



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Colorado State Office
2850 Youngfield Street
Lakewood, Colorado 80215-7210
www.co.blm.gov



In Reply Refer To:
7250 (CO-932)

Ms. Linda Bassi
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Ms. Bassi:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its recommendation for an instream flow water right on East Fork Turkey Creek, located in Water Division 2.

Location and Land Status. The East Fork Turkey Creek watershed originates on the east flank of Black Mountain, approximately 10 miles southwest of Colorado Springs. This reach begins at the headwaters and extends downstream to the confluence of East Fork Turkey Creek and West Fork Turkey Creek, a distance of approximately 3.0 miles. The BLM manages approximately 2.5 miles of this reach, while 0.5 miles are in private ownership.

Biological Summary. East Fork Turkey Creek is a cold-water, high gradient stream. The reach flows through a narrow canyon and is confined by bedrock in most locations. The stream generally has large-sized substrate, consisting of cobbles and small boulders. The stream has a good mix of pools, small riffles and runs.

Fisheries surveys have revealed a self-sustaining population of brook trout. Intensive macro-invertebrate surveys have not been conducted, but spot samples have revealed various species of mayfly, caddisfly and stonefly.

The riparian community is generally comprised of cottonwood, various willow species and alder. The riparian community is in very good condition and provides abundant shading and cover for fish habitat.

R2Cross Analysis. The BLM collected the following R2Cross data from East Fork Turkey Creek:

Cross Section Date	Discharge Rate	Top Width	Winter Flow Recommendation (meets 2 of 3 hydraulic criteria)	Summer Flow Recommendation (meets 3 of 3 hydraulic criteria)
05/27/2014 #1	0.63 cfs	5.09 feet	0.58 cfs	1.09 cfs
05/27/2014 #2	0.64 cfs	6.35 feet	0.59 cfs	1.60 cfs

Averages: 0.59 cfs 1.35 cfs

The BLM's analysis of this data, coordinated with Colorado Parks and Wildlife, indicates that the following flows are needed to protect the fishery and natural environment to a reasonable degree.

1.35 cubic feet per second is recommended during the warm weather period from May 1 to August 31. This recommendation is driven by the average velocity criteria. This creek is steep and has limited physical habitat so it is important to protect a flow rate that provides usable habitat in riffles when fish are completing critical life history functions during the warm weather months.

0.5 cubic feet per second is recommended during the fall period, from September 1 to November 30. This recommendation is driven by limited water availability. This flow rates meets the average depth and wetted perimeter criteria.

0.3 cubic feet per second is recommended during the winter period from December 1 through March 31. This flow rate should prevent pools from freezing, allowing the fish population to successfully overwinter. Even though the base flow in this creek is small, it is extremely consistent, allowing the fishery to persist.

0.6 cubic feet per second is recommended during the early portion of the snowmelt runoff period, from the April 1 to April 30. This flow rate meets the average depth and wetted perimeter criteria.

Water Availability. The BLM recommends relying upon two sources of data for water availability analysis. United State Geological Survey (USGS) Gage 07105945 (Rock Creek above Fort Carson Reservation, CO) measures flow from a watershed immediately to the north of East Fork Turkey Creek with very similar watershed characteristics. In addition, this gage is located on Rock Creek immediately as it exits the mountains, which provides a better estimate of mountain-influenced runoff. A basin apportionment analysis could be performed to derive flow rates for East Fork Turkey Creek. The BLM does not recommend reliance upon USGS Gage 07099215 (Turkey Creek near Fountain, CO). This gage is located adjacent to State Highway 115, after the creek exits the mountains and loses a very significant amount of flow to seepage.

115, after the creek exits the mountains and loses a very significant amount of flow to seepage. In addition, it appears that the gage may be influenced by diversion from the Strobel Ditch.

Streamstats should also be consulted. The Streamstats model produces similar estimates of baseflow as basin apportionment calculations of the Rock Creek gage.

The BLM does not recommend relying upon diversion records from the Strobel Ditch. This ditch appears to divert fairly infrequently, likely because of its junior priority within the Arkansas River basin.

The BLM is not aware of any water rights within or upstream from the proposed instream flow reach:

Relationship to Land Management Plans. The BLM's land use plan calls for East Fork Turkey Creek to be managed to maintain, restore or improve riparian conditions, such that proper functioning conditions are achieved. It also specifies that instream flow appropriations will be pursued on fishery streams to ensure sufficient flows rates for fisheries protection. Appropriation of an instream flow water right would assist BLM in long-term management of outstanding riparian values and important fishery values.

Data sheets, R2Cross output, fishery survey information and photographs of the cross section were included with BLM's draft recommendation in February 2015. We thank both Colorado Parks and Wildlife and the Colorado Water Conservation Board for their cooperation in this effort.

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

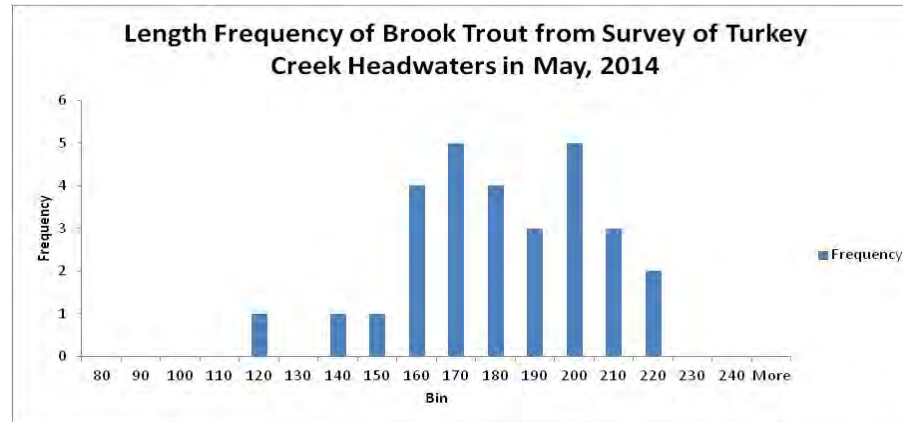
Sincerely,



Brian St. George
Deputy State Director
Resources and Fire

Cc: David Gilbert, Royal Gorge FO
Keith Berger, Royal Gorge FO

<u>HUC12</u>	<u>Description</u>	<u>SampleDate</u>	<u>SiteName</u>	<u>Location</u>	<u>Protocol</u>	<u>TotalCatch</u>	<u>CommonName</u>	<u>TotalEffort</u>	<u>EffortMetric</u>	<u>LengthRange</u>	<u>CPUE</u>
110200020701	Headwaters Turkey Cre	27-May-14	NULL	Upstream of Hwy 115 and gravel mine	TWO-PASS REMOVAL	29	BROOK TROUT	2	PASS	115 - 215	NULL
110200020702	Upper Turkey Creek	9-Nov-11	Fort Carson #50 in TA 38	Fort Carson #50 in TA 38	CPUE	97	CENTRAL STONEROLLER	2	NET	59 - 103	48.50 / NET
110200020702	Upper Turkey Creek	9-Nov-11	TA 38 North of Two Track intersect	TA 38 North of Two Track intersect	PRESENCE/ABSENCE	NULL	NULL	1	PASS	NULL	NULL
110200020704	Lower Turkey Creek	9-Nov-11	Downstream Dam Outlet Teller Reservoir	BLW Teller Reservoir Dam Outlet	PRESENCE/ABSENCE	NULL	NULL	1	PASS	NULL	NULL
110200020704	Lower Turkey Creek	9-Nov-11	AT CARRIZO SPRINGS	ABV W Carrizo Springs Ave	PRESENCE/ABSENCE	NULL	NULL	1	PASS	NULL	NULL



COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME: East Fork Turkey Creek
XS LOCATION: 600 ft upst fr conf with West Fork
XS NUMBER: 2

DATE: 27-May-14
OBSERVERS: R. Smith, D. Gilbert

1/4 SEC: NW
SECTION: 19
TWP: 16S
RANGE: 67W
PM: Sixth

COUNTY: El Paso
WATERSHED: Arkansas R.
DIVISION: 2
DOW CODE: 31611

USGS MAP: 0
USFS MAP: 0

SUPPLEMENTAL DATA

*** NOTE ***

Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT: 0.0106
TENSION: 99999

CHANNEL PROFILE DATA

SLOPE: 0.042

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr conf with West Fork
 XS NUMBER: 2

DATA POINTS= 20

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE		VERT	WATER	
	DIST	DEPTH	DEPTH	VEL
LS	0.00	8.25		
1 G	0.40	8.66		
	1.40	8.90		
	2.00	8.90		
W	2.40	8.95	0.00	0.00
	2.70	9.25	0.30	0.93
	3.00	9.30	0.35	0.27
	3.30	9.20	0.25	1.20
	3.60	9.25	0.30	1.18
	3.90	9.18	0.23	0.95
	4.20	9.18	0.23	0.12
	4.70	9.17	0.22	1.27
	5.00	9.16	0.21	1.12
	5.30	9.10	0.15	0.61
	5.60	9.08	0.13	0.79
	5.90	9.06	0.11	0.30
W	6.20	8.95	0.00	0.00
	6.70	8.70		
1 G	6.80	8.62		
RS	8.40	8.34		

TOTALS -----

WETTED	WATER	AREA	Q	% Q
PERIM.	DEPTH	(Am)	(Qm)	CELL
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.42	0.30	0.09	0.08	13.2%
0.30	0.35	0.11	0.03	4.5%
0.32	0.25	0.08	0.09	14.2%
0.30	0.30	0.09	0.11	16.7%
0.31	0.23	0.07	0.07	10.3%
0.30	0.23	0.09	0.01	1.7%
0.50	0.22	0.09	0.11	17.6%
0.30	0.21	0.06	0.07	11.1%
0.31	0.15	0.05	0.03	4.3%
0.30	0.13	0.04	0.03	4.8%
0.30	0.11	0.03	0.01	1.6%
0.32		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%

3.98	0.35	0.79	0.64	100.0%
(Max.)				

