Q50	1036.96	1036.86	1036.86	0.07	0.27	2088.38			5927.02	
Flowline	400 BR D #1	Q100	1036.93	1033.33	1031.03	0.54	0.06	114.37		21284.34		15.21
Flowline	400 BR D #2	Q100	1037.29	1037.22	1037.22	0.08	0.28	2584.78			6904.87	
Flowline	400 BR D #1	Q500	1038.74	1036.60	1030.94	0.20	0.44	126.07		20961.71	42.87	11.77
Flowline	400 BR D #2	Q500	1038.06	1038.04	1038.04	0.09	0.43	2773.72			6368.18	
Flowline	350	Q2	1030.68	1030.25	1021.81	0.13	0.05	206.80		5930.41	3.59	5.27
Flowline	350	Q5	1033.14	1032.54	1025.65	0.15	0.17	1528.35		9569.08	2294.92	6.91
Flowline	350	Q10	1034.06	1033.48	1028.66	0.15	0.17	2588.91		11146.64	6210.36	7.44
Flowline	350	Q25	1035.02	1034.61	1033.77	0.14	0.10	3347.76		11887.30	14251.69	7.28
Flowline	350	Q50	1035.80	1035.49	1034.30	0.13	0.05	3446.27		11970.60	22915.40	6.88
Flowline	350	Q100	1036.33	1036.06	1034.67	0.13	0.02	3461.46		11975.25	29366.75	6.61
Flowline	350	Q500	1038.11	1037.90	1035.45	0.11	0.01	3513.22	0.14	12186.20	51232.65	5.97
Flowline	200	Q2	1030.50	1030.18	1022.14			307.39		5857.23	76.77	4.62
Flowline	200	Q5	1032.82	1032.56	1025.38			2149.00		7791.28	4072.72	4.97
Flowline	200	Q10	1033.73	1033.50	1027.79			2527.18	7.47	8778.72	8570.81	5.19
Flowline	200	Q25	1034.78	1034.56	1032.80			2671.39	57.60	10028.51	16052.89	5.47
Flowline	200	Q50	1035.62	1035.40	1033.32			2725.77	123.56	11065.42	23697.01	5.69
Flowline	200	Q100	1036.18	1035.95	1033.32			2762.64	183.38	11772.22	29386.40	5.83
Flowline	200	Q500	1037.99	1037.75	1034.55			3234.74	439.60	14178.53	48800.88	6.28

HEC-RAS Plan: Existing Bridge River: Turkey Creek Reach: Flowline

Reach	River Sta		Profile	Q Total	Flow Area	E.G. US.	W.S. US.	Top Width Act	Vel Total	Crit W.S.	Left Stagn	Right Stagn
				(cfs)	(sq ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)	(ft)	(ft)
Flowline	400	Bridge #1	Q2	5934.00	1144.48	1030.90	1030.48	98.92	5.18	1022.58	1456.59	1757.79
Flowline	400	Bridge #2	Q2								1757.79	
Flowline	400	Bridge #1	Q5	11720.98	1366.65	1033.73	1032.57	176.04	8.58	1025.94	1449.47	1757.79
Flowline	400	Bridge #2	Q5	143.02	7383.24	1033.73	1033.73	2973.54	0.02	1030.27	1757.79	4856.60
Flowline	400	Bridge #1	Q10	15921.82	1546.34	1035.18	1033.32	278.64	10.30	1027.94	1440.68	1757.79
Flowline	400	Bridge #2	Q10	1435.18	11636.65	1035.13	1035.13	3090.30	0.12	1030.66	1757.79	4896.59
Flowline	400	Bridge #1	Q25	19377.32	2167.01	1036.96	1035.28	328.33	8.94	1029.43	1429.46	1757.79
Flowline	400	Bridge #2	Q25	6761.68	17414.80	1036.98	1036.98	3171.19	0.39	1031.21	1757.79	4949.34
Flowline	400	Bridge #1	Q50	20639.71	2521.12	1037.78	1036.35	333.91	8.19	1029.93	1423.88	1757.79
Flowline	400	Bridge #2	Q50	14246.29	19992.27	1037.79	1037.79	3192.21	0.71	1031.71	1757.79	4950.00
Flowline	400	Bridge #1	Q100	21284.34	2717.99	1038.25	1036.94	337.72	7.83	1030.19	1420.07	1757.79
Flowline	400	Bridge #2	Q100	20057.66	21331.19	1038.22	1038.21	3192.21	0.94	1032.02	1757.79	4950.00
Flowline	400	Bridge #1	Q500	21004.57	3303.25	1039.50	1038.65	347.33	6.36	1030.08	1410.46	1757.79
Flowline	400	Bridge #2	Q500	42414.43	25391.98	1039.52	1039.48	3192.21	1.67	1032.99	1757.79	4950.00

29362TurkeyCreek.rep

HEC-RAS HEC-RAS 5.0.0 February 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      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      X      XXXXX

```

PROJECT DATA

Project Title: 29362 Turkey Creek
Project File : 29362TurkeyCreek.prj
Run Date and Time: 9/9/2016 2:37:27 PM

Project in English units

PLAN DATA

Plan Title: Existing Bridge
Plan File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover
Rd\Hydraulics\Hec Ras\29362TurkeyCreek.p01

Geometry Title: Existing Bridge
Geometry File : g:\Design Projects\Kingfisher County\29362(04) CIRB
Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.g01

Flow Title : Turkey Cr Flow Data
Flow File : g:\Design Projects\Kingfisher County\29362(04) CIRB
Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.f01

Plan Summary Information:

Number of: Cross Sections	=	4	Multiple Openings	=	1
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

29362TurkeyCreek.rep

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: Subcritical Flow

FLOW DATA

Flow Title: Turkey Cr Flow Data

Flow File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover
 Rd\Hydraulics\Hec Ras\29362TurkeyCreek.f01

Flow Data (cfs)

River	Reach	RS	Q2	Q5
Q10	Q25	Q50	Q100	Q500
Turkey Creek	Flowline	600	5934	11864
17357	26139	34886	41342	63419

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
Turkey Creek	Flowline	Q2	
Normal S = 0.000718			
Turkey Creek	Flowline	Q5	
Normal S = 0.000718			
Turkey Creek	Flowline	Q10	
Normal S = 0.000718			
Turkey Creek	Flowline	Q25	
Normal S = 0.000718			
Turkey Creek	Flowline	Q50	
Normal S = 0.000718			

29362TurkeyCreek.rep

Turkey Creek Flowline Q100
Normal S = 0.000718
Turkey Creek Flowline Q500
Normal S = 0.000718

GEOMETRY DATA

Geometry Title: Existing Bridge
Geometry File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.g01

CROSS SECTION

RIVER: Turkey Creek
REACH: Flowline RS: 600

INPUT

Description:

Station Elevation Data		num= 256	
Sta	Elev	Sta	Elev
0	1030.53	289.7	1032.01
429.68	1033.08	501.3	1032.59
509.12	1032.41	529.63	1032.41
553.06	1031.94	570.87	1031.52
581.29	1030.34	588.76	1030.37
621.42	1031.91	621.96	1031.82
642.42	1030.86	649.85	1031.84
678.15	1034.97	684.15	1035.3
716.66	1034.9	724.23	1034.64
754.63	1031.18	760.36	1030.1
772.17	1030.22	775.81	1030.2
807.94	1032.03	812.75	1032.09
847.6	1031.39	859.15	1031.75
891.18	1033.8	895.09	1033.98
920.43	1036.8	926.83	1036.53
953.26	1036.4	965.13	1035.6
1012.41	1034.33	1037.64	1034.39
1106.73	1038.75	1139.71	1038.83
1185.65	1038.65	1191.01	1038.62
1269.41	1038.94	1287.12	1038.55
1360.01	1039.4	1363.81	1039.41
1398.14	1038.41	1402.73	1037.93
1427.35	1033.13	1441.12	1032.41
		1444	1032.57
		1445.83	1032.48
		1447.3	1032.4

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1448.19	1031.97	1458	1018.83	1459.93	1016.35	1470.26	1018.14	1485.99	1016.57
1498.47	1015.62	1498.66	1015.62	1520.71	1015.83	1522.59	1016.77	1551.25	1031.29
1552.97	1031.61	1553.94	1031.64	1555.82	1031.7	1558.42	1032.24	1563.47	1031.34
1566.46	1031.8	1571.75	1031.44	1575.5	1031.67	1583.71	1032.4	1585.13	1032.4
1602.27	1032.95	1620.67	1033.41	1629.96	1033.41	1641.63	1033.4	1643.18	1033.4
1667.28	1033.44	1678.47	1033.44	1687.92	1033.47	1693.15	1033.49	1710.37	1033.45
1718.14	1033.41	1725.34	1033.41	1737.11	1033.43	1747.53	1033.45	1764.22	1033.57
1767.28	1033.58	1777.62	1034.22	1781.49	1034.51	1781.94	1034.38	1788.39	1034.38
1794.62	1034.41	1812.1	1034.4	1812.68	1034.3	1813.86	1034.59	1822.81	1033.73
1822.89	1033.7	1823.44	1033.71	1831.48	1034.17	1837.16	1034.22	1850.27	1033.67
1858.47	1033.68	1876.43	1033.87	1877.72	1033.84	1895.38	1033.78	1900.97	1033.77
1918.3	1033.63	1928.93	1033.59	1931.64	1033.54	1939.46	1033.58	1952.47	1033.55
1970.5	1033.85	1980.36	1033.91	1982.38	1033.94	2000.32	1034.04	2002.42	1034.04
2003.16	1034.03	2032.31	1034.05	2032.45	1034.05	2032.64	1034.04	2049.97	1033.77
2062.8	1033.76	2067.79	1033.74	2077.41	1033.73	2091.24	1033.94	2097.94	1033.9
2114.31	1034.14	2116.17	1034.16	2117.34	1034.16	2123.81	1034.23	2141.36	1034.39
2143.62	1034.41	2147.91	1034.41	2154.43	1034.4	2169.19	1034.39	2192.25	1034.39
2201.44	1034.35	2209.64	1034.34	2222.92	1034.27	2226.72	1034.27	2262.09	1034.35
2264.55	1034.38	2273.05	1034.41	2282.13	1034.44	2283.75	1034.45	2304.43	1034.47
2308.02	1034.46	2316.79	1034.46	2326.81	1034.47	2339.52	1034.41	2352.28	1034.41
2354.19	1034.37	2355.29	1034.37	2356.52	1034.41	2385.27	1034.41	2412.62	1034.68
2454.76	1034.88	2482.91	1034.48	2492	1034.42	2528.01	1034.44	2537.1	1034.36
2546.27	1034.33	2566.05	1033.83	2587.73	1033.85	2598.34	1033.8	2626.84	1033.78
2641.24	1033.66	2643.84	1033.53	2653.79	1033.43	2676.4	1032.9	2680.72	1032.89
2688	1032.71	2694.33	1032.65	2817.93	1032.28	2828.62	1032.7	2840.97	1033.78
2842.5	1033.88	2846.97	1034.45	2860.51	1036.98	2869.26	1037.15	2890.4	1033.67
2903.33	1033.11	2910.35	1032.66	2921.41	1032.39	2932.2	1032.29	2961.92	1032.25
2970.72	1032.33	2977.39	1032.34	2992.98	1032.43	2996.99	1032.36	4750	1030
4950	1036								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1447.3	.04	1552.97	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1447.3	1552.97		150	150		.1	.3
Left Levee		Station=	1327.77	Elevation=	1039.45			

CROSS SECTION

RIVER: Turkey Creek
 REACH: Flowline RS: 450

INPUT

Description:

Station	Elevation	Data	num=	299					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

29362TurkeyCreek.rep

0	1029.55	.61	1029.56	10.24	1029.75	69.53	1029.31	115.85	1029.45
127.82	1029.61	150.65	1029.68	204.92	1029.91	229.76	1029.5	257.68	1029.11
288.53	1029.54	347.61	1029.4	430.13	1029.39	452.04	1029.54	462.04	1029.6
471.74	1029.63	501.92	1029.71	511.26	1029.76	629.52	1030.5	629.57	1030.46
629.59	1030.57	630.24	1030.68	649.2	1030.43	653.52	1029.93	655.9	1029.43
662.72	1028.84	668.28	1028.27	678.59	1026.65	679.97	1026.55	683.84	1027.7
693.34	1028.51	702.15	1026.81	704.14	1026.39	704.8	1026.41	717.26	1028.19
724.29	1029.25	728.83	1030.69	733.69	1031.37	738.03	1031.69	741.86	1031.96
744.37	1032.31	753.13	1032.46	753.49	1032.36	753.88	1032.49	765.15	1033.09
769.13	1032.86	771.17	1032.88	776.19	1032.39	783.86	1033.13	788.59	1033.08
795.3	1032.7	801.28	1031.41	817.58	1031.43	821.26	1031.37	822.51	1031.36
824.56	1031.41	829.12	1032.1	838.89	1033.41	838.95	1033.41	863.85	1035.59
868.52	1035.81	871.61	1035.97	877.78	1036.5	898.05	1037.11	901.23	1037.11
904.54	1037.1	913.87	1037.12	927.23	1037.2	932.51	1037.15	939.64	1037.05
952.49	1036.91	961.23	1036.88	976.8	1036.73	981.59	1036.87	993.51	1036.87
1011.81	1037.44	1014.61	1037.44	1019.59	1037.5	1034.62	1037.4	1035.73	1037.39