Manning's n = 0.1285
 Hydraulic Radius= 0.19804729

STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr conf with West Fork
 XS NUMBER: 2

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	0.79	0.79	0.0%
8.70	0.79	2.09	165.5%
8.72	0.79	1.97	150.1%
8.74	0.79	1.85	135.0%
8.76	0.79	1.74	120.3%
8.78	0.79	1.62	105.8%
8.80	0.79	1.51	91.7%
8.82	0.79	1.40	77.8%
8.84	0.79	1.30	64.3%
8.86	0.79	1.19	51.1%
8.88	0.79	1.09	38.2%
8.90	0.79	0.99	25.7%
8.91	0.79	0.95	20.3%
8.92	0.79	0.91	15.0%
8.93	0.79	0.87	9.9%
8.94	0.79	0.83	4.9%
8.95	0.79	0.79	0.0%
8.96	0.79	0.75	-4.8%
8.97	0.79	0.71	-9.5%
8.98	0.79	0.68	-14.2%
8.99	0.79	0.64	-18.9%
9.00	0.79	0.60	-23.5%
9.02	0.79	0.53	-32.6%
9.04	0.79	0.46	-41.4%
9.06	0.79	0.39	-50.1%
9.08	0.79	0.33	-58.3%
9.10	0.79	0.27	-65.7%
9.12	0.79	0.22	-72.5%
9.14	0.79	0.17	-79.0%
9.16	0.79	0.12	-85.2%
9.18	0.79	0.08	-90.4%
9.20	0.79	0.05	-93.5%

WATERLINE AT ZERO

AREA ERROR = 8.950

STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr conf with West Fork
 XS NUMBER: 2

Constant Manning's n

GL = lowest Grassline elevation corrected for sag

STAGING TABLE

WL = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	8.66	6.35	0.37	0.64	2.34	6.64	100.0%	0.35	2.78	1.18
	8.70	6.13	0.34	0.60	2.09	6.40	96.5%	0.33	2.36	1.13
	8.75	5.82	0.31	0.55	1.80	6.08	91.5%	0.30	1.89	1.05
	8.80	5.52	0.27	0.50	1.51	5.75	86.6%	0.26	1.47	0.97
	8.85	5.21	0.24	0.45	1.24	5.42	81.7%	0.23	1.10	0.89
	8.90	4.30	0.23	0.40	0.99	4.50	67.8%	0.22	0.86	0.86
WL	8.95	3.80	0.21	0.35	0.79	3.98	60.0%	0.20	0.64	0.81
	9.00	3.61	0.17	0.30	0.60	3.77	56.8%	0.16	0.42	0.70
	9.05	3.43	0.12	0.25	0.43	3.55	53.5%	0.12	0.25	0.58
	9.10	2.75	0.10	0.20	0.27	2.85	42.9%	0.09	0.13	0.49
	9.15	2.45	0.06	0.15	0.14	2.53	38.0%	0.06	0.05	0.35
	9.20	1.16	0.04	0.10	0.05	1.22	18.3%	0.04	0.01	0.29
	9.25	0.45	0.02	0.05	0.01	0.46	7.0%	0.02	0.00	0.20

STREAM NAME: East Fork Turkey Creek
XS LOCATION: 600 ft upst fr conf with West Fork
XS NUMBER: 2

SUMMARY SHEET

MEASURED FLOW (Qm)= 0.64 cfs
CALCULATED FLOW (Qc)= 0.64 cfs
(Qm-Qc)/Qm * 100 = 0.0 %

MEASURED WATERLINE (WLm)= 8.95 ft
CALCULATED WATERLINE (WLc)= 8.95 ft
(WLm-WLc)/WLm * 100 = 0.0 %

MAX MEASURED DEPTH (Dm)= 0.35 ft
MAX CALCULATED DEPTH (Dc)= 0.35 ft
(Dm-Dc)/Dm * 100 = 0.0 %

MEAN VELOCITY= 0.81 ft/sec
MANNING'S N= 0.128
SLOPE= 0.042 ft/ft

.4 * Qm = 0.3 cfs
2.5 * Qm= 1.6 cfs

RECOMMENDED INSTREAM FLOW:
=====

FLOW (CFS)	PERIOD
=====	=====
_____	_____
_____	_____
_____	_____
_____	_____

RATIONALE FOR RECOMMENDATION:
=====

RECOMMENDATION BY: AGENCY..... DATE:.....
CWCB REVIEW BY: DATE:.....

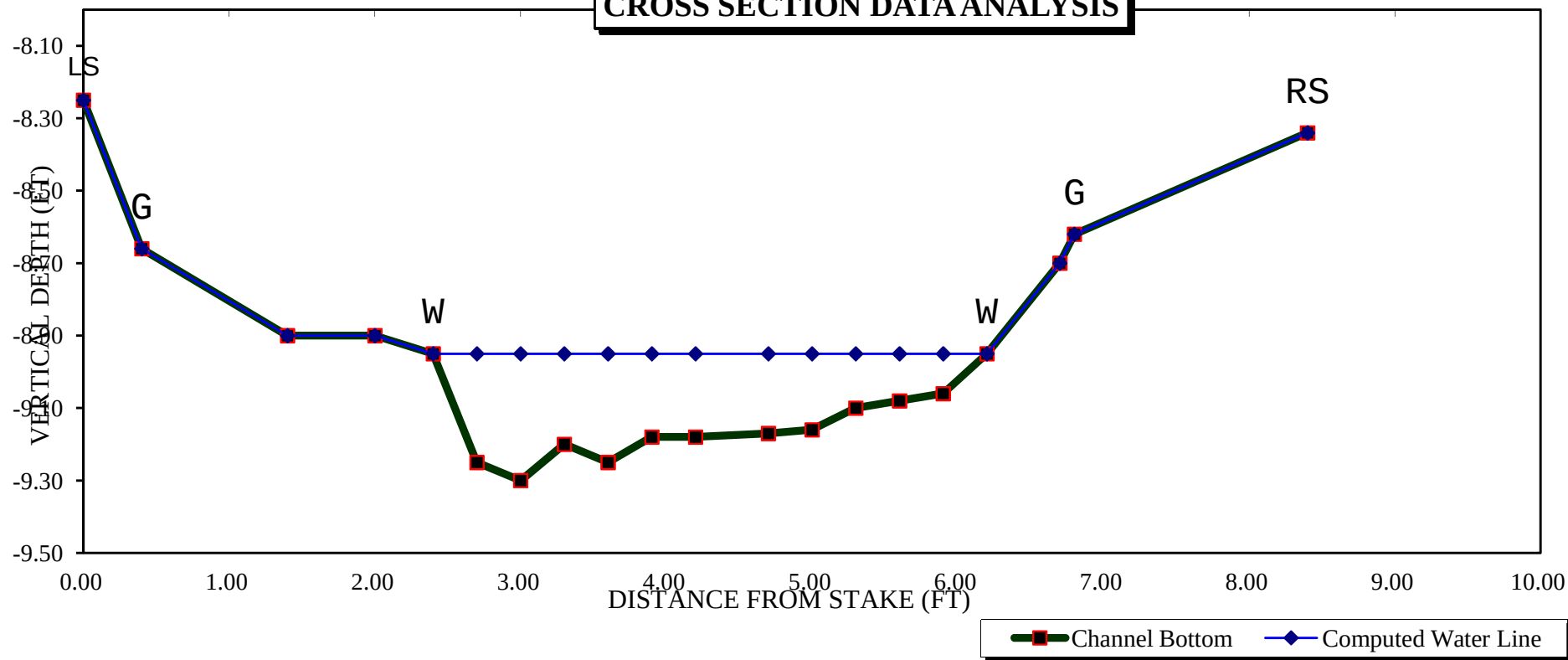
STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr conf with West Fork
 XS NUMBER: 2 Jarrett Variable Manning's n Correction Applied

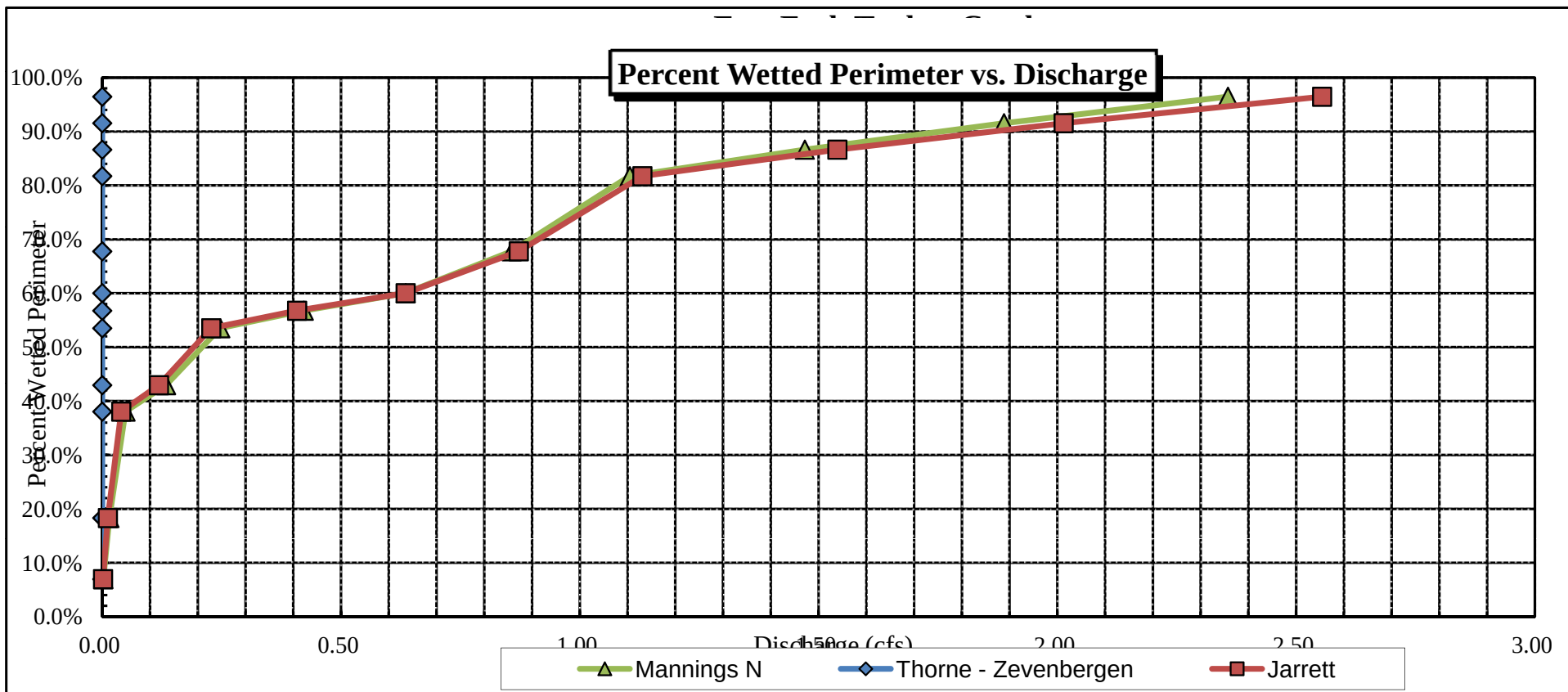
GL = lowest Grassline elevation corrected for sag

STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

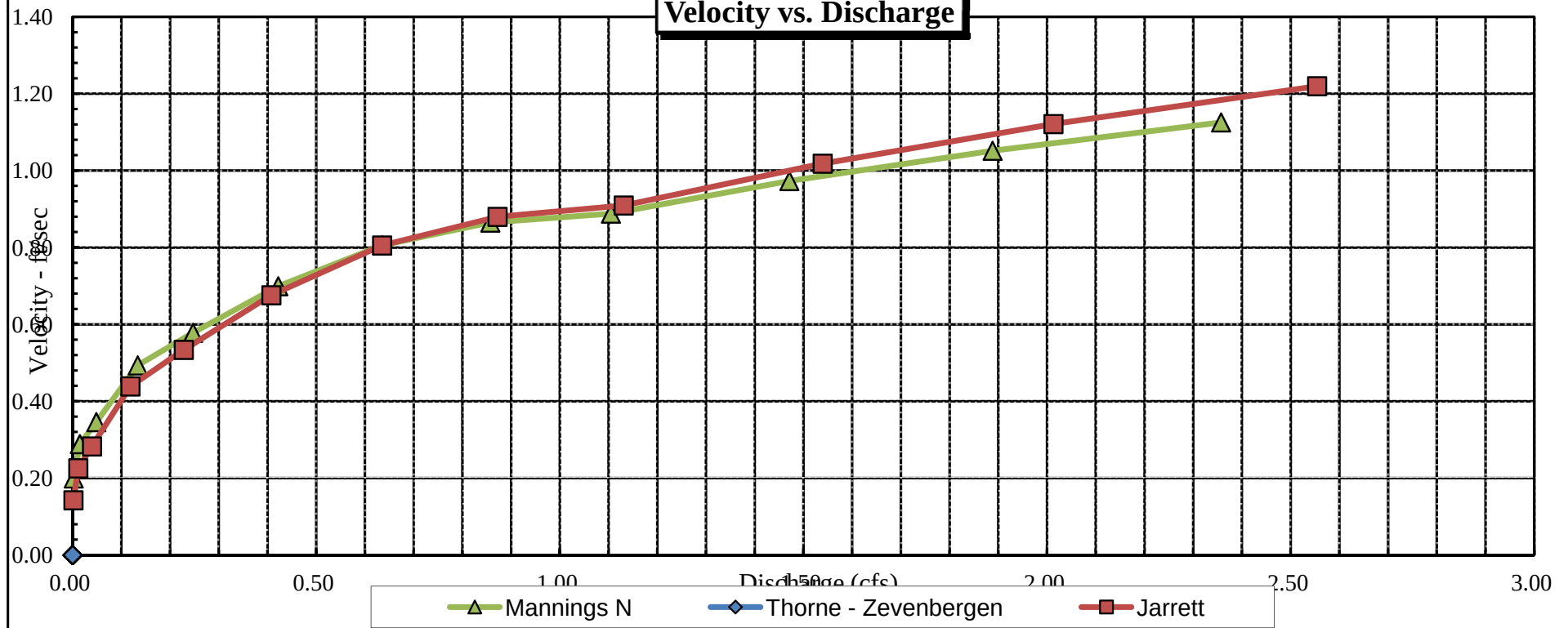
	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	8.66	6.35	0.37	0.64	2.34	6.64	100.0%	0.35	3.05	1.30
	8.70	6.13	0.34	0.60	2.09	6.40	96.5%	0.33	2.55	1.22
	8.75	5.82	0.31	0.55	1.80	6.08	91.5%	0.30	2.01	1.12
	8.80	5.52	0.27	0.50	1.51	5.75	86.6%	0.26	1.54	1.02
	8.85	5.21	0.24	0.45	1.24	5.42	81.7%	0.23	1.13	0.91
	8.90	4.30	0.23	0.40	0.99	4.50	67.8%	0.22	0.87	0.88
WL	8.95	3.80	0.21	0.35	0.79	3.98	60.0%	0.20	0.64	0.81
	9.00	3.61	0.17	0.30	0.60	3.77	56.8%	0.16	0.41	0.68
	9.05	3.43	0.12	0.25	0.43	3.55	53.5%	0.12	0.23	0.53
	9.10	2.75	0.10	0.20	0.27	2.85	42.9%	0.09	0.12	0.44
	9.15	2.45	0.06	0.15	0.14	2.53	38.0%	0.06	0.04	0.28
	9.20	1.16	0.04	0.10	0.05	1.22	18.3%	0.04	0.01	0.23
	9.25	0.45	0.02	0.05	0.01	0.46	7.0%	0.02	0.00	0.14

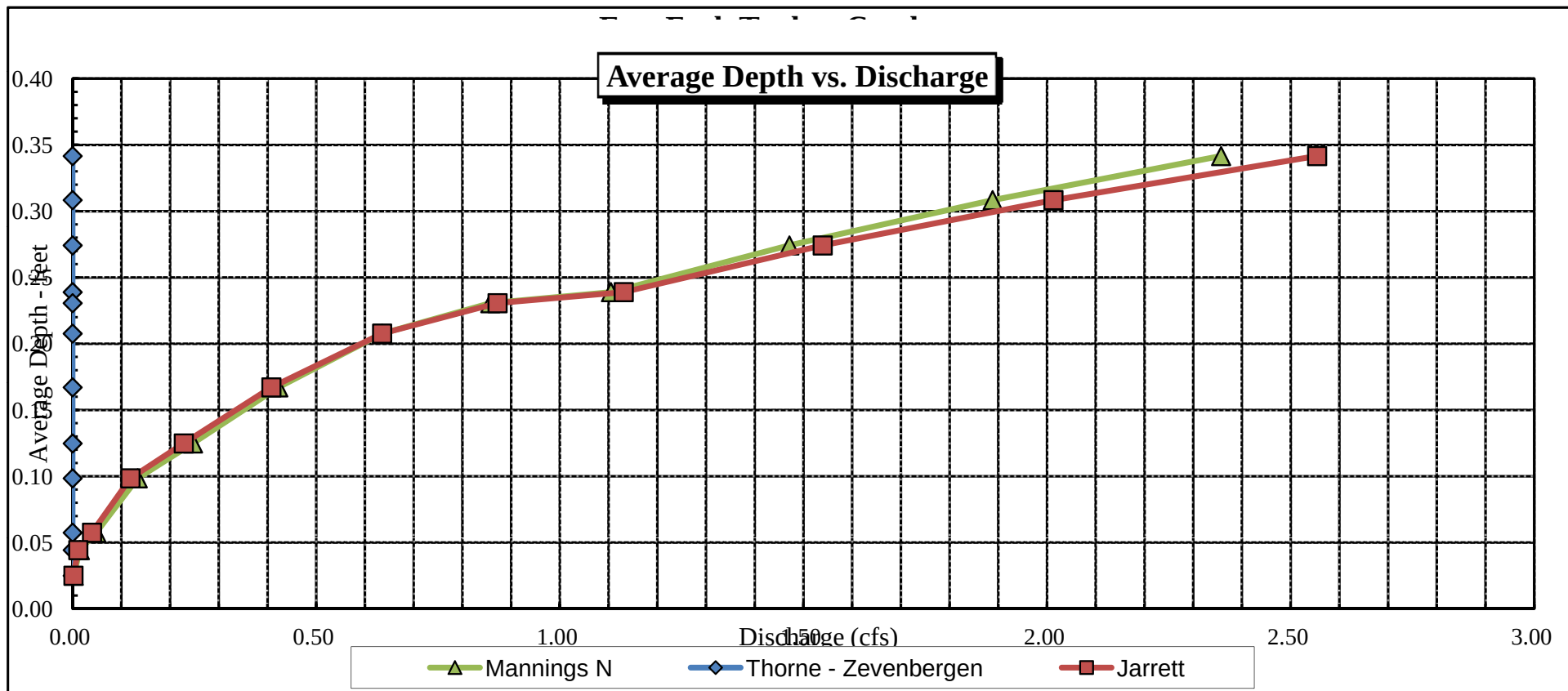
CROSS SECTION DATA ANALYSIS

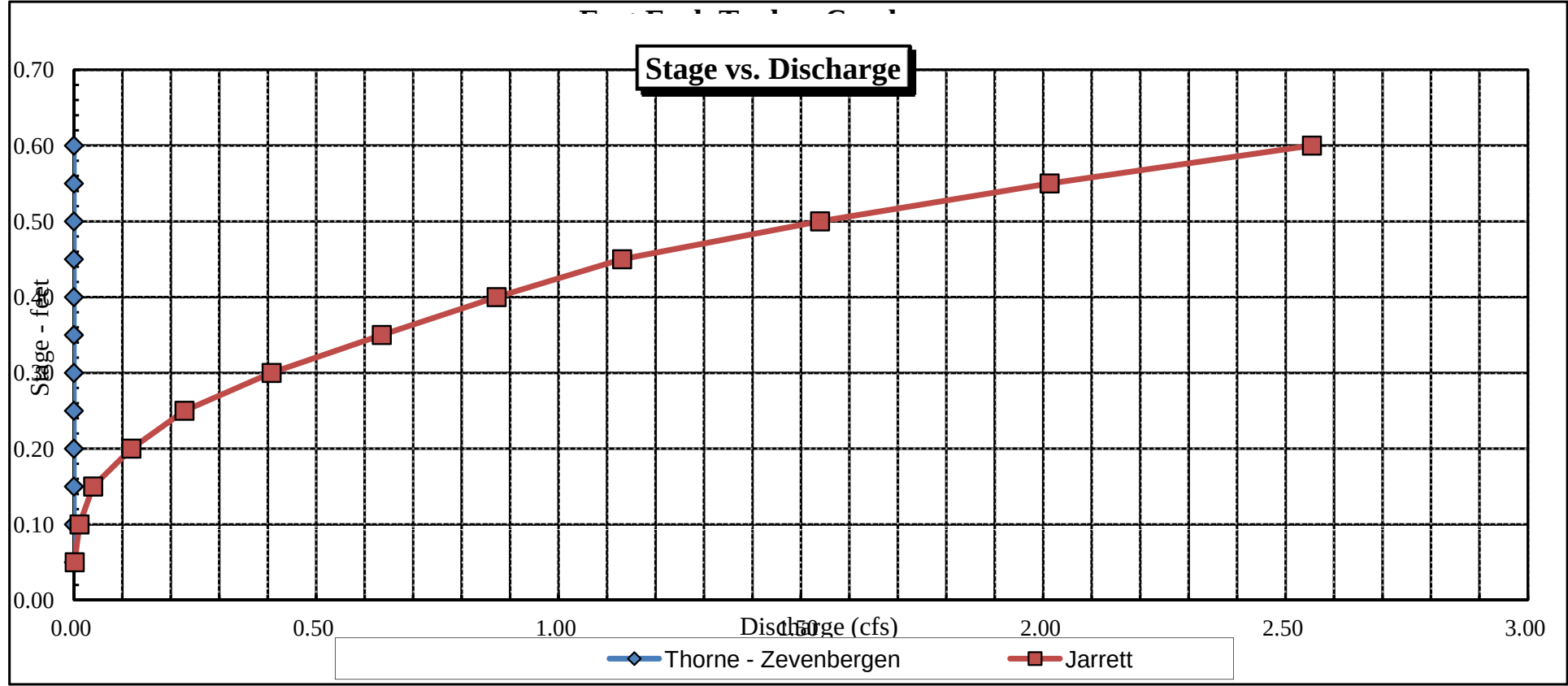




Velocity vs. Discharge







COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME: East Fork Turkey Creek
XS LOCATION: 600 ft upst fr confl with West Fork
XS NUMBER: 1

DATE: 27-May-14
OBSERVERS: R. Smith, D. Gilbert

1/4 SEC: NW
SECTION: 19
TWP: 16S
RANGE: 67W
PM: Sixth

COUNTY: El Paso
WATERSHED: Arkansas River
DIVISION: 2
DOW CODE: 31611

USGS MAP: 0
USFS MAP: 0

SUPPLEMENTAL DATA

*** NOTE ***

Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT: 0.0106
TENSION: 99999

CHANNEL PROFILE DATA

SLOPE: 0.042

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr confl with West Fork
 XS NUMBER: 1

DATA POINTS= 22

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL
LS	0.00	5.72		
	1.00	6.10		
	1.30	7.49		
1 G	3.00	7.68		
W	3.70	8.17	0.00	0.00
	4.00	8.53	0.36	0.17
	4.30	8.44	0.27	0.31
	4.60	8.50	0.33	0.75
	4.90	8.50	0.33	1.60
	5.20	8.48	0.31	1.83
	5.50	8.42	0.25	1.09
	5.80	8.40	0.23	0.68
	6.10	8.34	0.17	0.82
	6.40	8.26	0.09	0.28
	6.70	8.26	0.09	0.12
	7.00	8.26	0.09	0.00
W	7.40	8.17	0.00	0.00
	7.60	7.90		
1 G	8.20	7.63		
	8.50	7.55		
	11.30	7.58		
RS	11.70	5.94		

WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.47	0.36	0.11	0.02	2.9%
0.31	0.27	0.08	0.03	4.0%
0.31	0.33	0.10	0.07	11.8%
0.30	0.33	0.10	0.16	25.2%
0.30	0.31	0.09	0.17	27.1%
0.31	0.25	0.08	0.08	13.0%
0.30	0.23	0.07	0.05	7.5%
0.31	0.17	0.05	0.04	6.7%
0.31	0.09	0.03	0.01	1.2%
0.30	0.09	0.03	0.00	0.5%
0.30	0.09	0.03	0.00	0.0%
0.41		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%

TOTALS -----

3.92 0.36 0.76 0.63 100.0%
 (Max.)