1043.87	1037.65	1047.29	1037.72	1067	1038.4	1073.12	1038.43	1075.97	1038.43
1079.89	1038.46	1085.31	1038.58	1107.59	1038.9	1129.43	1039.38	1130.97	1039.4
1133.2	1039.42	1142.16	1039.4	1155.32	1039.42	1159.59	1039.41	1174.46	1039.42
1181.11	1039.42	1184.39	1039.43	1199.89	1039.88	1206.35	1039.9	1228.33	1038.76
1233.6	1038.73	1242.81	1038.55	1244.47	1038.53	1254.91	1039.36	1259.82	1039.4
1263.68	1040.07	1269.85	1039.95	1278.97	1039.6	1301.01	1040.13	1301.46	1040.13
1301.84	1040.11	1314.62	1039.56	1322.7	1039.41	1390.3	1039.41	1405.53	1039.45
1414.17	1038.04	1414.53	1038.02	1421.33	1036.69	1426.43	1036.01	1430.79	1034.96
1439.44	1033.4	1445.37	1033	1455.2	1031.97	1462.27	1024.39	1471.34	1015.9
1498.33	1016.52	1500	1016.56	1500.04	1016.56	1502.22	1016.52	1531.22	1015.93
1543.93	1023.2	1557.94	1032	1570.34	1032.39	1570.72	1032.35	1573.58	1032.72
1579.7	1033.44	1580.97	1033.43	1587.94	1033.33	1593.52	1033.36	1609.36	1032.81
1614.46	1032.94	1628.73	1032.64	1646.22	1032.73	1649.53	1032.52	1659.33	1032.54
1661.35	1032.75	1677.63	1032.49	1686.17	1032.45	1692.55	1032.47	1701.42	1032.5
1713.98	1032.56	1717.35	1032.6	1740.81	1033.53	1744.58	1033.59	1748.1	1033.83
1757.79	1034.91	1770.4	1034.83	1775.55	1034.83	1780.24	1034.47	1796.73	1033.54
1798.2	1033.48	1799.01	1033.4	1811.47	1032.77	1822.98	1032.59	1841.59	1032.63
1843.48	1032.63	1847.85	1032.61	1852.27	1032.58	1857.15	1032.66	1858.32	1032.66
1875.77	1032.63	1877.22	1032.63	1890.26	1032.71	1891.91	1032.75	1893.97	1032.66
1913.94	1032.67	1926.32	1032.79	1936.43	1032.76	1964.44	1033.21	1974.21	1033.19
1982.59	1033.21	1994.2	1033.31	2002.11	1033.28	2021.19	1033.33	2033.22	1033.26
2037.58	1033.24	2052.65	1033.34	2053.96	1033.34	2066.54	1033.42	2086.17	1033.42
2096.04	1033.41	2103.72	1033.41	2130.48	1033.42	2134.49	1033.42	2141.34	1033.41
2154.98	1033.51	2158.72	1033.53	2159.54	1033.52	2169.42	1033.89	2174.4	1033.91
2196.23	1033.61	2196.61	1033.6	2196.77	1033.6	2214.95	1033.45	2218.74	1033.41
2221.01	1033.36	2221.93	1033.34	2241.32	1032.96	2252.73	1032.85	2258.41	1032.75
2266.71	1032.55	2269.26	1032.53	2282.58	1032.42	2291.96	1032.38	2293	1032.41
2309.61	1032.42	2314.18	1032.44	2321.05	1032.41	2324.42	1032.45	2325.34	1032.44
2325.69	1032.44	2327.68	1032.42	2341.77	1032.43	2351.64	1032.45	2356.15	1032.42
2362.85	1032.41	2372.17	1031.8	2376.3	1031.78	2378.41	1031.69	2383.5	1032.41
2393.03	1032.41	2406.31	1031.78	2408.52	1031.81	2414.38	1032.22	2418.7	1032.36
2420.01	1032.38	2433.54	1031.55	2433.57	1031.55	2446.76	1031.67	2449.13	1031.5

29362TurkeyCreek.rep

2463.48	1031.36	2471.73	1031.32	2473.47	1031.41	2481.23	1031.48	2485.87	1031.82
2493.58	1031.91	2505.41	1031.92	2531.48	1032.19	2553.12	1032.41	2561.2	1032.53
2563.08	1032.52	2590.31	1032.98	2599.28	1032.97	2613.06	1032.67	2623.24	1032.43
2640.03	1032.41	2640.31	1032.41	2662.74	1032.22	2663.96	1032.26	2664.67	1032.26
2676.59	1031.91	2710.52	1031.51	2716.67	1031.5	2723.46	1031.49	2724.48	1031.42
2731.1	1031.09	2741.54	1030.83	2743.17	1030.84	2744.27	1030.79	2753.78	1030.98
2771.22	1031.4	2777.5	1031.41	2782.97	1031.41	2790.26	1031.43	2797.74	1031.43
2802.16	1031.42	2809.41	1031.41	2818.21	1031.55	2835.66	1031.71	2855.09	1032.32
2866.71	1032.85	2870.29	1033.15	2880.22	1034.94	2889.07	1036.36	2897.31	1037.1
2899.97	1037.35	2909.24	1037.33	2914	1037.29	2926.17	1035.63	2933.21	1034.69
2935.08	1034.33	2936.72	1034.19	2938.71	1033.98	2943.48	1033.45	2956.35	1032.21
2976.6	1031.43	3000	1030.88	4750	1030	4950	1037		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1455.2	.04	1557.94	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1455.2	1557.94		100	100		.3	.5
Left Levee	Station=		1301.01	Elevation=		1040.13		

MULTIPLE OPENING

RIVER: Turkey Creek
 REACH: Flowline RS: 400

INPUT

Description:

Distance from Upstream XS = 13.25
 Deck/Roadway Width = 23.5
 Weir Coefficient = 2.6
 Upstream Deck/Roadway Coordinates

num= 127														
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
27.69	1028.61	1010	50.74	1028.23	1010	76.66	1027.87	1010						
105.3	1028.27	1010	160.16	1028.14	1010	236.83	1028.13	1010						
257.19	1028.27	1010	266.48	1028.33	1010	275.5	1028.36	1010						
303.55	1028.43	1010	312.23	1028.48	1010	473.9	1029.5	1010						
523.55	1029.21	1010	528.78	1028.65	1010	562.25	1027.66	1010						
647.9	1032.22	1010	695.81	1032.81	1010	696.65	1032.82	1010						
696.66	1032.81	1010	727.08	1032.53	1010	730.05	1032.51	1010						
756.92	1032.5	1010	759.8	1032.52	1010	784.54	1032.82	1010						
786.17	1032.85	1010	813.28	1033.14	1010	815.9	1033.17	1010						
839.46	1033.46	1010	848.7	1033.7	1010	913.68	1035.26	1010						
935.38	1036.07	1010	952.88	1036.56	1010	970.7	1037.21	1010						
987.32	1037.6	1010	1026.19	1038.87	1010	1039.14	1039.02	1010						
1045.09	1039.07	1010	1059.97	1039.22	1010	1067.85	1039.29	1010						

29362TurkeyCreek.rep

1071.05	1039.32	1010	1087.35	1039.4	1010	1095.09	1039.41	1010
1105.51	1039.41	1010	1117.45	1039.49	1010	1125.24	1039.54	1010
1141.34	1039.56	1010	1144.84	1039.57	1010	1163.97	1039.81	1010
1166.14	1039.81	1010	1186.8	1039.95	1010	1187.64	1039.96	1010
1209.45	1039.97	1010	1232.06	1039.97	1010	1254.16	1040.08	1010
1275.74	1040.1	1010	1275.91	1040.1	1010	1296.52	1040.15	1010
1297.27	1040.16	1010	1317.21	1040.28	1010	1317.78	1040.28	1010
1332.29	1040.32	1010	1337.86	1040.33	1010	1339.99	1040.34	1010
1367.51	1040.36	1010	1370.53	1040.37	1010	1405.14	1040.68	1010
1426.37	1040.86	1010	1431.07	1040.9	1010	1431.07	1040.9	1038.4
1469.07	1040.85	1038.35	1469.07	1040.85	1037.85	1529.07	1040.77	1037.77
1529.07	1040.77	1038.27	1573.67	1040.7	1038.2	1573.67	1040.7	1010
1573.7	1040.7	1010	1578.81	1040.7	1010	1630.47	1040	1010
1647.45	1039.75	1010	1647.71	1039.74	1010	1659.76	1039.46	1010
1686.84	1038.82	1010	1690.49	1038.72	1010	1717.63	1037.91	1010
1746.46	1037.25	1010	1774.47	1036.98	1010	1780.58	1036.93	1010
1812.87	1037.13	1010	1834.96	1037.54	1010	1845.97	1037.71	1010
1870.71	1038.16	1010	1899.56	1038.71	1010	1918.86	1039.15	1010
1937.26	1039.57	1010	1960.29	1040.08	1010	1984.8	1040.63	1010
1989.85	1040.76	1010	1999.54	1040.82	1010	1999.54	1040.82	1038.32
2281.63	1040.78	1038.28	2281.63	1040.78	1010	2310.03	1040.68	1010
2329.52	1040.61	1010	2348.14	1040.46	1010	2378.48	1040.21	1010
2402.92	1040.03	1010	2434.39	1039.67	1010	2480.2	1039.12	1010
2499.83	1038.82	1010	2527.01	1038.31	1010	2567.17	1037.6	1010
2605.61	1036.97	1010	2630.81	1036.6	1010	2668.72	1036.09	1010
2702.29	1035.65	1010	2750.53	1035.25	1010	2755.74	1035.21	1010
2764.82	1035.15	1010	2794.45	1035.02	1010	2837.53	1035.06	1010
2845.81	1035.08	1010	2903.78	1035.22	1010	2940.48	1035.44	1010
2942.74	1035.45	1010	2990.59	1035.57	1010	2997.49	1035.62	1010
4950	1037.3	1010						

Upstream Bridge Cross Section Data

Station Elevation Data		num=		299					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1029.55	.61	1029.56	10.24	1029.75	69.53	1029.31	115.85	1029.45
127.82	1029.61	150.65	1029.68	204.92	1029.91	229.76	1029.5	257.68	1029.11
288.53	1029.54	347.61	1029.4	430.13	1029.39	452.04	1029.54	462.04	1029.6
471.74	1029.63	501.92	1029.71	511.26	1029.76	629.52	1030.5	629.57	1030.46
629.59	1030.57	630.24	1030.68	649.2	1030.43	653.52	1029.93	655.9	1029.43
662.72	1028.84	668.28	1028.27	678.59	1026.65	679.97	1026.55	683.84	1027.7
693.34	1028.51	702.15	1026.81	704.14	1026.39	704.8	1026.41	717.26	1028.19
724.29	1029.25	728.83	1030.69	733.69	1031.37	738.03	1031.69	741.86	1031.96
744.37	1032.31	753.13	1032.46	753.49	1032.36	753.88	1032.49	765.15	1033.09
769.13	1032.86	771.17	1032.88	776.19	1032.39	783.86	1033.13	788.59	1033.08
795.3	1032.7	801.28	1031.41	817.58	1031.43	821.26	1031.37	822.51	1031.36
824.56	1031.41	829.12	1032.1	838.89	1033.41	838.95	1033.41	863.85	1035.59
868.52	1035.81	871.61	1035.97	877.78	1036.5	898.05	1037.11	901.23	1037.11
904.54	1037.1	913.87	1037.12	927.23	1037.2	932.51	1037.15	939.64	1037.05

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952.49	1036.91	961.23	1036.88	976.8	1036.73	981.59	1036.87	993.51	1036.87
1011.81	1037.44	1014.61	1037.44	1019.59	1037.5	1034.62	1037.4	1035.73	1037.39
1043.87	1037.65	1047.29	1037.72	1067	1038.4	1073.12	1038.43	1075.97	1038.43
1079.89	1038.46	1085.31	1038.58	1107.59	1038.9	1129.43	1039.38	1130.97	1039.4
1133.2	1039.42	1142.16	1039.4	1155.32	1039.42	1159.59	1039.41	1174.46	1039.42
1181.11	1039.42	1184.39	1039.43	1199.89	1039.88	1206.35	1039.9	1228.33	1038.76
1233.6	1038.73	1242.81	1038.55	1244.47	1038.53	1254.91	1039.36	1259.82	1039.4
1263.68	1040.07	1269.85	1039.95	1278.97	1039.6	1301.01	1040.13	1301.46	1040.13
1301.84	1040.11	1314.62	1039.56	1322.7	1039.41	1390.3	1039.41	1405.53	1039.45
1414.17	1038.04	1414.53	1038.02	1421.33	1036.69	1426.43	1036.01	1430.79	1034.96
1439.44	1033.4	1445.37	1033	1455.2	1031.97	1462.27	1024.39	1471.34	1015.9
1498.33	1016.52	1500	1016.56	1500.04	1016.56	1502.22	1016.52	1531.22	1015.93
1543.93	1023.2	1557.94	1032	1570.34	1032.39	1570.72	1032.35	1573.58	1032.72
1579.7	1033.44	1580.97	1033.43	1587.94	1033.33	1593.52	1033.36	1609.36	1032.81
1614.46	1032.94	1628.73	1032.64	1646.22	1032.73	1649.53	1032.52	1659.33	1032.54
1661.35	1032.75	1677.63	1032.49	1686.17	1032.45	1692.55	1032.47	1701.42	1032.5
1713.98	1032.56	1717.35	1032.6	1740.81	1033.53	1744.58	1033.59	1748.1	1033.83
1757.79	1034.91	1770.4	1034.83	1775.55	1034.83	1780.24	1034.47	1796.73	1033.54
1798.2	1033.48	1799.01	1033.4	1811.47	1032.77	1822.98	1032.59	1841.59	1032.63
1843.48	1032.63	1847.85	1032.61	1852.27	1032.58	1857.15	1032.66	1858.32	1032.66
1875.77	1032.63	1877.22	1032.63	1890.26	1032.71	1891.91	1032.75	1893.97	1032.66
1913.94	1032.67	1926.32	1032.79	1936.43	1032.76	1964.44	1033.21	1974.21	1033.19
1982.59	1033.21	1994.2	1033.31	2002.11	1033.28	2021.19	1033.33	2033.22	1033.26
2037.58	1033.24	2052.65	1033.34	2053.96	1033.34	2066.54	1033.42	2086.17	1033.42
2096.04	1033.41	2103.72	1033.41	2130.48	1033.42	2134.49	1033.42	2141.34	1033.41
2154.98	1033.51	2158.72	1033.53	2159.54	1033.52	2169.42	1033.89	2174.4	1033.91
2196.23	1033.61	2196.61	1033.6	2196.77	1033.6	2214.95	1033.45	2218.74	1033.41
2221.01	1033.36	2221.93	1033.34	2241.32	1032.96	2252.73	1032.85	2258.41	1032.75
2266.71	1032.55	2269.26	1032.53	2282.58	1032.42	2291.96	1032.38	2293	1032.41
2309.61	1032.42	2314.18	1032.44	2321.05	1032.41	2324.42	1032.45	2325.34	1032.44
2325.69	1032.44	2327.68	1032.42	2341.77	1032.43	2351.64	1032.45	2356.15	1032.42
2362.85	1032.41	2372.17	1031.8	2376.3	1031.78	2378.41	1031.69	2383.5	1032.41
2393.03	1032.41	2406.31	1031.78	2408.52	1031.81	2414.38	1032.22	2418.7	1032.36
2420.01	1032.38	2433.54	1031.55	2433.57	1031.55	2446.76	1031.67	2449.13	1031.5
2463.48	1031.36	2471.73	1031.32	2473.47	1031.41	2481.23	1031.48	2485.87	1031.82
2493.58	1031.91	2505.41	1031.92	2531.48	1032.19	2553.12	1032.41	2561.2	1032.53
2563.08	1032.52	2590.31	1032.98	2599.28	1032.97	2613.06	1032.67	2623.24	1032.43
2640.03	1032.41	2640.31	1032.41	2662.74	1032.22	2663.96	1032.26	2664.67	1032.26
2676.59	1031.91	2710.52	1031.51	2716.67	1031.5	2723.46	1031.49	2724.48	1031.42
2731.1	1031.09	2741.54	1030.83	2743.17	1030.84	2744.27	1030.79	2753.78	1030.98
2771.22	1031.4	2777.5	1031.41	2782.97	1031.41	2790.26	1031.43	2797.74	1031.43
2802.16	1031.42	2809.41	1031.41	2818.21	1031.55	2835.66	1031.71	2855.09	1032.32
2866.71	1032.85	2870.29	1033.15	2880.22	1034.94	2889.07	1036.36	2897.31	1037.1
2899.97	1037.35	2909.24	1037.33	2914	1037.29	2926.17	1035.63	2933.21	1034.69
2935.08	1034.33	2936.72	1034.19	2938.71	1033.98	2943.48	1033.45	2956.35	1032.21
2976.6	1031.43	3000	1030.88	4750	1030	4950	1037		

Manning's n Values

num=

3

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Sta n Val Sta n Val Sta n Val
0 .065 1455.2 .04 1557.94 .04

Bank Sta: Left Right Coeff Contr. Expan.
1455.2 1557.94 .3 .5
Left Levee Station= 1301.01 Elevation= 1040.13

Downstream Deck/Roadway Coordinates
num= 127

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
27.69	1028.61	1010	50.74	1028.23	1010	76.66	1027.87	1010						
105.3	1028.27	1010	160.16	1028.14	1010	236.83	1028.13	1010						
257.19	1028.27	1010	266.48	1028.33	1010	275.5	1028.36	1010						
303.55	1028.43	1010	312.23	1028.48	1010	473.9	1029.5	1010						
523.55	1029.21	1010	528.78	1028.65	1010	562.25	1027.66	1010						
647.9	1032.22	1010	695.81	1032.81	1010	696.65	1032.82	1010						
696.66	1032.81	1010	727.08	1032.53	1010	730.05	1032.51	1010						
756.92	1032.5	1010	759.8	1032.52	1010	784.54	1032.82	1010						
786.17	1032.85	1010	813.28	1033.14	1010	815.9	1033.17	1010						
839.46	1033.46	1010	848.7	1033.7	1010	913.68	1035.26	1010						
935.38	1036.07	1010	952.88	1036.56	1010	970.7	1037.21	1010						
987.32	1037.6	1010	1026.19	1038.87	1010	1039.14	1039.02	1010						
1045.09	1039.07	1010	1059.97	1039.22	1010	1067.85	1039.29	1010						
1071.05	1039.32	1010	1087.35	1039.4	1010	1095.09	1039.41	1010						
1105.51	1039.41	1010	1117.45	1039.49	1010	1125.24	1039.54	1010						
1141.34	1039.56	1010	1144.84	1039.57	1010	1163.97	1039.81	1010						
1166.14	1039.81	1010	1186.8	1039.95	1010	1187.64	1039.96	1010						
1209.45	1039.97	1010	1232.06	1039.97	1010	1254.16	1040.08	1010						
1275.74	1040.1	1010	1275.91	1040.1	1010	1296.52	1040.15	1010						
1297.27	1040.16	1010	1317.21	1040.28	1010	1317.78	1040.28	1010						
1332.29	1040.32	1010	1337.86	1040.33	1010	1339.99	1040.34	1010						
1367.51	1040.36	1010	1370.53	1040.37	1010	1405.14	1040.68	1010						
1426.37	1040.86	1010	1431.07	1040.9	1010	1431.07	1040.9	1038.4						
1469.07	1040.85	1038.35	1469.07	1040.85	1037.85	1529.07	1040.77	1037.77						
1529.07	1040.77	1038.27	1573.67	1040.7	1038.2	1573.67	1040.7	1010						
1573.7	1040.7	1010	1578.81	1040.7	1010	1630.47	1040	1010						
1647.45	1039.75	1010	1647.71	1039.74	1010	1659.76	1039.46	1010						
1686.84	1038.82	1010	1690.49	1038.72	1010	1717.63	1037.91	1010						
1746.46	1037.25	1010	1774.47	1036.98	1010	1780.58	1036.93	1010						
1812.87	1037.13	1010	1834.96	1037.54	1010	1845.97	1037.71	1010						
1870.71	1038.16	1010	1899.56	1038.71	1010	1918.86	1039.15	1010						
1937.26	1039.57	1010	1960.29	1040.08	1010	1984.8	1040.63	1010						
1989.85	1040.76	1010	1999.54	1040.82	1010	1999.54	1040.82	1038.32						
2281.63	1040.78	1038.28	2281.63	1040.78	1010	2310.03	1040.68	1010						
2329.52	1040.61	1010	2348.14	1040.46	1010	2378.48	1040.21	1010						
2402.92	1040.03	1010	2434.39	1039.67	1010	2480.2	1039.12	1010						
2499.83	1038.82	1010	2527.01	1038.31	1010	2567.17	1037.6	1010						
2605.61	1036.97	1010	2630.81	1036.6	1010	2668.72	1036.09	1010						

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2702.29	1035.65	1010	2750.53	1035.25	1010	2755.74	1035.21	1010
2764.82	1035.15	1010	2794.45	1035.02	1010	2837.53	1035.06	1010
2845.81	1035.08	1010	2903.78	1035.22	1010	2940.48	1035.44	1010
2942.74	1035.45	1010	2990.59	1035.57	1010	2997.49	1035.62	1010
4950	1037.3	1010						

Downstream Bridge Cross Section Data

Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.28	22.13	1027.22	92.01	1027.2	110.55	1027.33	119	1027.38
127.2	1027.4	152.71	1027.47	160.61	1027.51	307.25	1028.44	352.16	1028.16
356.89	1027.63	387.13	1026.7	464.4	1030.94	507.56	1031.49	641.11	1032.77
673.44	1031.06	695.58	1031.13	763.37	1031.48	765.34	1031.64	765.41	1031.65
767.89	1031.44	769.88	1031.51	771.92	1031.51	772.01	1031.46	773.28	1031.53
777.7	1031.58	783.34	1031.58	795.76	1031.56	799.6	1031.52	802.74	1031.56
818.59	1031.65	830.5	1031.65	833.15	1031.4	835.95	1031.25	851.36	1031.3
863.29	1031.54	872.36	1031.53	883.32	1031.5	894.84	1031.56	905.51	1031.52
918.98	1031.53	924.2	1031.69	934.09	1031.76	939.09	1031.82	958.85	1032.44
961.08	1032.56	967.38	1033.04	973	1033.41	977.79	1033.76	979.87	1033.98
1000	1036.41	1003.93	1036.98	1010.2	1037.91	1016.73	1038.77	1020.8	1039.38
1025.84	1039.9	1039.6	1040.41	1045.86	1041.1	1049.65	1041.31	1054.96	1041.69
1069.77	1042.3	1070.63	1042.35	1072.65	1042.28	1087.09	1041.43	1094.05	1040.94
1100.45	1040.4	1114.01	1040.42	1115.1	1040.42	1116.52	1040.51	1132.92	1041.41
1148.46	1042.05	1156.53	1042.36	1157.11	1042.45	1157.42	1042.47	1172.65	1042.48
1174.77	1042.57	1182.26	1042.53	1182.46	1042.52	1194.19	1042.76	1200.63	1042.21
1202.98	1041.93	1208	1041.14	1208.88	1041.1	1225.65	1039.61	1227.14	1039.41
1233.5	1039.38	1236.99	1039.39	1250.56	1038.51	1251.36	1038.5	1252.49	1038.55
1270.73	1039.4	1273.07	1038.97	1282.04	1038.62	1286.88	1039	1289.56	1038.86
1290.41	1038.91	1300.79	1039.53	1302.68	1039.47	1313.41	1039.15	1315.82	1039.24
1321.24	1039.31	1324.19	1039.41	1328.67	1039.64	1336.67	1040.43	1341.22	1040.41
1357.12	1040.41	1367.8	1040.68	1373.71	1040.5	1375.89	1040.41	1388.63	1039.98
1399.54	1039.62	1402.67	1039.52	1404.77	1039.5	1412.67	1039.41	1418.93	1039.54
1421.8	1039.29	1437.63	1037.5	1445.55	1032.61	1449.42	1028.4	1457.54	1027.37
1457.59	1027.36	1457.65	1027.33	1461.33	1023.84	1470.74	1015.49	1481.13	1015.08
1499.47	1014.41	1511.82	1014.45	1523.08	1015.11	1532.86	1022.13	1548.43	1030.39
1554.24	1029.44	1563.83	1032.66	1572.43	1032.75	1576.26	1033.36	1577.11	1033.41
1583.62	1033.43	1584.52	1033.02	1587.3	1032.77	1592.61	1032.77	1596.65	1032.99
1608.37	1032.8	1623.65	1033.12	1628.26	1033.4	1643.98	1032.92	1645.13	1032.89
1663.79	1033.35	1670.53	1033.38	1683.34	1033.37	1687.47	1033.2	1689.88	1032.99
1697.12	1032.29	1705.01	1032.85	1712.48	1032.9	1720.74	1032.94	1745.21	1035.11
1748.77	1034.99	1754.49	1033.32	1755.24	1033.36	1755.57	1033.39	1763.86	1033.41
1775.08	1033.41	1775.96	1033.38	1793.92	1032.61	1795.86	1032.56	1799.58	1032.47
1814.26	1033.28	1829.04	1033.76	1847.05	1034.14	1848.37	1034.11	1850.83	1034.41
1852.26	1034.41	1862.89	1034.28	1862.93	1034.27	1873.74	1033.21	1880.96	1033.36
1881.82	1033.05	1888.98	1033.48	1895.17	1032.85	1903.1	1033.32	1907.85	1033.36
1909.64	1033.31	1919.31	1032.82	1924.81	1032.78	1941.2	1033.23	1948.74	1033.41
1968.27	1033.42	1980.19	1033.38	1987.31	1033.07	1998.73	1032.99	2019.44	1033.41
2053.08	1033.41	2055.37	1033.4	2082	1033.41	2082.36	1033.41	2096	1033.4

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2104.57	1033.4	2107.45	1033.33	2112.94	1033.41	2118.59	1033.42	2124.15	1033.41
2143.35	1033.4	2154.1	1033.41	2162.18	1033.43	2168.18	1033.4	2178.88	1032.72
2185.53	1032.45	2193.87	1032.87	2198.06	1032.9	2201.09	1032.97	2204.74	1032.95
2210.88	1032.47	2215.65	1032.45	2228.13	1033.24	2230.35	1033.3	2231.65	1033.14
2237.79	1032.4	2250.16	1032.41	2252.87	1032.2	2271.56	1031.47	2276.52	1031.44
2282.77	1031.44	2293.65	1031.41	2298.81	1031.56	2305.59	1032.78	2318.36	1033.98
2319.75	1034.11	2333.65	1034.3	2345.7	1034.49	2350.68	1033.41	2356.61	1033.28
2364.99	1032.79	2371.63	1032.07	2383.22	1031.36	2394.03	1031.7	2401.09	1031.68
2406.72	1031.64	2419.87	1032.05	2484.91	1032.18	2491.13	1032.45	2494.76	1032.41
2497.14	1032.17	2502.59	1032.21	2505.73	1032.61	2587.21	1032.24	2592.57	1031.77
2595.83	1031.98	2596.91	1031.83	2602.73	1031.79	2626.92	1031.83	2682.36	1032.81
2704.98	1032.84	2712.9	1032.9	2726.69	1032.5	2732.21	1032.41	2736.85	1032.33
2744.87	1032.31	2757.87	1032.62	2760.41	1032.78	2761.83	1033.17	2767.05	1033.93
2771.48	1034.68	2773.7	1035.07	2780.27	1034.94	2791.48	1035.29	2800.81	1033.76
2805.22	1033.58	2831.57	1034.42	2868.92	1034.44	2946.79	1034.37	2990.89	1034.59
2995.09	1034.61	2998.97	1034.7	4750	1030	4950	1038		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1437.63	.04	1563.83	.04

Bank Sta: Left Right Coeff Contr. Expan.