Manning's n = 0.1236
 Hydraulic Radius= 0.19393272

STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr confl with West Fork
 XS NUMBER: 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	0.76	0.76	0.0%
7.92	0.76	1.75	130.5%
7.94	0.76	1.67	119.4%
7.96	0.76	1.59	108.5%
7.98	0.76	1.50	97.6%
8.00	0.76	1.42	86.8%
8.02	0.76	1.34	76.2%
8.04	0.76	1.26	65.7%
8.06	0.76	1.18	55.2%
8.08	0.76	1.10	44.9%
8.10	0.76	1.02	34.8%
8.12	0.76	0.95	24.7%
8.13	0.76	0.91	19.7%
8.14	0.76	0.87	14.7%
8.15	0.76	0.83	9.8%
8.16	0.76	0.80	4.9%
8.17	0.76	0.76	0.0%
8.18	0.76	0.72	-4.8%
8.19	0.76	0.69	-9.6%
8.20	0.76	0.65	-14.3%
8.21	0.76	0.62	-18.9%
8.22	0.76	0.58	-23.5%
8.24	0.76	0.51	-32.4%
8.26	0.76	0.45	-41.0%
8.28	0.76	0.40	-47.8%
8.30	0.76	0.35	-54.3%
8.32	0.76	0.30	-60.6%
8.34	0.76	0.25	-66.7%
8.36	0.76	0.21	-72.4%
8.38	0.76	0.17	-77.9%
8.40	0.76	0.13	-83.1%
8.42	0.76	0.09	-87.7%

WATERLINE AT ZERO

AREA ERROR = 8.170

STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr confl with West Fork
 XS NUMBER: 1

Constant Manning's n

GL = lowest Grassline elevation corrected for sag

STAGING TABLE

WL = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	7.68	5.09	0.56	0.85	2.87	5.65	100.0%	0.51	4.50	1.57
	7.72	4.94	0.54	0.81	2.67	5.48	97.0%	0.49	4.07	1.52
	7.77	4.76	0.51	0.76	2.43	5.27	93.3%	0.46	3.56	1.47
	7.82	4.58	0.48	0.71	2.19	5.06	89.6%	0.43	3.09	1.41
	7.87	4.40	0.45	0.66	1.97	4.85	85.9%	0.41	2.66	1.35
	7.92	4.24	0.41	0.61	1.75	4.67	82.7%	0.38	2.25	1.28
	7.97	4.13	0.37	0.56	1.54	4.52	80.0%	0.34	1.86	1.20
	8.02	4.03	0.33	0.51	1.34	4.37	77.4%	0.31	1.50	1.12
	8.07	3.92	0.29	0.46	1.14	4.22	74.7%	0.27	1.18	1.03
	8.12	3.81	0.25	0.41	0.95	4.07	72.1%	0.23	0.88	0.93
WL	8.17	3.70	0.21	0.36	0.76	3.92	69.4%	0.19	0.63	0.83
	8.22	3.44	0.17	0.31	0.58	3.63	64.2%	0.16	0.42	0.73
	8.27	2.58	0.16	0.26	0.42	2.74	48.6%	0.15	0.30	0.71
	8.32	2.35	0.13	0.21	0.30	2.48	44.0%	0.12	0.18	0.60
	8.37	2.08	0.09	0.16	0.19	2.19	38.7%	0.09	0.09	0.48
	8.42	1.59	0.06	0.11	0.09	1.67	29.5%	0.06	0.03	0.36
	8.47	1.05	0.02	0.06	0.02	1.09	19.3%	0.02	0.00	0.20
	8.52	0.04	0.00	0.01	0.00	0.05	0.8%	0.00	0.00	0.07

STREAM NAME: East Fork Turkey Creek
XS LOCATION: 600 ft upst fr confl with West Fork
XS NUMBER: 1

SUMMARY SHEET

MEASURED FLOW (Qm)= 0.63 cfs
CALCULATED FLOW (Qc)= 0.63 cfs
(Qm-Qc)/Qm * 100 = 0.0 %

MEASURED WATERLINE (WLm)= 8.17 ft
CALCULATED WATERLINE (WLc)= 8.17 ft
(WLm-WLc)/WLm * 100 = 0.0 %

MAX MEASURED DEPTH (Dm)= 0.36 ft
MAX CALCULATED DEPTH (Dc)= 0.36 ft
(Dm-Dc)/Dm * 100 = 0.0 %

MEAN VELOCITY= 0.83 ft/sec
MANNING'S N= 0.124
SLOPE= 0.042 ft/ft

.4 * Qm = 0.3 cfs
2.5 * Qm= 1.6 cfs

RECOMMENDED INSTREAM FLOW:
=====

FLOW (CFS)	PERIOD
=====	=====
_____	_____
_____	_____
_____	_____
_____	_____

RATIONALE FOR RECOMMENDATION:
=====

RECOMMENDATION BY: AGENCY..... DATE:.....
CWCB REVIEW BY: DATE:.....

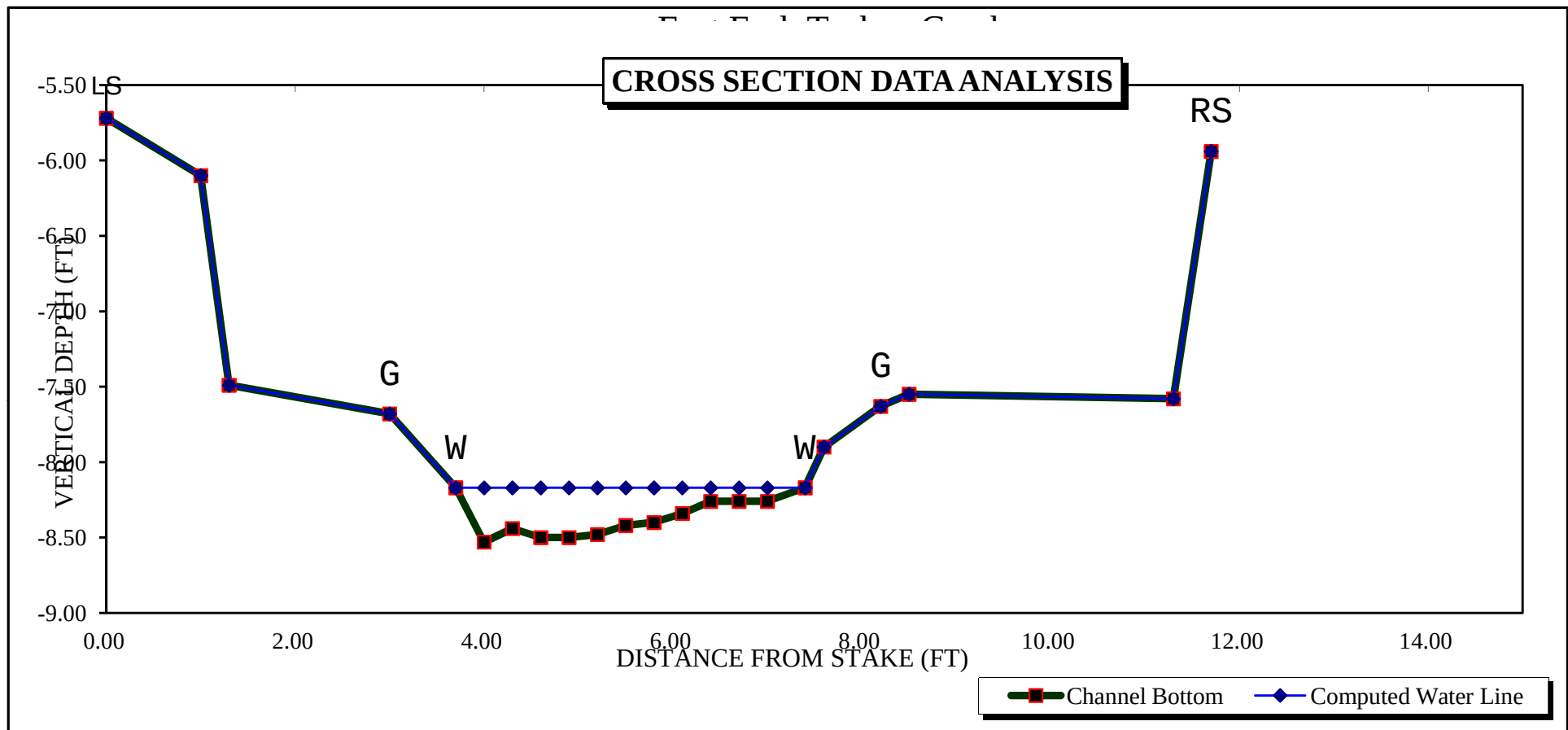
STREAM NAME: East Fork Turkey Creek
 XS LOCATION: 600 ft upst fr confl with West Fork
 XS NUMBER: 1 Jarrett Variable Manning's n Correction Applied

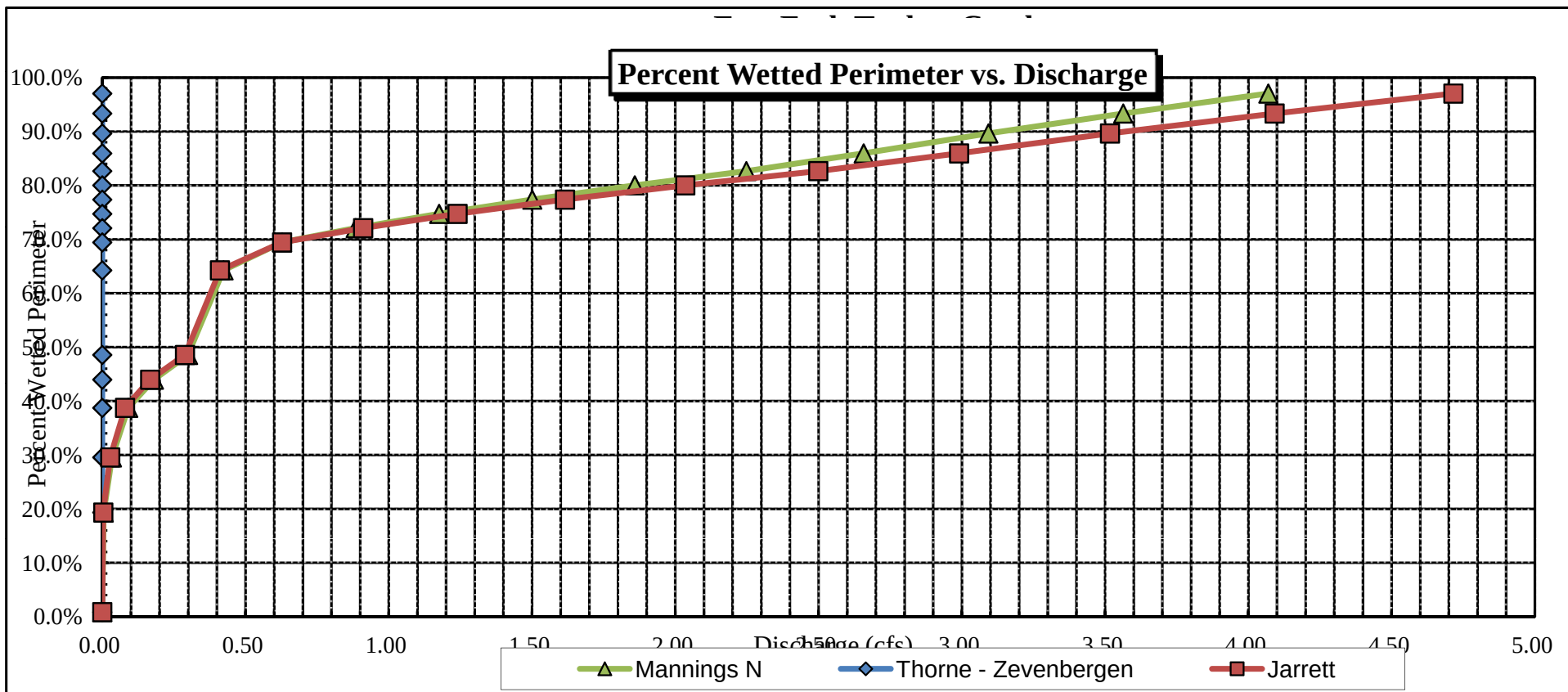
GL = lowest Grassline elevation corrected for sag

STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

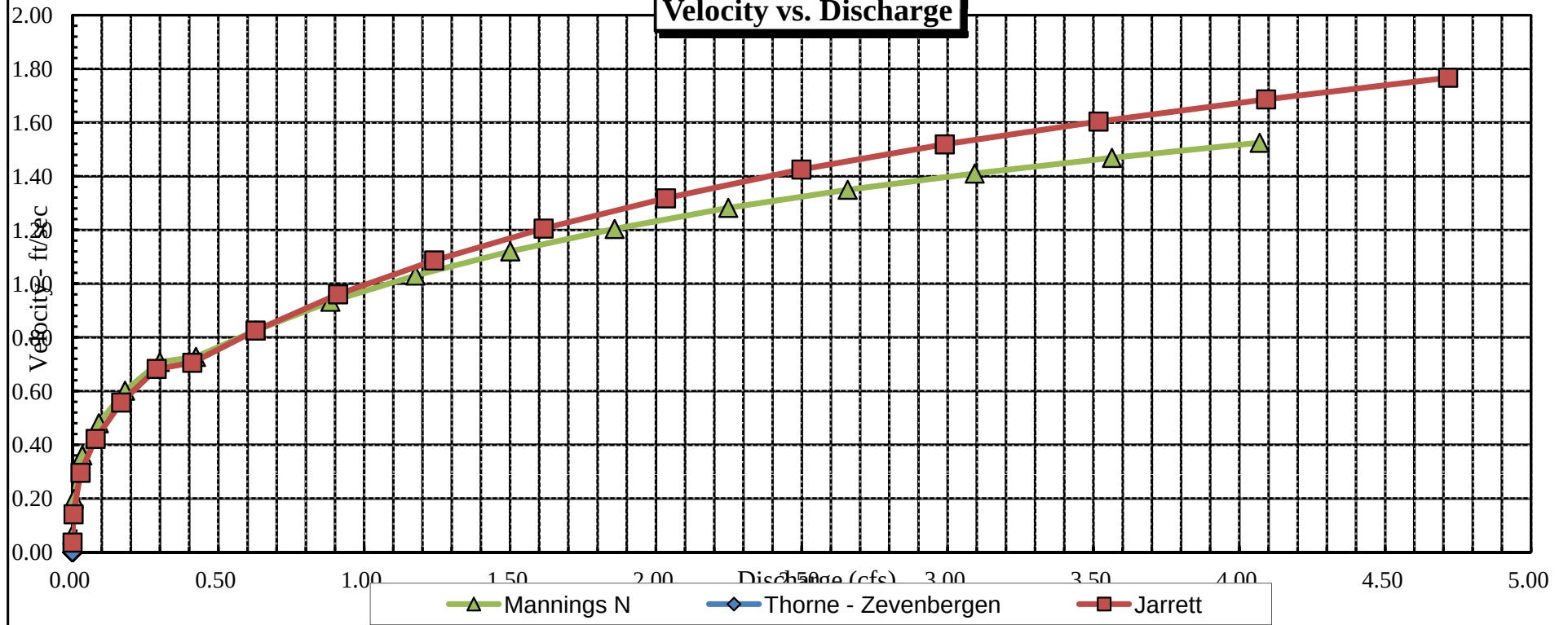
	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	7.68	5.09	0.56	0.85	2.87	5.65	100.0%	0.51	5.25	1.83
	7.72	4.94	0.54	0.81	2.67	5.48	97.0%	0.49	4.72	1.77
	7.77	4.76	0.51	0.76	2.43	5.27	93.3%	0.46	4.09	1.69
	7.82	4.58	0.48	0.71	2.19	5.06	89.6%	0.43	3.52	1.60
	7.87	4.40	0.45	0.66	1.97	4.85	85.9%	0.41	2.99	1.52
	7.92	4.24	0.41	0.61	1.75	4.67	82.7%	0.38	2.50	1.43
	7.97	4.13	0.37	0.56	1.54	4.52	80.0%	0.34	2.03	1.32
	8.02	4.03	0.33	0.51	1.34	4.37	77.4%	0.31	1.61	1.21
	8.07	3.92	0.29	0.46	1.14	4.22	74.7%	0.27	1.24	1.09
	8.12	3.81	0.25	0.41	0.95	4.07	72.1%	0.23	0.91	0.96
WL	8.17	3.70	0.21	0.36	0.76	3.92	69.4%	0.19	0.63	0.83
	8.22	3.44	0.17	0.31	0.58	3.63	64.2%	0.16	0.41	0.71
	8.27	2.58	0.16	0.26	0.42	2.74	48.6%	0.15	0.29	0.68
	8.32	2.35	0.13	0.21	0.30	2.48	44.0%	0.12	0.17	0.56
	8.37	2.08	0.09	0.16	0.19	2.19	38.7%	0.09	0.08	0.42
	8.42	1.59	0.06	0.11	0.09	1.67	29.5%	0.06	0.03	0.30
	8.47	1.05	0.02	0.06	0.02	1.09	19.3%	0.02	0.00	0.14
	8.52	0.04	0.00	0.01	0.00	0.05	0.8%	0.00	0.00	0.04