 1437.63 1563.83 .3 .5
 Left Levee Station= 1194.19 Elevation= 1042.76

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 = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Abutments = 4

Abutment Data

Upstream num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1431.07	1038.4	1434.57	1038.4	1434.57	1036.4	1472.57	1016

Downstream num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1431.07	1038.4	1434.57	1038.4	1434.57	1036.4	1472.57	1016

Abutment Data

Upstream num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1524.94	1016	1570.17	1036.2	1570.17	1038.2	1573.67	1038.2

Downstream num= 4

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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1524.94	1016	1570.17	1036.2	1570.17	1038.2	1573.67	1038.2

Abutment Data

Upstream		num=	4				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1999.54	1038.32	2003.04	1038.32	2003.04	1037.32	2023.04	1033
Downstream		num=	4				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1999.54	1038.32	2003.04	1038.32	2003.04	1037.32	2023.04	1033

Abutment Data

Upstream		num=	4				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2258.13	1031	2278.13	1036.78	2278.13	1038.28	2281.63	1038.28
Downstream		num=	4				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2258.13	1031	2278.13	1036.78	2278.13	1038.28	2281.63	1038.28

Number of Piers = 8

Pier Data

Pier Station	Upstream=	1469.07	Downstream=	1469.07
Upstream		num=	2	
Width	Elev	Width	Elev	
2.5	1010	2.5	1039	
Downstream		num=	2	
Width	Elev	Width	Elev	
2.5	1010	2.5	1039	

Pier Data

Pier Station	Upstream=	1529.07	Downstream=	1529.07
Upstream		num=	2	
Width	Elev	Width	Elev	
2.5	1010	2.5	1039	
Downstream		num=	2	
Width	Elev	Width	Elev	
2.5	1010	2.5	1039	

Pier Data

Pier Station	Upstream=	2039.54	Downstream=	2039.54
Upstream		num=	4	
Width	Elev	Width	Elev	
1	1010	1	1035.32	
Downstream		num=	4	
Width	Elev	Width	Elev	
1	1010	1	1035.32	

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Pier Data

Pier Station	Upstream= 2079.54				Downstream= 2079.54			
Upstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	
Downstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	

Pier Data

Pier Station	Upstream= 2119.54				Downstream= 2119.54			
Upstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	
Downstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	

Pier Data

Pier Station	Upstream= 2159.54				Downstream= 2159.54			
Upstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	
Downstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	

Pier Data

Pier Station	Upstream= 2199.54				Downstream= 2199.54			
Upstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	
Downstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	

Pier Data

Pier Station	Upstream= 2239.54				Downstream= 2239.54			
Upstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	
Downstream	num= 4							
Width	Elev	Width	Elev	Width	Elev	Width	Elev	
1	1010	1	1035.32	2.5	1035.32	2.5	1039	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

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Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

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

Multiple Opening Stagnation Limits

Opening Type	Upstream		Downstream	
	Sta. Left	Sta. Right	Sta. Left	Sta. Right
Bridge	0	1757.79	0	1757.79
Bridge	1757.79	5000	1757.79	5000

CROSS SECTION

RIVER: Turkey Creek

REACH: Flowline

RS: 350

INPUT

Description:

Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.28	22.13	1027.22	92.01	1027.2	110.55	1027.33	119	1027.38
127.2	1027.4	152.71	1027.47	160.61	1027.51	307.25	1028.44	352.16	1028.16
356.89	1027.63	387.13	1026.7	464.4	1030.94	507.56	1031.49	641.11	1032.77
673.44	1031.06	695.58	1031.13	763.37	1031.48	765.34	1031.64	765.41	1031.65
767.89	1031.44	769.88	1031.51	771.92	1031.51	772.01	1031.46	773.28	1031.53
777.7	1031.58	783.34	1031.58	795.76	1031.56	799.6	1031.52	802.74	1031.56
818.59	1031.65	830.5	1031.65	833.15	1031.4	835.95	1031.25	851.36	1031.3
863.29	1031.54	872.36	1031.53	883.32	1031.5	894.84	1031.56	905.51	1031.52
918.98	1031.53	924.2	1031.69	934.09	1031.76	939.09	1031.82	958.85	1032.44
961.08	1032.56	967.38	1033.04	973	1033.41	977.79	1033.76	979.87	1033.98
1000	1036.41	1003.93	1036.98	1010.2	1037.91	1016.73	1038.77	1020.8	1039.38
1025.84	1039.9	1039.6	1040.41	1045.86	1041.1	1049.65	1041.31	1054.96	1041.69
1069.77	1042.3	1070.63	1042.35	1072.65	1042.28	1087.09	1041.43	1094.05	1040.94
1100.45	1040.4	1114.01	1040.42	1115.1	1040.42	1116.52	1040.51	1132.92	1041.41
1148.46	1042.05	1156.53	1042.36	1157.11	1042.45	1157.42	1042.47	1172.65	1042.48

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1174.77	1042.57	1182.26	1042.53	1182.46	1042.52	1194.19	1042.76	1200.63	1042.21
1202.98	1041.93	1208	1041.14	1208.88	1041.1	1225.65	1039.61	1227.14	1039.41
1233.5	1039.38	1236.99	1039.39	1250.56	1038.51	1251.36	1038.5	1252.49	1038.55
1270.73	1039.4	1273.07	1038.97	1282.04	1038.62	1286.88	1039	1289.56	1038.86
1290.41	1038.91	1300.79	1039.53	1302.68	1039.47	1313.41	1039.15	1315.82	1039.24
1321.24	1039.31	1324.19	1039.41	1328.67	1039.64	1336.67	1040.43	1341.22	1040.41
1357.12	1040.41	1367.8	1040.68	1373.71	1040.5	1375.89	1040.41	1388.63	1039.98
1399.54	1039.62	1402.67	1039.52	1404.77	1039.5	1412.67	1039.41	1418.93	1039.54
1421.8	1039.29	1437.63	1037.5	1445.55	1032.61	1449.42	1028.4	1457.54	1027.37
1457.59	1027.36	1457.65	1027.33	1461.33	1023.84	1470.74	1015.49	1481.13	1015.08
1499.47	1014.41	1511.82	1014.45	1523.08	1015.11	1532.86	1022.13	1548.43	1030.39
1554.24	1029.44	1563.83	1032.66	1572.43	1032.75	1576.26	1033.36	1577.11	1033.41
1583.62	1033.43	1584.52	1033.02	1587.3	1032.77	1592.61	1032.77	1596.65	1032.99
1608.37	1032.8	1623.65	1033.12	1628.26	1033.4	1643.98	1032.92	1645.13	1032.89
1663.79	1033.35	1670.53	1033.38	1683.34	1033.37	1687.47	1033.2	1689.88	1032.99
1697.12	1032.29	1705.01	1032.85	1712.48	1032.9	1720.74	1032.94	1745.21	1035.11
1748.77	1034.99	1754.49	1033.32	1755.24	1033.36	1755.57	1033.39	1763.86	1033.41
1775.08	1033.41	1775.96	1033.38	1793.92	1032.61	1795.86	1032.56	1799.58	1032.47
1814.26	1033.28	1829.04	1033.76	1847.05	1034.14	1848.37	1034.11	1850.83	1034.41
1852.26	1034.41	1862.89	1034.28	1862.93	1034.27	1873.74	1033.21	1880.96	1033.36
1881.82	1033.05	1888.98	1033.48	1895.17	1032.85	1903.1	1033.32	1907.85	1033.36
1909.64	1033.31	1919.31	1032.82	1924.81	1032.78	1941.2	1033.23	1948.74	1033.41
1968.27	1033.42	1980.19	1033.38	1987.31	1033.07	1998.73	1032.99	2019.44	1033.41
2053.08	1033.41	2055.37	1033.4	2082	1033.41	2082.36	1033.41	2096	1033.4
2104.57	1033.4	2107.45	1033.33	2112.94	1033.41	2118.59	1033.42	2124.15	1033.41
2143.35	1033.4	2154.1	1033.41	2162.18	1033.43	2168.18	1033.4	2178.88	1032.72
2185.53	1032.45	2193.87	1032.87	2198.06	1032.9	2201.09	1032.97	2204.74	1032.95
2210.88	1032.47	2215.65	1032.45	2228.13	1033.24	2230.35	1033.3	2231.65	1033.14
2237.79	1032.4	2250.16	1032.41	2252.87	1032.2	2271.56	1031.47	2276.52	1031.44
2282.77	1031.44	2293.65	1031.41	2298.81	1031.56	2305.59	1032.78	2318.36	1033.98
2319.75	1034.11	2333.65	1034.3	2345.7	1034.49	2350.68	1033.41	2356.61	1033.28
2364.99	1032.79	2371.63	1032.07	2383.22	1031.36	2394.03	1031.7	2401.09	1031.68
2406.72	1031.64	2419.87	1032.05	2484.91	1032.18	2491.13	1032.45	2494.76	1032.41
2497.14	1032.17	2502.59	1032.21	2505.73	1032.61	2587.21	1032.24	2592.57	1031.77
2595.83	1031.98	2596.91	1031.83	2602.73	1031.79	2626.92	1031.83	2682.36	1032.81
2704.98	1032.84	2712.9	1032.9	2726.69	1032.5	2732.21	1032.41	2736.85	1032.33
2744.87	1032.31	2757.87	1032.62	2760.41	1032.78	2761.83	1033.17	2767.05	1033.93
2771.48	1034.68	2773.7	1035.07	2780.27	1034.94	2791.48	1035.29	2800.81	1033.76
2805.22	1033.58	2831.57	1034.42	2868.92	1034.44	2946.79	1034.37	2990.89	1034.59
2995.09	1034.61	2998.97	1034.7	4750	1030	4950	1038		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.065	1437.63	.04
		1563.83	.04

Bank	Sta: Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1437.63	1563.83		150	150		.3	.5
Left Levee	Station=		1194.19	Elevation=		1042.76		

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CROSS SECTION

RIVER: Turkey Creek

REACH: Flowline

RS: 200

INPUT

Description:

Station Elevation Data		num=		268							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.16	9.33	1027.72	40.94	1028.14	138.06	1029.11	161.4	1027.69		
177.36	1027.73	922.07	1031.44	923.57	1031.56	924.77	1031.61	926.64	1031.46		
928.15	1031.51	930.05	1031.51	930.93	1031.57	933.2	1031.45	934.71	1031.46		
938.07	1031.5	947.59	1031.52	953.01	1031.59	953.48	1031.49	956.19	1031.54		
956.3	1031.58	958.02	1031.83	960.17	1031.75	962.25	1031.7	970.43	1031.75		
976.74	1031.74	987.01	1031.45	989.82	1031.54	991.32	1031.51	999.89	1030.95		
1003.79	1030.93	1007.84	1031.07	1020.85	1031.46	1021.03	1031.47	1027.61	1031.53		
1035.14	1031.43	1049.07	1031.83	1063.65	1031.81	1068.6	1032.5	1072.26	1033		
1076.83	1034.18	1083.43	1035.05	1087.01	1036.12	1090.95	1037.84	1097.08	1039.21		
1109.87	1042.7	1120.28	1043.68	1126.69	1043.69	1138.42	1042.6	1140.72	1042.02		
1150.21	1041.11	1157.73	1040.91	1160.67	1040.88	1170.54	1041.69	1194.23	1041.02		
1199.39	1041.93	1204.33	1042.21	1208.52	1042.3	1216.07	1042.99	1230.14	1043.05		
1247.11	1041.44	1263.2	1041.63	1271.2	1041.16	1280.71	1041.12	1310.35	1041.62		
1321.81	1041.44	1331.57	1041.67	1336.71	1042.41	1340.88	1043.16	1344.83	1043.53		
1351.73	1043.75	1362.53	1043.46	1368.62	1043.37	1373.12	1042.73	1377.41	1041.45		
1383.35	1039.12	1387.19	1037.76	1391.55	1035.92	1392.65	1035.43	1393.9	1035.25		
1404.94	1033.93	1409.2	1033.14	1413.35	1032.62	1422.41	1033.25	1429.77	1033.29		
1437	1032.76	1451.48	1033.21	1455.36	1033.43	1456.1	1033.44	1456.34	1033.43		
1459.48	1030.65	1474.59	1017.42	1475.58	1016.8	1476.68	1015.9	1499.63	1015.79		
1500	1015.77	1507.58	1016	1544.15	1016.98	1568.11	1027.47	1570.92	1028.66		
1576.62	1029.23	1579.37	1030.22	1584.7	1031.56	1588.9	1032.4	1596.38	1032.06		
1597.2	1032.05	1603.23	1033.21	1605.41	1033.35	1618.15	1033.98	1621.25	1033.37		
1630.1	1033.39	1642.82	1032.2	1644.85	1032.07	1649.17	1032.1	1657.45	1032.35		
1665.28	1031.9	1669.03	1032.33	1678.3	1031.43	1679.8	1031.44	1686.18	1031.41		
1691.54	1030.75	1695.45	1030.24	1695.97	1030.22	1704.08	1030.24	1714.23	1030.28		
1715.12	1030.41	1727.51	1029.01	1732.34	1028.47	1733.9	1028.42	1735.3	1028.39		
1741.07	1028.31	1743.83	1028.27	1750.12	1028.48	1756.38	1028.7	1759.88	1029.46		
1762.11	1029.58	1762.71	1029.94	1769.02	1031.57	1770.5	1031.32	1783.06	1033.09		
1784.96	1033.22	1789.97	1032.71	1794.16	1033.33	1799.07	1033.26	1808.33	1032.9		
1818.37	1033.38	1824.14	1033.09	1830.8	1034.03	1837.66	1034.04	1839.67	1033.41		
1845.01	1032.95	1850.3	1033.11	1858.39	1033.07	1879.99	1033.75	1887.74	1033.05		
1893.67	1033.41	1903.99	1033.43	1911.52	1032.82	1926.74	1032.39	1933.97	1032.31		
1936.53	1032.04	1948.92	1032.02	1952.18	1032.4	1955.45	1032.4	1961.87	1032.41		
1965.68	1032.32	1973.05	1032.44	1981.81	1032.45	1987.78	1032.43	1996.69	1032.37		
2000.13	1032.36	2009.99	1032.38	2019.32	1032.64	2024.64	1032.86	2039.14	1034.12		
2040.47	1034.1	2042.73	1034.3	2044.3	1034.21	2057.86	1034.4	2061.93	1034.35		
2063.49	1034.06	2066.82	1033.78	2077.53	1032.46	2084.33	1032.41	2093.15	1032.41		

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2097.24	1032.29	2099.81	1032.41	2114.27	1033.39	2115.37	1033.45	2115.87	1033.45
2124.62	1033.41	2126.59	1033.04	2136.07	1033.27	2137.9	1033.36	2138.78	1033.35
2144.96	1033.11	2159.62	1032.65	2166.72	1032.46	2178.48	1032.47	2192.97	1032.97
2198.75	1033.15	2201.63	1033.08	2210.43	1032.57	2211.43	1032.56	2226.21	1032.46
2236.04	1032.47	2250.63	1032.41	2270.58	1032.41	2277.89	1032.45	2280.16	1032.47
2284.44	1031.66	2285.9	1031.52	2287.33	1031.26	2293.58	1030.12	2303.89	1029.65
2308.67	1029.81	2324.13	1031.39	2324.26	1031.39	2324.92	1031.45	2342.78	1032.42
2346.27	1032.36	2351.59	1032.26	2354.09	1032.24	2373.55	1031.87	2385.8	1031.86
2421.27	1030.8	2451.83	1031.41	2469.15	1031.41	2492.16	1030.44	2535.12	1030.46
2542.62	1030.84	2558.08	1030.82	2570.17	1031	2579.38	1031.33	2591.39	1031.58
2609.47	1031.26	2622.3	1031.09	2625.74	1031.07	2636.6	1030.69	2653.42	1030.83
2676.8	1031.2	2691.93	1031.32	2708.39	1031.36	2722.63	1031.62	2745.48	1031.57
2755.93	1031.48	2760.93	1031.52	2774.79	1031.41	2780.33	1031.66	2783.97	1031.47
2798.18	1031.3	2802.23	1031.44	2810.51	1031.87	2828.62	1031.45	2836.43	1031.25
2867.07	1033.71	2878.25	1034.97	2884.81	1036.18	2900.05	1035.74	2914.93	1034.42
2932.44	1033.03	2940.34	1033.23	2956.47	1031.78	2985.71	1031.5	3000	1031.41
3935	1030	4165	1036	4950	1039				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1456.1	.04	1588.9	.04

Bank Sta: Left Right Coeff Contr. Expan.
 1456.1 1588.9 .1 .3
 Left Levee Station= 1126.69 Elevation= 1043.69

SUMMARY OF MANNING'S N VALUES

River: Turkey Creek

Reach	River Sta.	n1	n2	n3
Flowline	600	.065	.04	.04
Flowline	450	.065	.04	.04
Flowline	400	Mult Open		
Flowline	350	.065	.04	.04
Flowline	200	.065	.04	.04

SUMMARY OF REACH LENGTHS

River: Turkey Creek

Reach	River Sta.	Left	Channel	Right
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Flowline	600	150	150	150
Flowline	450	100	100	100
Flowline	400	Mult Open		
Flowline	350	150	150	150
Flowline	200			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Turkey Creek

Reach	River Sta.	Contr.	Expan.
Flowline	600	.1	.3
Flowline	450	.3	.5
Flowline	400	Mult Open	
Flowline	350	.3	.5
Flowline	200	.1	.3

Exhibit C – Natural Backwater Calculations

HEC-RAS Plan: Natural River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Flowline	600	Q2	5934.00	1015.62	1030.49	1022.74	1030.91	0.000870	5.17	1234.63	483.72	0.27
Flowline	600	Q5	11864.00	1015.62	1033.26	1026.17	1033.44	0.000530	4.52	5517.52	2320.31	0.22
Flowline	600	Q10	17357.00	1015.62	1034.18	1028.69	1034.34	0.000513	4.64	7948.66	2944.49	0.22
Flowline	600	Q25	26139.00	1015.62	1035.10	1033.23	1035.27	0.000560	5.06	11001.82	3470.43	0.23
Flowline	600	Q50	34886.00	1015.62	1035.84	1033.72	1036.01	0.000579	5.30	13583.39	3506.88	0.23
Flowline	600	Q100	41342.00	1015.62	1036.35	1034.03	1036.52	0.000575	5.40	15380.14	3520.30	0.23
Flowline	600	Q500	63419.00	1015.62	1038.09	1034.87	1038.27	0.000520	5.49	21529.82	3548.82	0.23
Flowline	450	Q2	5934.00	1015.90	1030.36	1022.58	1030.78	0.000859	5.20	1262.76	822.82	0.27
Flowline	450	Q5	11864.00	1015.90	1033.27	1026.01	1033.36	0.000287	3.40	7582.46	3017.23	0.16
Flowline	450	Q10	17357.00	1015.90	1034.18	1028.56	1034.26	0.000285	3.53	10545.34	3339.39	0.16
Flowline	450	Q25	26139.00	1015.90	1035.09	1032.54	1035.18	0.000327	3.94	13617.54	3416.14	0.18
Flowline	450	Q50	34886.00	1015.90	1035.82	1033.04	1035.92	0.000361	4.26	16120.26	3449.97	0.19
Flowline	450	Q100	41342.00	1015.90	1036.33	1033.31	1036.44	0.000375	4.44	17869.00	3474.40	0.19
Flowline	450	Q500	63419.00	1015.90	1038.06	1033.90	1038.19	0.000371	4.70	23953.63	3535.93	0.19
Flowline	350	Q2	5934.00	1014.41	1030.25	1021.81	1030.68	0.000990	5.27	1138.37	206.80	0.29
Flowline	350	Q5	11864.00	1014.41	1032.54	1025.65	1033.14	0.001462	6.91	2845.58	1528.35	0.36
Flowline	350	Q10	17357.00	1014.41	1033.48	1028.66	1034.06	0.001565	7.44	4711.09	2588.91	0.37
Flowline	350	Q25	26139.00	1014.41	1034.61	1033.77	1035.02	0.001359	7.27	7994.70	3349.55	0.35
Flowline	350	Q50	34886.00	1014.41	1035.49	1034.30	1035.80	0.001136	6.88	10992.22	3446.25	0.32
Flowline	350	Q100	41342.00	1014.41	1036.06	1034.67	1036.33	0.001006	6.61	12965.79	3461.46	0.30
Flowline	350	Q500	63419.00	1014.41	1037.90	1035.45	1038.11	0.000718	5.97	19371.38	3513.22	0.26
Flowline	200	Q2	5934.00	1015.77	1030.18	1022.14	1030.50	0.000719	4.62	1345.96	307.39	0.25
Flowline	200	Q5	11864.00	1015.77	1032.56	1025.38	1032.82	0.000719	4.97	4549.68	2149.00	0.25
Flowline	200	Q10	17357.00	1015.77	1033.50	1027.79	1033.73	0.000719	5.19	6722.80	2527.18	0.26
Flowline	200	Q25	26139.00	1015.77	1034.56	1032.80	1034.78	0.000718	5.47	9490.11	2671.39	0.26
Flowline	200	Q50	34886.00	1015.77	1035.40	1033.32	1035.62	0.000718	5.69	11753.90	2725.77	0.26
Flowline	200	Q100	41342.00	1015.77	1035.95	1033.32	1036.18	0.000718	5.83	13274.26	2762.64	0.26
Flowline	200	Q500	63419.00	1015.77	1037.75	1034.55	1037.99	0.000718	6.28	18649.53	3234.74	0.27

HEC-RAS Plan: Natural River: Turkey Creek Reach: Flowline

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Flowline	600	Q2	1030.91	1030.49	0.41	0.13	0.00		5893.18	40.82	483.72
Flowline	600	Q5	1033.44	1033.26	0.19	0.06	0.03	4.11	6450.47	5409.42	2320.31
Flowline	600	Q10	1034.34	1034.18	0.16	0.06	0.02	19.98	7082.22	10254.80	2944.49
Flowline	600	Q25	1035.27	1035.10	0.16	0.06	0.02	48.39	8207.62	17882.99	3470.43
Flowline	600	Q50	1036.01	1035.84	0.17	0.07	0.02	79.64	9021.13	25785.22	3506.88
Flowline	600	Q100	1036.52	1036.35	0.17	0.07	0.02	104.71	9477.81	31759.49	3520.30
Flowline	600	Q500	1038.27	1038.09	0.17	0.07	0.01	201.10	10635.10	52582.80	3548.82
Flowline	450	Q2	1030.78	1030.36	0.42	0.09	0.00		5888.96	45.04	822.82
Flowline	450	Q5	1033.36	1033.27	0.09	0.06	0.16	2.26	4852.72	7009.02	3017.23
Flowline	450	Q10	1034.26	1034.18	0.08	0.06	0.15	10.50	5375.60	11970.90	3339.39
Flowline	450	Q25	1035.18	1035.09	0.09	0.06	0.10	27.13	6360.40	19751.47	3416.14
Flowline	450	Q50	1035.92	1035.82	0.10	0.06	0.06	47.93	7205.03	27633.04	3449.97
Flowline	450	Q100	1036.44	1036.33	0.11	0.06	0.05	64.40	7727.41	33550.19	3474.40