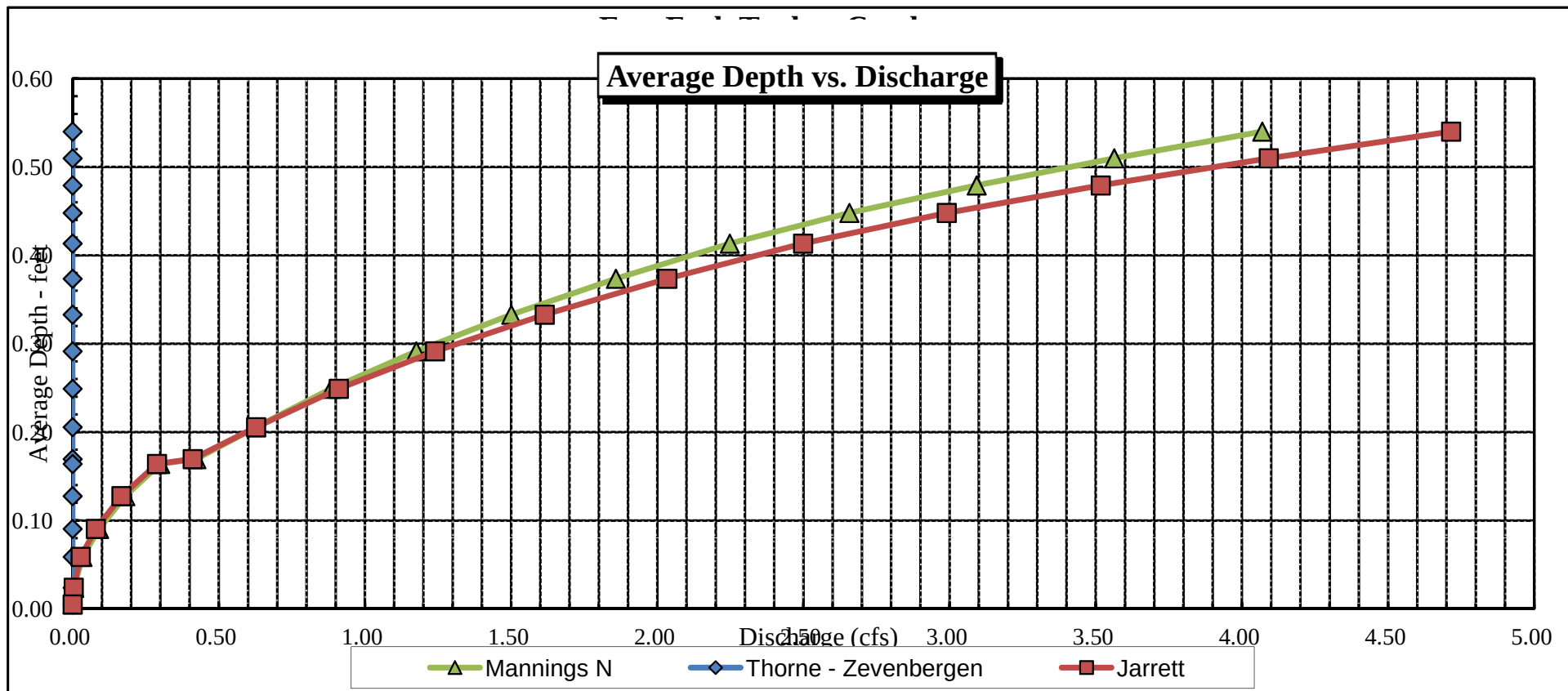
CROSS SECTION DATA ANALYSIS

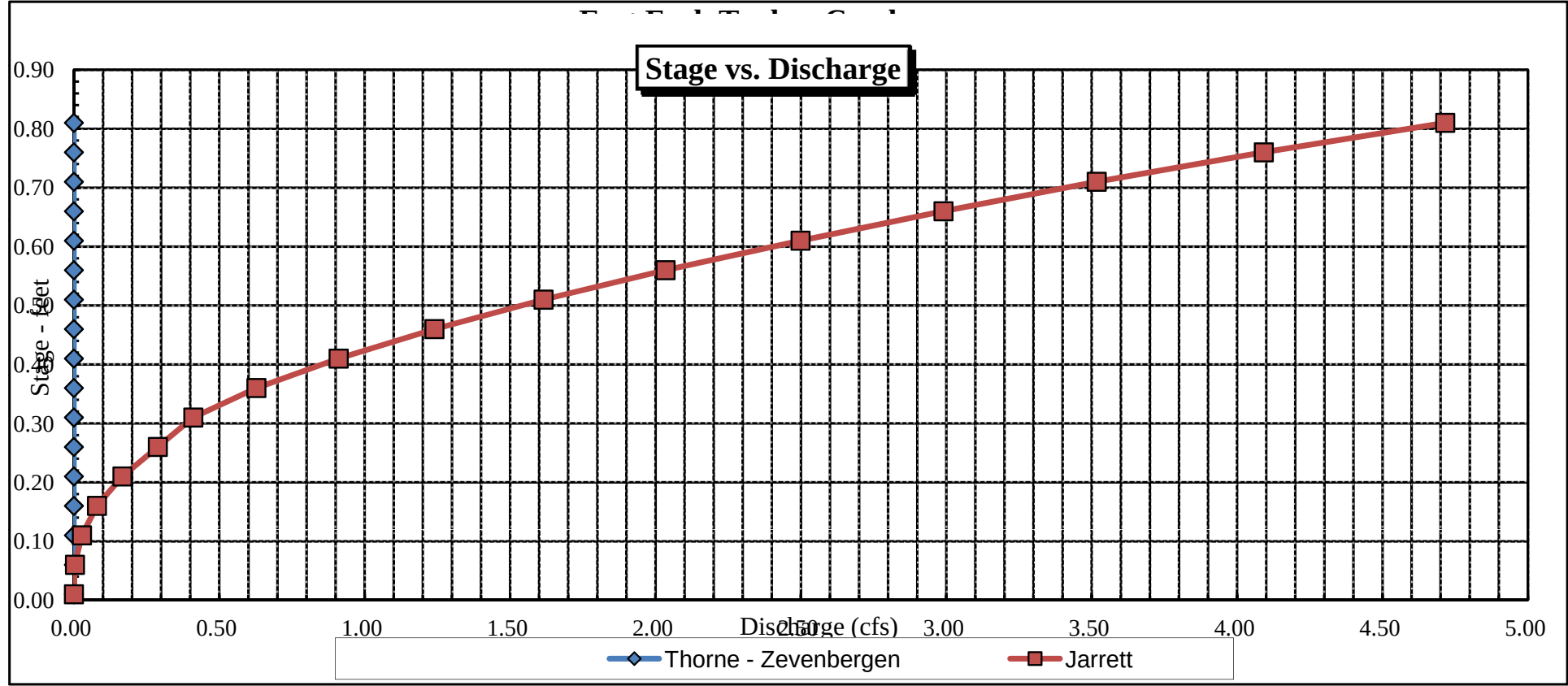




Velocity vs. Discharge







DISCHARGE/CROSS SECTION NOTES

STREAM NAME: East Fork Turkey Creek						CROSS-SECTION NO.: _____	DATE: 5-77-14	SHEET ____ OF ____				
BEGINNING OF MEASUREMENT			EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE)		LEFT / RIGHT	Gage Reading: _____ ft	TIME: 11:55 am					
Features	Stake Grassline (S) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec)		Area (ft ²)	Discharge (cfs)
									At Point	Mean in Vertical		
	LS	0.0		8.25								
	G	0.4		8.60								
		1.4		8.90								
		2.0		8.90								
	W	2.4		8.75								
		2.7		9.25	0.30					0.93		
		3.0		9.30	0.35					0.27		
		3.3		9.20	0.25					1.20		
		3.6		9.25	0.30					1.18		
		3.9		9.18	0.23					0.95		
	Note ↓	4.2		9.18	0.23					0.12		
	d.f.c. ↓	4.7		9.17	0.22					1.27		
		5.0		9.16	0.21					1.12		
		5.3		9.10	0.15					0.61		
		5.6		9.08	0.13					0.79		
		5.9		9.06	0.11					0.30		
	W	6.2		8.95						0.00		
		6.7		8.70								
	G	6.8		8.62								
	RS	8.4		8.34								
TOTALS:												
End of Measurement		Time:		Gage Reading: _____ ft		CALCULATIONS PERFORMED BY:			CALCULATIONS CHECKED BY:			



LOCATION INFORMATION

STREAM NAME:		East Fork Turkey Creek				CROSS-SECTION NO.:		1	
CROSS-SECTION LOCATION:		600 ft. upstream from confluence with West Fork							
DATE:		5-27-14		OBSERVERS:		R. Smith, D. Gilbert			
LEGAL DESCRIPTION		1/4 SECTION:		SECTION:		TOWNSHIP:		RANGE:	
		NW		19		16 N 6 S		67 E 1/4 W	
COUNTY:		WATERSHED:		WATER DIVISION:		DOW WATER CODE:			
El Paso		Arkansas		2		31611			
MAP(S):		USGS:							
		USFS:		GPS zone 13 0505687 4277266					

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION:		YES / NO	METER TYPE: M-M						
METER NUMBER:		DATE RATED:		CALIB/SPIN:	sec	TAPE WEIGHT:	lbs/foot	TAPE TENSION:	lbs
CHANNEL BED MATERIAL SIZE RANGE: sand to 2-foot boulders					PHOTOGRAPHS TAKEN (YES/NO)		NUMBER OF PHOTOGRAPHS: 3		

CHANNEL PROFILE DATA

STATION		DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗	Tape @ Stake LB	0.0	Surveyed
⊗	Tape @ Stake RB	0.0	Surveyed
①	WS @ Tape LB/RB	0.0	8.17/8.17
②	WS Upstream	9.0'	7.89
③	WS Downstream	14.0'	8.85
SLOPE	0.96/23.0' = 0.042		

S E C T I O N

LEGEND:

Stake ⊗

Station ①

Photo ◇ →

Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO	DISTANCE ELECTROFISHED: _____ ft	FISH CAUGHT: YES/NO	WATER CHEMISTRY SAMPLED: YES/NO														
LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)																	
SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL
AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:																	
water boatman, damselfly, mayfly, caddisfly, stone fly																	

COMMENTS

Temp = 130°C
pH = 7.6
Cond = 122

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: <u>East Fork Turkey Creek</u>				CROSS-SECTION NO.: <u>1</u>		DATE: <u>5-27-14</u>		SHEET <u> </u> OF <u> </u>				
BEGINNING OF MEASUREMENT			EDGE OF WATER LOOKING DOWNSTREAM: <u>LEFT / RIGHT</u>			Gage Reading: <u> </u> ft		TIME: <u>11:35 am</u>				
Features	Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec)		Area (ft ²)	Discharge (cfs)
									At Point	Mean in Vertical		
	LS	0.0		5.72								
		1.0		6.10								
		1.3		7.49								
	G	3.0		7.68								
	W	3.7		8.17								
		4.0		8.53	.36					0.17		
		4.3		8.44	.27					0.31		
		4.6		8.50	.33					0.75		
		4.9		8.50	.33					1.60		
		5.2		8.48	.31					1.83		
		5.5		8.42	.25					1.09		
		5.8		8.40	.23					0.68		
		6.1		8.34	.17					0.82		
		6.4		8.26	.09					0.28		
		6.7		8.26	.09					0.12		
		7.0		8.26	.09					0.00		
	W	7.4		8.17						0.00		
		7.6		7.90								
	G	8.2		7.63								
		8.5		7.55								
		11.3		7.58								
	RS	11.7		5.94								
TOTALS:												
End of Measurement Time: Gage Reading: ft CALCULATIONS PERFORMED BY: CALCULATIONS CHECKED BY:												



Discharge Measurement Summary

Date Generated: Wed Nov 18 2015

File Information

File Name EFTURCNM.001.WAD
Start Date and Time 2015/09/22 13:57:39

Site Details

Site Name E FRK TURKEY CR N MT
Operator(s) BRIAN EPSTEIN

System Information

Sensor Type FlowTracker
Serial # P2354
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	3.7%
Velocity	2.3%	7.4%
Width	0.2%	0.2%
Method	2.4%	-
# Stations	4.2%	-
Overall	5.5%	8.3%

Summary

Averaging Int. 40 # Stations 12
Start Edge REW Total Width 2.900
Mean SNR 31.2 dB Total Area 0.688
Mean Temp 56.42 °F Mean Depth 0.237
Disch. Equation Mid-Section Mean Velocity 0.2546
Total Discharge 0.1752

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:57	3.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	13:57	3.80	0.6	0.420	0.6	0.168	0.1404	1.00	0.1404	0.105	0.0147	8.4
2	13:59	4.00	0.6	0.250	0.6	0.100	0.2205	1.00	0.2205	0.050	0.0110	6.3
3	14:00	4.20	0.6	0.250	0.6	0.100	0.3110	1.00	0.3110	0.050	0.0156	8.9
4	14:00	4.40	0.6	0.250	0.6	0.100	0.4068	1.00	0.4068	0.050	0.0204	11.6
5	14:03	4.60	0.6	0.320	0.6	0.128	0.2215	1.00	0.2215	0.064	0.0142	8.1
6	14:04	4.80	0.6	0.380	0.6	0.152	0.2218	1.00	0.2218	0.076	0.0169	9.6
7	14:06	5.00	0.6	0.330	0.6	0.132	0.2976	1.00	0.2976	0.066	0.0197	11.2
8	14:07	5.20	0.6	0.310	0.6	0.124	0.3766	1.00	0.3766	0.062	0.0234	13.3
9	14:08	5.40	0.6	0.250	0.6	0.100	0.3586	1.00	0.3586	0.050	0.0179	10.2
10	14:09	5.60	0.6	0.230	0.6	0.092	0.1870	1.00	0.1870	0.115	0.0215	12.3
11	14:09	6.40	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.