Flowline	450	Q500	1038.19	1038.06	0.13	0.05	0.03	141.24	9030.95	54246.82	3535.93
Flowline	350	Q2	1030.68	1030.25	0.43	0.13	0.05		5930.41	3.59	206.80
Flowline	350	Q5	1033.14	1032.54	0.61	0.15	0.17		9569.08	2294.92	1528.35
Flowline	350	Q10	1034.06	1033.48	0.57	0.15	0.17		11146.64	6210.36	2588.91
Flowline	350	Q25	1035.02	1034.61	0.42	0.14	0.10		11876.74	14262.26	3349.55
Flowline	350	Q50	1035.80	1035.49	0.31	0.13	0.05		11973.86	22912.14	3446.25
Flowline	350	Q100	1036.33	1036.06	0.27	0.13	0.02		11975.25	29366.75	3461.46
Flowline	350	Q500	1038.11	1037.90	0.22	0.11	0.01	0.14	12186.20	51232.65	3513.22
Flowline	200	Q2	1030.50	1030.18	0.33				5857.23	76.77	307.39
Flowline	200	Q5	1032.82	1032.56	0.26				7791.28	4072.72	2149.00
Flowline	200	Q10	1033.73	1033.50	0.23			7.47	8778.72	8570.81	2527.18
Flowline	200	Q25	1034.78	1034.56	0.22			57.60	10028.51	16052.89	2671.39
Flowline	200	Q50	1035.62	1035.40	0.22			123.56	11065.42	23697.01	2725.77
Flowline	200	Q100	1036.18	1035.95	0.23			183.38	11772.22	29386.40	2762.64
Flowline	200	Q500	1037.99	1037.75	0.25			439.60	14178.53	48800.88	3234.74

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HEC-RAS HEC-RAS 5.0.0 February 2016
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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	XXXXXX	XXXX		X	X	XXXXX

PROJECT DATA

Project Title: 29362 Turkey Creek
Project File : 29362TurkeyCreek.prj
Run Date and Time: 9/9/2016 2:38:41 PM

Project in English units

PLAN DATA

Plan Title: Natural
Plan File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover
Rd\Hydraulics\Hec Ras\29362TurkeyCreek.p05

Geometry Title: Natural
Geometry File : g:\Design Projects\Kingfisher County\29362(04) CIRB
Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.g05

Flow Title : Turkey Cr Flow Data
Flow File : g:\Design Projects\Kingfisher County\29362(04) CIRB
Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.f01

Plan Summary Information:

Number of: Cross Sections	=	4	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

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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: Subcritical Flow

FLOW DATA

Flow Title: Turkey Cr Flow Data

Flow File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover Rd\Hydraulics\Hec Ras\29362TurkeyCreek.f01

Flow Data (cfs)

River	Reach	RS	Q2	Q5
Q10	Q25	Q50	Q100	Q500
Turkey Creek	Flowline	600	5934	11864
17357	26139	34886	41342	63419

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
Turkey Creek	Flowline	Q2	
Normal S = 0.000718			
Turkey Creek	Flowline	Q5	
Normal S = 0.000718			
Turkey Creek	Flowline	Q10	
Normal S = 0.000718			
Turkey Creek	Flowline	Q25	
Normal S = 0.000718			
Turkey Creek	Flowline	Q50	
Normal S = 0.000718			

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Turkey Creek Flowline Q100
 Normal S = 0.000718
 Turkey Creek Flowline Q500
 Normal S = 0.000718

GEOMETRY DATA

Geometry Title: Natural
 Geometry File : g:\Design Projects\Kingfisher County\29362(04) CIRB Dover
 Rd\Hydraulics\Hec Ras\29362TurkeyCreek.g05

CROSS SECTION

RIVER: Turkey Creek
 REACH: Flowline RS: 600

INPUT

Description:

Station Elevation Data		num= 256	
Sta	Elev	Sta	Elev
0	1030.53	289.7	1032.01
429.68	1033.08	501.3	1032.59
509.12	1032.41	529.63	1032.41
553.06	1031.94	570.87	1031.52
581.29	1030.34	588.76	1030.37
621.42	1031.91	621.96	1031.82
642.42	1030.86	649.85	1031.84
678.15	1034.97	684.15	1035.3
716.66	1034.9	724.23	1034.64
754.63	1031.18	760.36	1030.1
772.17	1030.22	775.81	1030.2
807.94	1032.03	812.75	1032.09
847.6	1031.39	859.15	1031.75
891.18	1033.8	895.09	1033.98
920.43	1036.8	926.83	1036.53
953.26	1036.4	965.13	1035.6
1012.41	1034.33	1037.64	1034.39
1106.73	1038.75	1139.71	1038.83
1185.65	1038.65	1191.01	1038.62
1269.41	1038.94	1287.12	1038.55
1360.01	1039.4	1363.81	1039.41
1398.14	1038.41	1402.73	1037.93
1427.35	1033.13	1441.12	1032.41
		1444	1032.57
		1445.83	1032.48
		1447.3	1032.4

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1448.19	1031.97	1458	1018.83	1459.93	1016.35	1470.26	1018.14	1485.99	1016.57
1498.47	1015.62	1498.66	1015.62	1520.71	1015.83	1522.59	1016.77	1551.25	1031.29
1552.97	1031.61	1553.94	1031.64	1555.82	1031.7	1558.42	1032.24	1563.47	1031.34
1566.46	1031.8	1571.75	1031.44	1575.5	1031.67	1583.71	1032.4	1585.13	1032.4
1602.27	1032.95	1620.67	1033.41	1629.96	1033.41	1641.63	1033.4	1643.18	1033.4
1667.28	1033.44	1678.47	1033.44	1687.92	1033.47	1693.15	1033.49	1710.37	1033.45
1718.14	1033.41	1725.34	1033.41	1737.11	1033.43	1747.53	1033.45	1764.22	1033.57
1767.28	1033.58	1777.62	1034.22	1781.49	1034.51	1781.94	1034.38	1788.39	1034.38
1794.62	1034.41	1812.1	1034.4	1812.68	1034.3	1813.86	1034.59	1822.81	1033.73
1822.89	1033.7	1823.44	1033.71	1831.48	1034.17	1837.16	1034.22	1850.27	1033.67
1858.47	1033.68	1876.43	1033.87	1877.72	1033.84	1895.38	1033.78	1900.97	1033.77
1918.3	1033.63	1928.93	1033.59	1931.64	1033.54	1939.46	1033.58	1952.47	1033.55
1970.5	1033.85	1980.36	1033.91	1982.38	1033.94	2000.32	1034.04	2002.42	1034.04
2003.16	1034.03	2032.31	1034.05	2032.45	1034.05	2032.64	1034.04	2049.97	1033.77
2062.8	1033.76	2067.79	1033.74	2077.41	1033.73	2091.24	1033.94	2097.94	1033.9
2114.31	1034.14	2116.17	1034.16	2117.34	1034.16	2123.81	1034.23	2141.36	1034.39
2143.62	1034.41	2147.91	1034.41	2154.43	1034.4	2169.19	1034.39	2192.25	1034.39
2201.44	1034.35	2209.64	1034.34	2222.92	1034.27	2226.72	1034.27	2262.09	1034.35
2264.55	1034.38	2273.05	1034.41	2282.13	1034.44	2283.75	1034.45	2304.43	1034.47
2308.02	1034.46	2316.79	1034.46	2326.81	1034.47	2339.52	1034.41	2352.28	1034.41
2354.19	1034.37	2355.29	1034.37	2356.52	1034.41	2385.27	1034.41	2412.62	1034.68
2454.76	1034.88	2482.91	1034.48	2492	1034.42	2528.01	1034.44	2537.1	1034.36
2546.27	1034.33	2566.05	1033.83	2587.73	1033.85	2598.34	1033.8	2626.84	1033.78
2641.24	1033.66	2643.84	1033.53	2653.79	1033.43	2676.4	1032.9	2680.72	1032.89
2688	1032.71	2694.33	1032.65	2817.93	1032.28	2828.62	1032.7	2840.97	1033.78
2842.5	1033.88	2846.97	1034.45	2860.51	1036.98	2869.26	1037.15	2890.4	1033.67
2903.33	1033.11	2910.35	1032.66	2921.41	1032.39	2932.2	1032.29	2961.92	1032.25
2970.72	1032.33	2977.39	1032.34	2992.98	1032.43	2996.99	1032.36	4750	1030
4950	1036								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1447.3	.04	1552.97	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1447.3	1552.97		150	150		.1	.3
Left Levee		Station=	1327.77	Elevation=	1039.45			

CROSS SECTION

RIVER: Turkey Creek
 REACH: Flowline RS: 450

INPUT

Description:

Station	Elevation	Data	num=	299					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

29362TurkeyCreek.rep

0	1029.55	.61	1029.56	10.24	1029.75	69.53	1029.31	115.85	1029.45
127.82	1029.61	150.65	1029.68	204.92	1029.91	229.76	1029.5	257.68	1029.11
288.53	1029.54	347.61	1029.4	430.13	1029.39	452.04	1029.54	462.04	1029.6
471.74	1029.63	501.92	1029.71	511.26	1029.76	629.52	1030.5	629.57	1030.46
629.59	1030.57	630.24	1030.68	649.2	1030.43	653.52	1029.93	655.9	1029.43
662.72	1028.84	668.28	1028.27	678.59	1026.65	679.97	1026.55	683.84	1027.7
693.34	1028.51	702.15	1026.81	704.14	1026.39	704.8	1026.41	717.26	1028.19
724.29	1029.25	728.83	1030.69	733.69	1031.37	738.03	1031.69	741.86	1031.96
744.37	1032.31	753.13	1032.46	753.49	1032.36	753.88	1032.49	765.15	1033.09
769.13	1032.86	771.17	1032.88	776.19	1032.39	783.86	1033.13	788.59	1033.08
795.3	1032.7	801.28	1031.41	817.58	1031.43	821.26	1031.37	822.51	1031.36
824.56	1031.41	829.12	1032.1	838.89	1033.41	838.95	1033.41	863.85	1035.59
868.52	1035.81	871.61	1035.97	877.78	1036.5	898.05	1037.11	901.23	1037.11
904.54	1037.1	913.87	1037.12	927.23	1037.2	932.51	1037.15	939.64	1037.05
952.49	1036.91	961.23	1036.88	976.8	1036.73	981.59	1036.87	993.51	1036.87
1011.81	1037.44	1014.61	1037.44	1019.59	1037.5	1034.62	1037.4	1035.73	1037.39
1043.87	1037.65	1047.29	1037.72	1067	1038.4	1073.12	1038.43	1075.97	1038.43
1079.89	1038.46	1085.31	1038.58	1107.59	1038.9	1129.43	1039.38	1130.97	1039.4
1133.2	1039.42	1142.16	1039.4	1155.32	1039.42	1159.59	1039.41	1174.46	1039.42
1181.11	1039.42	1184.39	1039.43	1199.89	1039.88	1206.35	1039.9	1228.33	1038.76
1233.6	1038.73	1242.81	1038.55	1244.47	1038.53	1254.91	1039.36	1259.82	1039.4
1263.68	1040.07	1269.85	1039.95	1278.97	1039.6	1301.01	1040.13	1301.46	1040.13
1301.84	1040.11	1314.62	1039.56	1322.7	1039.41	1390.3	1039.41	1405.53	1039.45
1414.17	1038.04	1414.53	1038.02	1421.33	1036.69	1426.43	1036.01	1430.79	1034.96
1439.44	1033.4	1445.37	1033	1455.2	1031.97	1462.27	1024.39	1471.34	1015.9
1498.33	1016.52	1500	1016.56	1500.04	1016.56	1502.22	1016.52	1531.22	1015.93
1543.93	1023.2	1557.94	1032	1570.34	1032.39	1570.72	1032.35	1573.58	1032.72
1579.7	1033.44	1580.97	1033.43	1587.94	1033.33	1593.52	1033.36	1609.36	1032.81
1614.46	1032.94	1628.73	1032.64	1646.22	1032.73	1649.53	1032.52	1659.33	1032.54
1661.35	1032.75	1677.63	1032.49	1686.17	1032.45	1692.55	1032.47	1701.42	1032.5
1713.98	1032.56	1717.35	1032.6	1740.81	1033.53	1744.58	1033.59	1748.1	1033.83
1757.79	1034.91	1770.4	1034.83	1775.55	1034.83	1780.24	1034.47	1796.73	1033.54
1798.2	1033.48	1799.01	1033.4	1811.47	1032.77	1822.98	1032.59	1841.59	1032.63
1843.48	1032.63	1847.85	1032.61	1852.27	1032.58	1857.15	1032.66	1858.32	1032.66
1875.77	1032.63	1877.22	1032.63	1890.26	1032.71	1891.91	1032.75	1893.97	1032.66
1913.94	1032.67	1926.32	1032.79	1936.43	1032.76	1964.44	1033.21	1974.21	1033.19
1982.59	1033.21	1994.2	1033.31	2002.11	1033.28	2021.19	1033.33	2033.22	1033.26
2037.58	1033.24	2052.65	1033.34	2053.96	1033.34	2066.54	1033.42	2086.17	1033.42
2096.04	1033.41	2103.72	1033.41	2130.48	1033.42	2134.49	1033.42	2141.34	1033.41
2154.98	1033.51	2158.72	1033.53	2159.54	1033.52	2169.42	1033.89	2174.4	1033.91
2196.23	1033.61	2196.61	1033.6	2196.77	1033.6	2214.95	1033.45	2218.74	1033.41
2221.01	1033.36	2221.93	1033.34	2241.32	1032.96	2252.73	1032.85	2258.41	1032.75
2266.71	1032.55	2269.26	1032.53	2282.58	1032.42	2291.96	1032.38	2293	1032.41
2309.61	1032.42	2314.18	1032.44	2321.05	1032.41	2324.42	1032.45	2325.34	1032.44
2325.69	1032.44	2327.68	1032.42	2341.77	1032.43	2351.64	1032.45	2356.15	1032.42
2362.85	1032.41	2372.17	1031.8	2376.3	1031.78	2378.41	1031.69	2383.5	1032.41
2393.03	1032.41	2406.31	1031.78	2408.52	1031.81	2414.38	1032.22	2418.7	1032.36
2420.01	1032.38	2433.54	1031.55	2433.57	1031.55	2446.76	1031.67	2449.13	1031.5

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2463.48	1031.36	2471.73	1031.32	2473.47	1031.41	2481.23	1031.48	2485.87	1031.82
2493.58	1031.91	2505.41	1031.92	2531.48	1032.19	2553.12	1032.41	2561.2	1032.53
2563.08	1032.52	2590.31	1032.98	2599.28	1032.97	2613.06	1032.67	2623.24	1032.43
2640.03	1032.41	2640.31	1032.41	2662.74	1032.22	2663.96	1032.26	2664.67	1032.26
2676.59	1031.91	2710.52	1031.51	2716.67	1031.5	2723.46	1031.49	2724.48	1031.42
2731.1	1031.09	2741.54	1030.83	2743.17	1030.84	2744.27	1030.79	2753.78	1030.98
2771.22	1031.4	2777.5	1031.41	2782.97	1031.41	2790.26	1031.43	2797.74	1031.43
2802.16	1031.42	2809.41	1031.41	2818.21	1031.55	2835.66	1031.71	2855.09	1032.32
2866.71	1032.85	2870.29	1033.15	2880.22	1034.94	2889.07	1036.36	2897.31	1037.1
2899.97	1037.35	2909.24	1037.33	2914	1037.29	2926.17	1035.63	2933.21	1034.69
2935.08	1034.33	2936.72	1034.19	2938.71	1033.98	2943.48	1033.45	2956.35	1032.21
2976.6	1031.43	3000	1030.88	4750	1030	4950	1037		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1455.2	.04	1557.94	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1455.2	1557.94		100	100		.3	.5
Left Levee		Station=	1301.01	Elevation=	1040.13			

CROSS SECTION

RIVER: Turkey Creek

REACH: Flowline

RS: 350

INPUT

Description:

Station	Elevation	Data	num=	274
Sta	Elev	Sta	Elev	Sta Elev Sta Elev
0	1027.28	22.13	1027.22	92.01 1027.2 110.55 1027.33 119 1027.38
127.2	1027.4	152.71	1027.47	160.61 1027.51 307.25 1028.44 352.16 1028.16
356.89	1027.63	387.13	1026.7	464.4 1030.94 507.56 1031.49 641.11 1032.77
673.44	1031.06	695.58	1031.13	763.37 1031.48 765.34 1031.64 765.41 1031.65
767.89	1031.44	769.88	1031.51	771.92 1031.51 772.01 1031.46 773.28 1031.53
777.7	1031.58	783.34	1031.58	795.76 1031.56 799.6 1031.52 802.74 1031.56
818.59	1031.65	830.5	1031.65	833.15 1031.4 835.95 1031.25 851.36 1031.3
863.29	1031.54	872.36	1031.53	883.32 1031.5 894.84 1031.56 905.51 1031.52
918.98	1031.53	924.2	1031.69	934.09 1031.76 939.09 1031.82 958.85 1032.44
961.08	1032.56	967.38	1033.04	973 1033.41 977.79 1033.76 979.87 1033.98
1000	1036.41	1003.93	1036.98	1010.2 1037.91 1016.73 1038.77 1020.8 1039.38
1025.84	1039.9	1039.6	1040.41	1045.86 1041.1 1049.65 1041.31 1054.96 1041.69
1069.77	1042.3	1070.63	1042.35	1072.65 1042.28 1087.09 1041.43 1094.05 1040.94
1100.45	1040.4	1114.01	1040.42	1115.1 1040.42 1116.52 1040.51 1132.92 1041.41
1148.46	1042.05	1156.53	1042.36	1157.11 1042.45 1157.42 1042.47 1172.65 1042.48
1174.77	1042.57	1182.26	1042.53	1182.46 1042.52 1194.19 1042.76 1200.63 1042.21
1202.98	1041.93	1208	1041.14	1208.88 1041.1 1225.65 1039.61 1227.14 1039.41

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1233.5	1039.38	1236.99	1039.39	1250.56	1038.51	1251.36	1038.5	1252.49	1038.55
1270.73	1039.4	1273.07	1038.97	1282.04	1038.62	1286.88	1039	1289.56	1038.86
1290.41	1038.91	1300.79	1039.53	1302.68	1039.47	1313.41	1039.15	1315.82	1039.24
1321.24	1039.31	1324.19	1039.41	1328.67	1039.64	1336.67	1040.43	1341.22	1040.41
1357.12	1040.41	1367.8	1040.68	1373.71	1040.5	1375.89	1040.41	1388.63	1039.98
1399.54	1039.62	1402.67	1039.52	1404.77	1039.5	1412.67	1039.41	1418.93	1039.54
1421.8	1039.29	1437.63	1037.5	1445.55	1032.61	1449.42	1028.4	1457.54	1027.37
1457.59	1027.36	1457.65	1027.33	1461.33	1023.84	1470.74	1015.49	1481.13	1015.08
1499.47	1014.41	1511.82	1014.45	1523.08	1015.11	1532.86	1022.13	1548.43	1030.39
1554.24	1029.44	1563.83	1032.66	1572.43	1032.75	1576.26	1033.36	1577.11	1033.41
1583.62	1033.43	1584.52	1033.02	1587.3	1032.77	1592.61	1032.77	1596.65	1032.99
1608.37	1032.8	1623.65	1033.12	1628.26	1033.4	1643.98	1032.92	1645.13	1032.89
1663.79	1033.35	1670.53	1033.38	1683.34	1033.37	1687.47	1033.2	1689.88	1032.99
1697.12	1032.29	1705.01	1032.85	1712.48	1032.9	1720.74	1032.94	1745.21	1035.11
1748.77	1034.99	1754.49	1033.32	1755.24	1033.36	1755.57	1033.39	1763.86	1033.41
1775.08	1033.41	1775.96	1033.38	1793.92	1032.61	1795.86	1032.56	1799.58	1032.47
1814.26	1033.28	1829.04	1033.76	1847.05	1034.14	1848.37	1034.11	1850.83	1034.41
1852.26	1034.41	1862.89	1034.28	1862.93	1034.27	1873.74	1033.21	1880.96	1033.36
1881.82	1033.05	1888.98	1033.48	1895.17	1032.85	1903.1	1033.32	1907.85	1033.36
1909.64	1033.31	1919.31	1032.82	1924.81	1032.78	1941.2	1033.23	1948.74	1033.41
1968.27	1033.42	1980.19	1033.38	1987.31	1033.07	1998.73	1032.99	2019.44	1033.41
2053.08	1033.41	2055.37	1033.4	2082	1033.41	2082.36	1033.41	2096	1033.4
2104.57	1033.4	2107.45	1033.33	2112.94	1033.41	2118.59	1033.42	2124.15	1033.41
2143.35	1033.4	2154.1	1033.41	2162.18	1033.43	2168.18	1033.4	2178.88	1032.72
2185.53	1032.45	2193.87	1032.87	2198.06	1032.9	2201.09	1032.97	2204.74	1032.95
2210.88	1032.47	2215.65	1032.45	2228.13	1033.24	2230.35	1033.3	2231.65	1033.14
2237.79	1032.4	2250.16	1032.41	2252.87	1032.2	2271.56	1031.47	2276.52	1031.44
2282.77	1031.44	2293.65	1031.41	2298.81	1031.56	2305.59	1032.78	2318.36	1033.98
2319.75	1034.11	2333.65	1034.3	2345.7	1034.49	2350.68	1033.41	2356.61	1033.28
2364.99	1032.79	2371.63	1032.07	2383.22	1031.36	2394.03	1031.7	2401.09	1031.68
2406.72	1031.64	2419.87	1032.05	2484.91	1032.18	2491.13	1032.45	2494.76	1032.41
2497.14	1032.17	2502.59	1032.21	2505.73	1032.61	2587.21	1032.24	2592.57	1031.77
2595.83	1031.98	2596.91	1031.83	2602.73	1031.79	2626.92	1031.83	2682.36	1032.81
2704.98	1032.84	2712.9	1032.9	2726.69	1032.5	2732.21	1032.41	2736.85	1032.33
2744.87	1032.31	2757.87	1032.62	2760.41	1032.78	2761.83	1033.17	2767.05	1033.93
2771.48	1034.68	2773.7	1035.07	2780.27	1034.94	2791.48	1035.29	2800.81	1033.76
2805.22	1033.58	2831.57	1034.42	2868.92	1034.44	2946.79	1034.37	2990.89	1034.59
2995.09	1034.61	2998.97	1034.7	4750	1030	4950	1038		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1437.63	.04	1563.83	.04

Bank	Sta: Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1437.63	1563.83		150	150		.3	.5
Left Levee	Station=		1194.19	Elevation=		1042.76		

CROSS SECTION

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RIVER: Turkey Creek

REACH: Flowline

RS: 200

INPUT

Description:

Station Elevation Data		num= 268									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1027.16	9.33	1027.72	40.94	1028.14	138.06	1029.11	161.4	1027.69		
177.36	1027.73	922.07	1031.44	923.57	1031.56	924.77	1031.61	926.64	1031.46		
928.15	1031.51	930.05	1031.51	930.93	1031.57	933.2	1031.45	934.71	1031.46		
938.07	1031.5	947.59	1031.52	953.01	1031.59	953.48	1031.49	956.19	1031.54		
956.3	1031.58	958.02	1031.83	960.17	1031.75	962.25	1031.7	970.43	1031.75		
976.74	1031.74	987.01	1031.45	989.82	1031.54	991.32	1031.51	999.89	1030.95		
1003.79	1030.93	1007.84	1031.07	1020.85	1031.46	1021.03	1031.47	1027.61	1031.53		
1035.14	1031.43	1049.07	1031.83	1063.65	1031.81	1068.6	1032.5	1072.26	1033		
1076.83	1034.18	1083.43	1035.05	1087.01	1036.12	1090.95	1037.84	1097.08	1039.21		
1109.87	1042.7	1120.28	1043.68	1126.69	1043.69	1138.42	1042.6	1140.72	1042.02		
1150.21	1041.11	1157.73	1040.91	1160.67	1040.88	1170.54	1041.69	1194.23	1041.02		