Discharge Measurement Summary

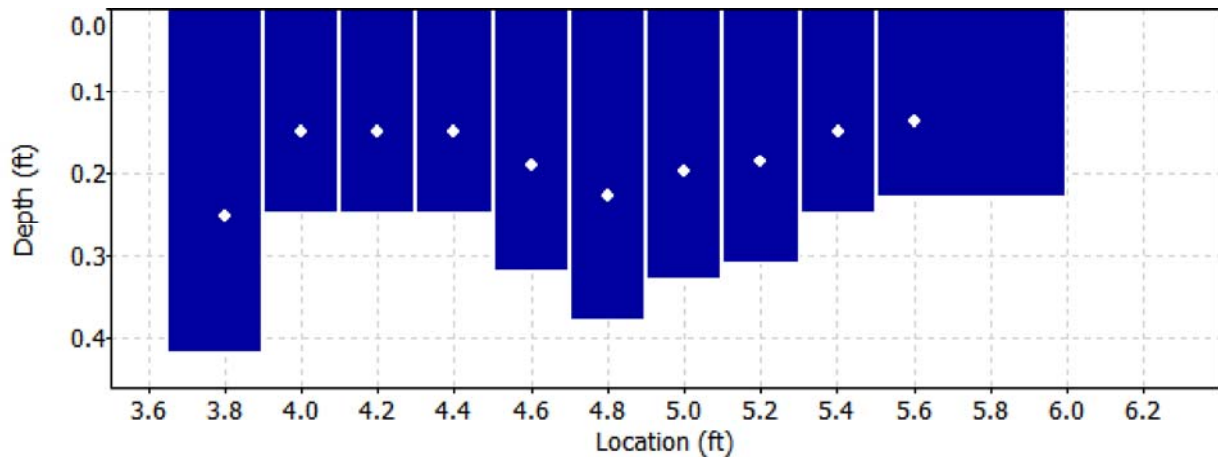
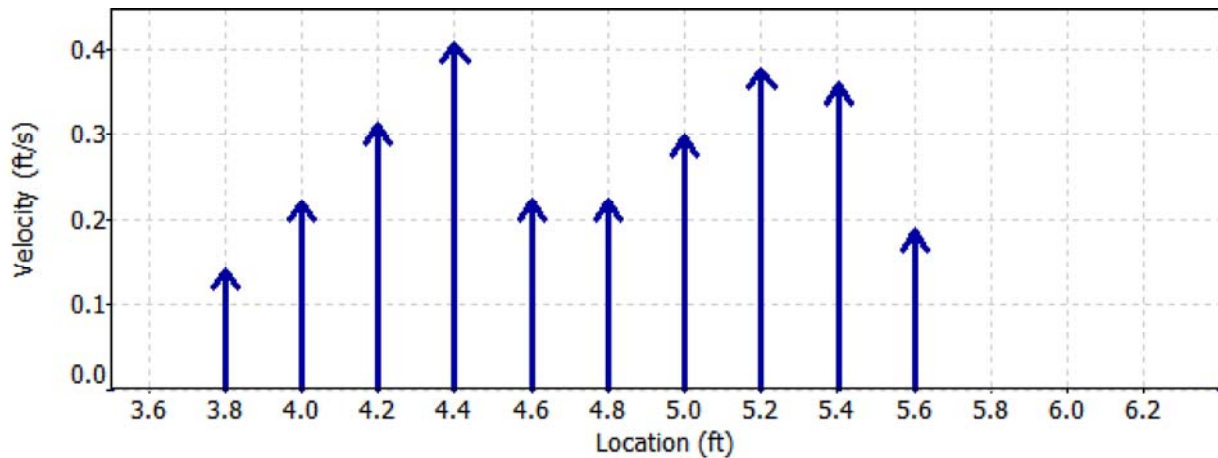
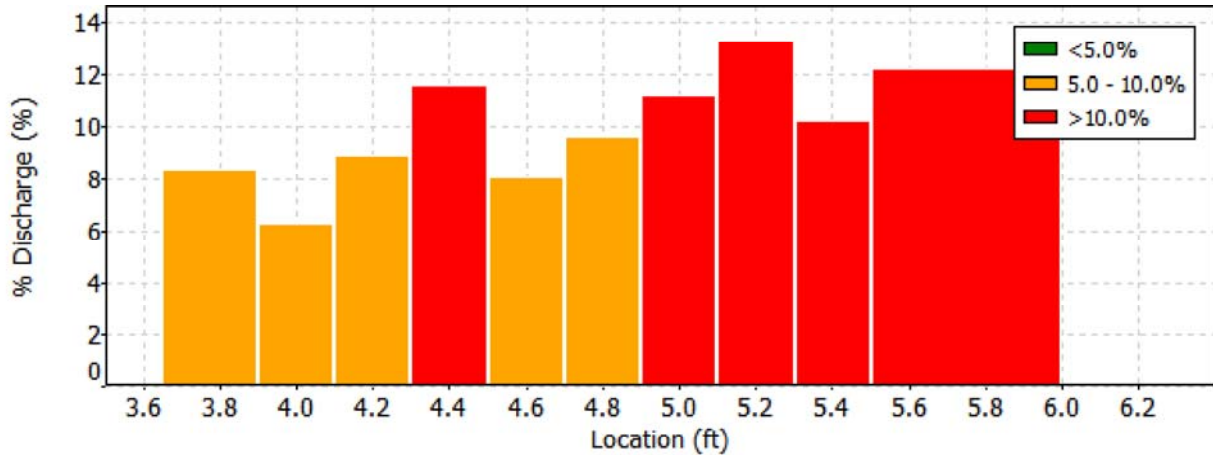
Date Generated: Wed Nov 18 2015

File Information

File Name EFTURCNM.001.WAD
Start Date and Time 2015/09/22 13:57:39

Site Details

Site Name E FRK TURKEY CR N MT
Operator(s) BRIAN EPSTEIN





Discharge Measurement Summary

Date Generated: Wed Nov 18 2015

File Information

File Name EFTURCNM.001.WAD
Start Date and Time 2015/09/22 13:57:39

Site Details

Site Name E FRK TURKEY CR N MT
Operator(s) BRIAN EPSTEIN

Quality Control

St	Loc	%Dep	Message
1	3.80	0.6	High angle: -21



Discharge Measurement Summary

Date Generated: Wed Nov 18 2015

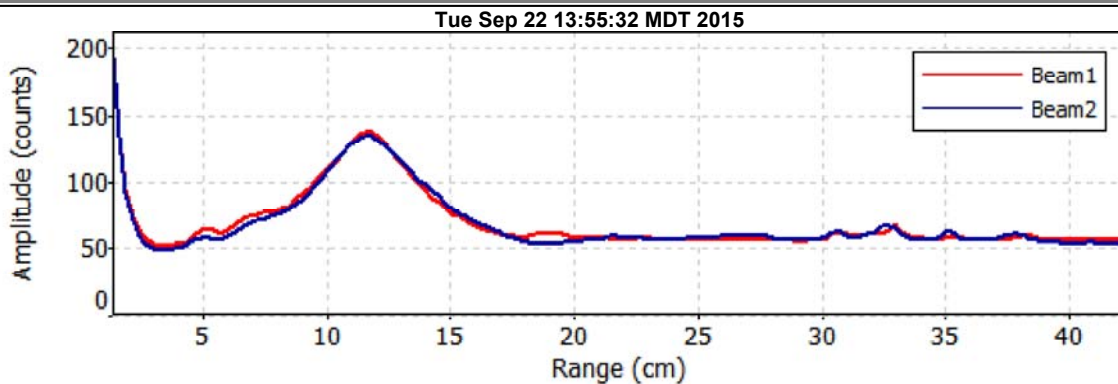
File Information

File Name EFTURCNM.001.WAD
Start Date and Time 2015/09/22 13:57:39

Site Details

Site Name E FRK TURKEY CR N MT
Operator(s) BRIAN EPSTEIN

Automatic Quality Control Test (BeamCheck)



- ✓ Noise level check - Pass
- ✓ SNR check - Pass
- ✓ Peak location check - Pass
- ✓ Peak shape check - Pass

Discharge Measurement Summary

Date Generated: Wed Sep 2 2015

File Information

File Name ETCNCWTC.001.WAD
Start Date and Time 2015/08/10 12:49:53

Site Details

Site Name E TURKEY NR WTC
Operator(s) BRIAN EPSTEIN

System Information

Sensor Type FlowTracker
Serial # P2354
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	1.2%
Velocity	1.1%	2.6%
Width	0.1%	0.1%
Method	2.0%	-
# Stations	2.5%	-
Overall	3.6%	3.0%

Summary

Averaging Int. 40 # Stations 20
Start Edge LEW Total Width 5.100
Mean SNR 51.0 dB Total Area 2.255
Mean Temp 55.96 °F Mean Depth 0.442
Disch. Equation Mid-Section Mean Velocity 1.6775
Total Discharge 3.7829

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:49	0.80	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:49	1.40	0.6	0.370	0.6	0.148	-1.1109	-1.00	1.1109	0.185	0.2056	5.4
2	12:57	1.80	0.6	0.570	0.6	0.228	0.9255	1.00	0.9255	0.171	0.1582	4.2
3	13:00	2.00	0.6	0.630	0.6	0.252	0.8133	1.00	0.8133	0.126	0.1025	2.7
4	13:04	2.20	0.6	0.670	0.6	0.268	1.2156	1.00	1.2156	0.134	0.1630	4.3
5	13:06	2.40	0.6	0.720	0.6	0.288	1.7044	1.00	1.7044	0.144	0.2456	6.5
6	13:07	2.60	0.6	0.720	0.6	0.288	1.8944	1.00	1.8944	0.144	0.2730	7.2
7	13:09	2.80	0.6	0.720	0.6	0.288	2.7139	1.00	2.7139	0.144	0.3911	10.3
8	13:10	3.00	0.6	0.720	0.6	0.288	2.6591	1.00	2.6591	0.144	0.3832	10.1
9	13:12	3.20	0.6	0.700	0.6	0.280	3.1368	1.00	3.1368	0.140	0.4395	11.6
10	13:13	3.40	0.6	0.620	0.6	0.248	2.9042	1.00	2.9042	0.124	0.3595	9.5
11	13:19	3.60	0.6	0.540	0.6	0.216	2.2726	1.00	2.2726	0.108	0.2456	6.5
12	13:17	3.80	0.6	0.540	0.6	0.216	1.8937	1.00	1.8937	0.109	0.2057	5.4
13	13:21	4.00	0.6	0.500	0.6	0.200	1.7953	1.00	1.7953	0.101	0.1805	4.8
14	13:22	4.20	0.6	0.500	0.6	0.200	1.3930	1.00	1.3930	0.101	0.1401	3.7
15	13:24	4.40	0.6	0.460	0.6	0.184	0.8041	1.00	0.8041	0.091	0.0734	1.9
16	13:25	4.60	0.6	0.440	0.6	0.176	0.5620	1.00	0.5620	0.087	0.0489	1.3
17	13:27	4.80	0.6	0.270	0.6	0.108	0.6325	1.00	0.6325	0.054	0.0342	0.9
18	13:29	5.00	0.6	0.270	0.6	0.108	0.8967	1.00	0.8967	0.149	0.1332	3.5
19	13:29	5.90	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.