1199.39	1041.93	1204.33	1042.21	1208.52	1042.3	1216.07	1042.99	1230.14	1043.05		
1247.11	1041.44	1263.2	1041.63	1271.2	1041.16	1280.71	1041.12	1310.35	1041.62		
1321.81	1041.44	1331.57	1041.67	1336.71	1042.41	1340.88	1043.16	1344.83	1043.53		
1351.73	1043.75	1362.53	1043.46	1368.62	1043.37	1373.12	1042.73	1377.41	1041.45		
1383.35	1039.12	1387.19	1037.76	1391.55	1035.92	1392.65	1035.43	1393.9	1035.25		
1404.94	1033.93	1409.2	1033.14	1413.35	1032.62	1422.41	1033.25	1429.77	1033.29		
1437	1032.76	1451.48	1033.21	1455.36	1033.43	1456.1	1033.44	1456.34	1033.43		
1459.48	1030.65	1474.59	1017.42	1475.58	1016.8	1476.68	1015.9	1499.63	1015.79		
1500	1015.77	1507.58	1016	1544.15	1016.98	1568.11	1027.47	1570.92	1028.66		
1576.62	1029.23	1579.37	1030.22	1584.7	1031.56	1588.9	1032.4	1596.38	1032.06		
1597.2	1032.05	1603.23	1033.21	1605.41	1033.35	1618.15	1033.98	1621.25	1033.37		
1630.1	1033.39	1642.82	1032.2	1644.85	1032.07	1649.17	1032.1	1657.45	1032.35		
1665.28	1031.9	1669.03	1032.33	1678.3	1031.43	1679.8	1031.44	1686.18	1031.41		
1691.54	1030.75	1695.45	1030.24	1695.97	1030.22	1704.08	1030.24	1714.23	1030.28		
1715.12	1030.41	1727.51	1029.01	1732.34	1028.47	1733.9	1028.42	1735.3	1028.39		
1741.07	1028.31	1743.83	1028.27	1750.12	1028.48	1756.38	1028.7	1759.88	1029.46		
1762.11	1029.58	1762.71	1029.94	1769.02	1031.57	1770.5	1031.32	1783.06	1033.09		
1784.96	1033.22	1789.97	1032.71	1794.16	1033.33	1799.07	1033.26	1808.33	1032.9		
1818.37	1033.38	1824.14	1033.09	1830.8	1034.03	1837.66	1034.04	1839.67	1033.41		
1845.01	1032.95	1850.3	1033.11	1858.39	1033.07	1879.99	1033.75	1887.74	1033.05		
1893.67	1033.41	1903.99	1033.43	1911.52	1032.82	1926.74	1032.39	1933.97	1032.31		
1936.53	1032.04	1948.92	1032.02	1952.18	1032.4	1955.45	1032.4	1961.87	1032.41		
1965.68	1032.32	1973.05	1032.44	1981.81	1032.45	1987.78	1032.43	1996.69	1032.37		
2000.13	1032.36	2009.99	1032.38	2019.32	1032.64	2024.64	1032.86	2039.14	1034.12		
2040.47	1034.1	2042.73	1034.3	2044.3	1034.21	2057.86	1034.4	2061.93	1034.35		
2063.49	1034.06	2066.82	1033.78	2077.53	1032.46	2084.33	1032.41	2093.15	1032.41		
2097.24	1032.29	2099.81	1032.41	2114.27	1033.39	2115.37	1033.45	2115.87	1033.45		
2124.62	1033.41	2126.59	1033.04	2136.07	1033.27	2137.9	1033.36	2138.78	1033.35		

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2144.96	1033.11	2159.62	1032.65	2166.72	1032.46	2178.48	1032.47	2192.97	1032.97
2198.75	1033.15	2201.63	1033.08	2210.43	1032.57	2211.43	1032.56	2226.21	1032.46
2236.04	1032.47	2250.63	1032.41	2270.58	1032.41	2277.89	1032.45	2280.16	1032.47
2284.44	1031.66	2285.9	1031.52	2287.33	1031.26	2293.58	1030.12	2303.89	1029.65
2308.67	1029.81	2324.13	1031.39	2324.26	1031.39	2324.92	1031.45	2342.78	1032.42
2346.27	1032.36	2351.59	1032.26	2354.09	1032.24	2373.55	1031.87	2385.8	1031.86
2421.27	1030.8	2451.83	1031.41	2469.15	1031.41	2492.16	1030.44	2535.12	1030.46
2542.62	1030.84	2558.08	1030.82	2570.17	1031	2579.38	1031.33	2591.39	1031.58
2609.47	1031.26	2622.3	1031.09	2625.74	1031.07	2636.6	1030.69	2653.42	1030.83
2676.8	1031.2	2691.93	1031.32	2708.39	1031.36	2722.63	1031.62	2745.48	1031.57
2755.93	1031.48	2760.93	1031.52	2774.79	1031.41	2780.33	1031.66	2783.97	1031.47
2798.18	1031.3	2802.23	1031.44	2810.51	1031.87	2828.62	1031.45	2836.43	1031.25
2867.07	1033.71	2878.25	1034.97	2884.81	1036.18	2900.05	1035.74	2914.93	1034.42
2932.44	1033.03	2940.34	1033.23	2956.47	1031.78	2985.71	1031.5	3000	1031.41
3935	1030	4165	1036	4950	1039				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1456.1	.04	1588.9	.04

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	1456.1	1588.9		.1	.3
Left Levee		Station=	1126.69	Elevation=	1043.69

SUMMARY OF MANNING'S N VALUES

River:Turkey Creek

Reach	River Sta.	n1	n2	n3
Flowline	600	.065	.04	.04
Flowline	450	.065	.04	.04
Flowline	350	.065	.04	.04
Flowline	200	.065	.04	.04

SUMMARY OF REACH LENGTHS

River: Turkey Creek

Reach	River Sta.	Left	Channel	Right
Flowline	600	150	150	150
Flowline	450	100	100	100

Flowline	350	150	150	150
Flowline	200			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Turkey Creek

Reach	River Sta.	Contr.	Expan.
Flowline	600	.1	.3
Flowline	450	.3	.5
Flowline	350	.3	.5
Flowline	200	.1	.3

Exhibit D – Scour Calculations

Circuit Engineering District #8

Project No.: Kingfisher
 J/P No.: 29362(04)
 Date: 8/29/2016

Bridge No.: Main Channel
 Calculated by: Tyler Schroder

Contraction Scour:

$Q_{500} = 22,495.82$ cfs
 $K_U = 11.17$
 $y = 23$ ft, Average depth of flow upstream of bridge
 $D = 0.001$ ft, Particle size
 $w = 60$ ft, upstream channel width
 $W2 = 60$ ft, width of bridge open - piers
 $V_c = K_U y^{1/6} D^{1/3}$
 $V_c = 1.88$ ft/s
 $V = Q/(w * y)$
 $V = 16.30131884$ ft/s
 If $V_c > V$ then use clear water contraction

Clear Water Contraction

$D_{50} = 0.002$ ft, median diameter of bed material
 $W = 164.7$ ft, bridge width minus piers
 $Q = 22495.82$ cfs, discharge through the bridge
 $K_u = 0.0077$
 $D_m = 1.25 * D_{50}$
 $D_m = 0.0025$ ft.
 $y_2 = [(K_u * Q^2) / (D_m^{2/3} * W^2)]^{3/7}$
 $y_2 = 46.56$ ft.
 $y_s = y_2 - y_o$
 $y_s = 23.56$ ft. of Scour

Live Bed Contraction

$S1 = 0.000718$ Slope of Energy Grade
 $V^* = 0.7292125$ ft/s
 $T = 0.328$ see Figure 6.8 then multiply by 3.28
 $k1 = 0.69$ If $V^*/T < 5$, then $k1 = .59$, if 5 to 2.0, then $k1 = .64$, or > 2.0 , then $k1 = .69$ 2.223208695
 $y2 = 23$ Scour from bed of channel
 $y_s = 0.00$ ft. of Scour

Pier Scour:

$a = 3$ ft, pier diameter
 $V = 7.03$ ft/s, approach velocity
 $y_1 = 23$ ft, flow depth
 $K_1 = 1$ Group of Cylinders = 1
 $K_2 = 1$ Check Table 7.2 or equation
 $K_3 = 1.1$ Check Table 7.3
 $D95 = 0.001$ ft
 $g = 32.2$ ft/s²
 $S = 15$ ft, spacing of columns
 $L = 6$ #piers*a
 $\theta = 0$ Angle of Attack
 $Fr_1 = V_1 / (g * y_1)^{0.5}$
 $Fr_1 = 0.26$
 if $S/a < 5.0$
 $K_2 = 1$
 $y_s = 7.52$ ft. of Scour

Abutment Scour:

$y_a = 5.5$ ft., average depth of flow on floodplain
 $L = 165$ ft., length of embankment normal to flow
 $A_e = 907.5$ ya*L
 $K_1 = 0.55$ Check Table 8.1, .55 for spill-through abut
 $K_2 = 1$ ($\theta/90$)^{.13}
 $V_e = 7$
 $Q_e = 40986$
 $L' = 1064.5714$
 $Fr = 0.53$
 Froehlich
 $y_s = 45.66$ ft. of Scour
 Hire
 $y_1 = 5.5$ ft., depth of flow at abutment
 $V_1 = 7.04$ velocity at abutment
 $L = 165$
 $Fr = 0.53$
 $y_s = 17.83$ ft. of Scour
 $L/y_1 = 30$ if L/y_1 is greater than 25 use HIRE equation

Total Scour at Pier = 7.52
 Total Scour at Abutment = 17.83
 Pier + Contraction
 Abutment + Contraction

Circuit Engineering District #8

Project No.: Kingfisher
 J/P No.: 29362(04)
 Date: 7/19/2016

Bridge No.: Overflow
 Calculated by: Tyler Schroder

Contraction Scour:

$Q_{500} =$	<u>40,923.18</u> cfs		
$K_U =$	<u>11.17</u>	$V_c = K_U Y^{1/6} D^{1/3}$	
$Y =$	<u>5.3</u> ft, Average depth of flow upstream of bridge	$V_c =$	<u>1.47</u> ft/s
$D =$	<u>0.001</u> ft, Particle size	$V = Q/(w * Y)$	
$w =$	<u> </u> ft, upstream channel width	$V =$	<u>#DIV/0!</u> ft/s
Use Clear-Water Scour because Case 3: Relief bridge over floodplain			
$D_{50} =$	<u>0.002</u> ft, median diameter of bed material	$D_m = 1.25 * D_{50}$	
$W =$	<u>276</u> ft, bridge width minus piers	$D_m =$	<u>0.0025</u> ft.
$Q =$	<u>3000</u> cfs, discharge through the bridge	$Y_2 = [(K_U * Q^2) / (D_m^{2/3} * W^2)]^{3/7}$	
$Ku =$	<u>0.0077</u>	$Y_2 =$	<u>5.32</u> ft.
		$Y_s = Y_2 - Y_o$	
		$Y_s =$	<u>0.02</u> ft. of Scour

Pier Scour:

$a =$	<u>4</u> ft, pier diameter	$Fr_1 = V_1 / (g * Y_1)^{0.5}$	
$V =$	<u>1.63</u> ft/s, approach velocity	$Fr_1 =$	<u>0.12</u>
$Y_1 =$	<u>5.3</u> ft, flow depth		
$K_1 =$	<u>1</u> Group of Cylinders = 1	if $S/a < 5.0$	
$K_2 =$	<u>1</u> Check Table 7.2 or equation	$K_2 =$	<u>1</u>
$K_3 =$	<u>1.1</u> Check Table 7.3	$Y_s =$	<u>3.97</u> ft. of Scour
$D_{95} =$	<u>0.001</u> ft		
$g =$	<u>32.2</u> ft/s ²		
$S =$	<u>15</u> ft, spacing of columns		
$L =$	<u>8</u> #piers * a		
$\theta =$	<u>0</u> Angle of Attack		

Abutment Scour:

$Y_a =$	<u>8</u> ft., average depth of flow on floodplain		
$L =$	<u>2655</u> ft., length of embankment normal to flow	$Fr =$	<u>0.10</u>
$A_e =$	<u>21240</u> ya * L		
$K_1 =$	<u>0.55</u> Check Table 8.1	Froehlich	
$K_2 =$	<u>1</u> ($\theta/90$) ¹³	$Y_s =$	<u>25.71</u> ft. of Scour
$V_e =$	<u>1.63</u>		
$Q_e =$	<u>22000</u>		
$L' =$	<u>1687.1166</u>		
		Hire	
$Y_1 =$	<u>6.3</u> ft., depth of flow at abutment	$Fr =$	<u>0.11</u>
$V_1 =$	<u>1.63</u> velocity at abutment		
$L =$	<u>2655</u>	$Y_s =$	<u>12.32</u> ft. of Scour

$L/Y_1 = 421.42857$ if L/Y_1 is greater than 25 use HIRE equation

Total Scour at Pier =	<u>3.99</u>	Pier + Contraction
Total Scour at Abutment =	<u>12.34</u>	Abutment + Contraction