Discharge Measurement Summary

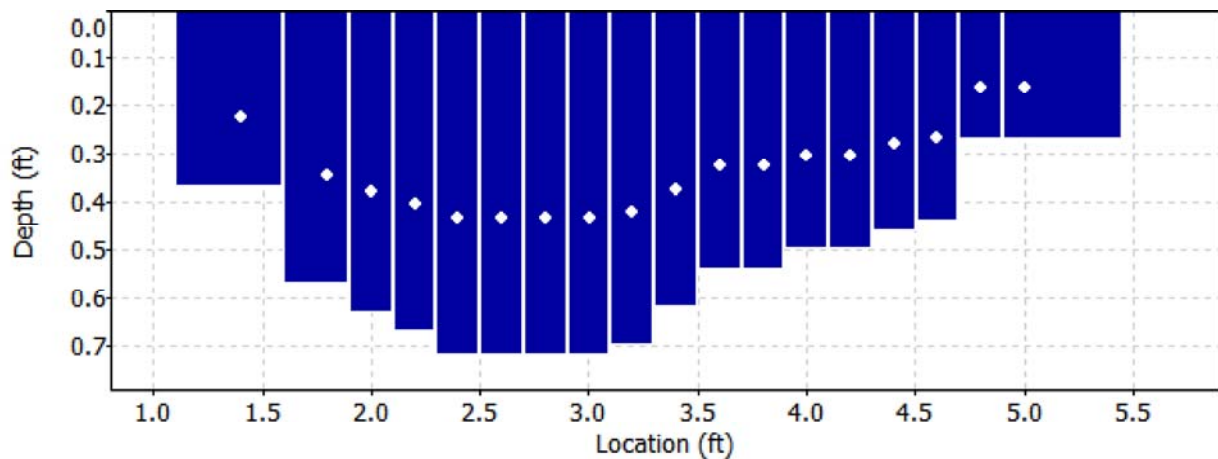
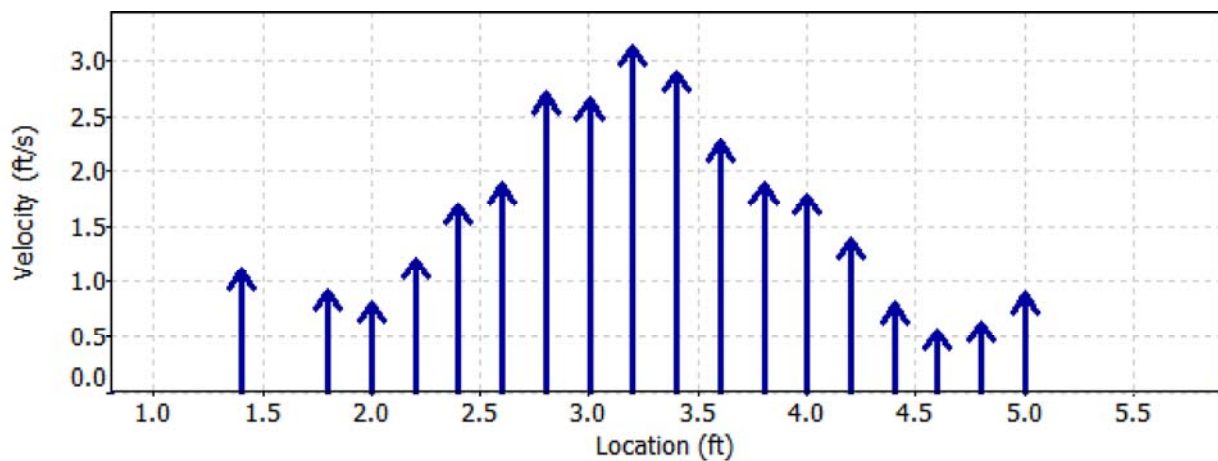
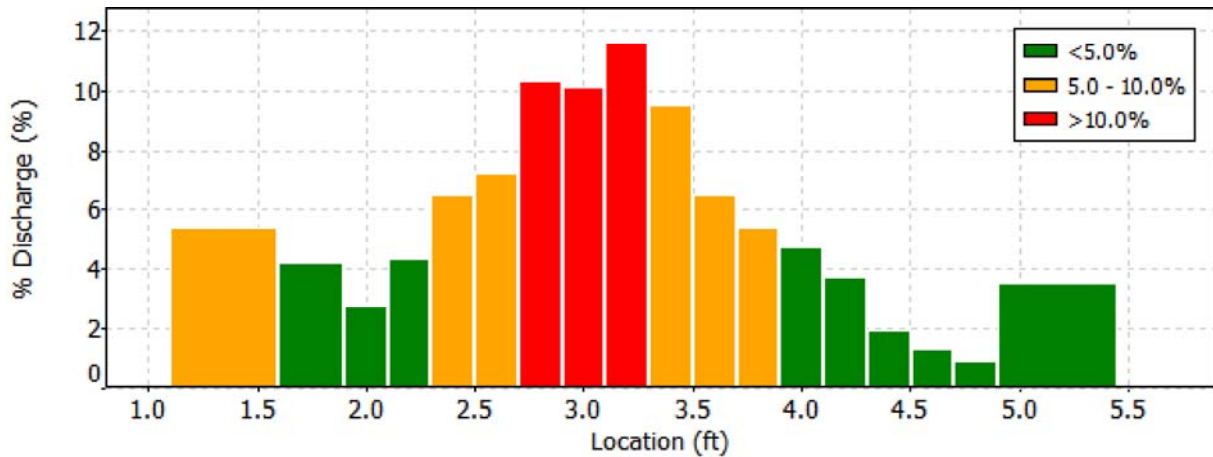
Date Generated: Wed Sep 2 2015

File Information

File Name ETCNCWTC.001.WAD
Start Date and Time 2015/08/10 12:49:53

Site Details

Site Name E TURKEY NR WTC
Operator(s) BRIAN EPSTEIN





Discharge Measurement Summary

Date Generated: Wed Sep 2 2015

File Information

File Name ETCNCWTC.001.WAD
Start Date and Time 2015/08/10 12:49:53

Site Details

Site Name E TURKEY NR WTC
Operator(s) BRIAN EPSTEIN

Quality Control

St	Loc	%Dep	Message
1	1.40	0.6	High angle: -163
6	2.60	0.6	High standard error: 0.119



COLORADO
Colorado Water
Conservation Board
Department of Natural Resources

Discharge Measurement Summary

Date Generated: Wed Sep 2 2015

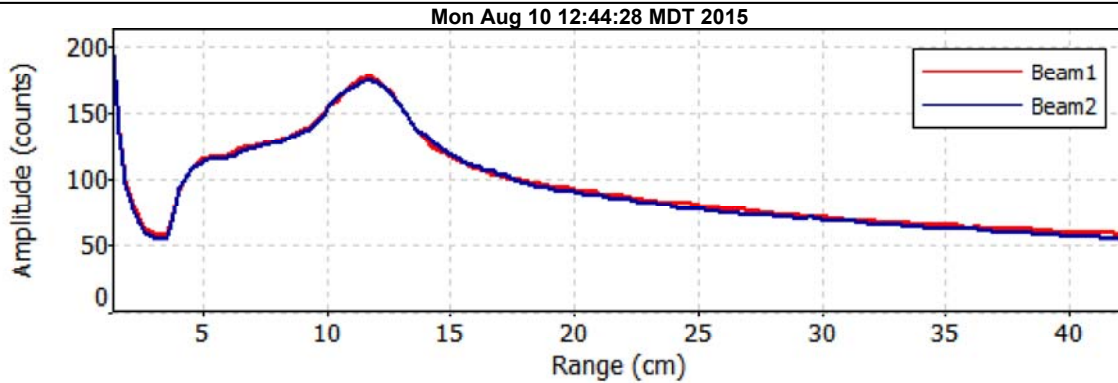
File Information

File Name ETCNCWTC.001.WAD
Start Date and Time 2015/08/10 12:49:53

Site Details

Site Name E TURKEY NR WTC
Operator(s) BRIAN EPSTEIN

Automatic Quality Control Test (BeamCheck)



- ✓ Noise level check - Pass
- ✓ SNR check - Pass
- ✓ Peak location check - Pass
- ✓ Peak shape check - Pass



20150922_TurkeyCreekAndTribs_FieldNotes

1 message

Brian Epstein - DNR <brian.epstein@state.co.us>

Tue, Nov 10, 2015 at 12:09 PM

To: Brian Epstein <Brian.Epstein@state.co.us>

Turkey Creek and Tributaries East And West Forks Turkey Creeks Field Notes 20150922

•using Timble GPS Hunt, camera, and notes apps on iPhone

* East = East Fork Turkey Creek, West = West Fork Turkey Creek, and Turkey = Turkey Creek

11:24 Arrive confluence of East and West Forks Turkey Creek

20150922TurkeyCr001

- vids 12:14 and 12:16

- hiking up creek saw trout in a hole

20150922TurkeyCr002

- confluence of East and West Forks Turkey Creeks

- fish observed in confluence pool but sheltered before identified type

20150922TurkeyCr003

- 12:33 Picture of confluence: picture left is West and right is East, bottom is the beginning of Turkey Creek proper

- 12:42 video panning from Turkey Creek upstream to confluence, first coming into view East and then West

20150922EFTurkeyCr001

- FlowTracker s/n P2354

- discharge measurement location: East Fork Turkey Creek near Mouth

- 13:49 pic x-section, looking upstream

- File: EFTURCNM.001

- mostly cloudy, ~ 70F, no wind

- x-sec: pool in step pool environment, bed sand/cobble with some boulders
- flow conditions: mostly parallel flow paths
- measurement rated: poor
- start edge/time: REW 3.5' 13:56
- end edge/time: LEW 6.4' 14:11
- discharge: 0.18
- uncertainty (%): 5.5
- # stations: 12
- Vmean: 0.26
- Vmax: 0.41
- width: 2.9
- area: 0.7
- Dmean: 0.24
- Dmax: 0.42
- SNR: 31.1
- sigmaV: 0.016
- H2O temp (F): 56.4

20150922WFTurkeyCr001

- 13:15 video of trout

20150922WFTurkeyCr002

- FlowTracker s/n P2354
- discharge measurement location: West Fork Turkey Creek near Mouth
- 14:28 & 14:29 Pic discharge measurement section looking upstream
- File: WFTURCNM.001
- mostly cloudy, ~ 70F, no wind
- x-sec: pool in step pool environment, bed sand with some boulders
- flow conditions: mostly parallel flow paths
- measurement rated: poor
- start edge/time: REW 6.0' / 14:35

- end edge/time: LEW 7.7' / 14:47

- discharge: 0.27

- uncertainty: 7.8

- # stations: 8

- Vmean: 0.40

- Vmax: 0.47

- width: 1.7

- area: 0.68

- Dmean: 0.40

- Dmax: 0.66

- SNR: 37.2

- sigmaV: 0.022

- H2O temp: 54.4

- 14:56 pic taken 100' ds of x-section, looking downstream, consistent plunge pool environment, good bank stability because good riparian veg, boulders and woody debris

- 15:52 pic Turkey Creek at quarry, observed water truck pumping out of creek for dust suppression at quarry

20150922TurkeyCr004

- FlowTracker s/n P2354

- discharge measurement location: Turkey Creek at Henry Ride Road

- 16:11 & 16:16 Pic discharge measurement section looking upstream

- 16:16 fish

- File: TRKCBLCN.002

- mostly cloudy, ~ 70F, no wind

- x-sec: glide, in riffle-run-pool-glide environment, sand and cobble bed

- flow conditions: mostly parallel flow paths

- measurement rated: fair

- start edge/time: REW 2.2' / 16:26

- end edge/time: LEW 9.3' / 16:49

- discharge: 0.41

- uncertainty: 3.4

- # stations: 20
- Vmean: 0.22
- Vmax: 0.37
- width: 7.1
- area: 1.83
- Dmean: 0.26
- Dmax: 0.40
- SNR: 20.4
- sigmaV: 0.007
- H2O temp: 60.7

General Observation

- fish observed at every site in different life stages
- macro invertebrates observed at East and West
- pond skippers at all sites
- East, West, and Turkey up in the Canyon have similar geometry: high gradient, plunge-pool, plenty of bank stabilizing entities
- Turkey changes when it comes out of the canyon to a low gradient, riffle-run-pool-glide geometry, plenty of banks stability in area not altered by man from riparian vegetation

17:00 departing Turkey Creek

Brian Epstein
Hydrologist, Stream and Lake Protection Section



COLORADO

Colorado Water
Conservation Board

Department of Natural Resources

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Page <u>1</u> of <u>2</u>	State of Colorado	Meas. No.: <u>001</u>
YYYY: <u>2015</u>	Colorado Water Conservation Board	Division: <u>02</u>
MM-DD: <u>08-10</u>	ADV Discharge Measurement Notes	District: <u>10</u>

Station Name: <u>East Turkey</u> River, <u>Creek</u> , Canal, Ditch		
At, Near, Above, Below <u>Confluence w/ W Turkey</u>		
Latitude:	Longitude:	
Party: <u>Keith Cunningham, Brian Epstein, Jeff Gessler</u>		
Conditions		
Weather: <u>Cloudy ~60°F</u>		
Wind Spd / Dir: <u>0mph</u>	Water Temp:	
X-Sec Desc: <u>10' straight both directions, cobble</u> (check rate)		
Flow Conds: <u>Unstable, water same level during measurement</u>		
Control Desc: <u>N/A</u>		
Measurement Rated: Excellent (2%) / Good (5%) / Fair (8%) / Poor (>8%) [based on the above conditions]		

Water Level Reading					
Time	Staff Gage	Pressure Trans.	Time	Staff Gage	Pressure Trans.
<u>N/A</u>					
Pressure Transducer Download			Weighted MGH		
File Name: <u>N/A</u>			GH Corr.		
Time:			Correct MGH		

Discharge Measurement			
Manufacturer: <u>SonTek</u>	Model: <u>FlowTracker</u>	S/N: <u>P2354 / P2355</u>	
Firmware: <u>3.9</u>	Software: <u>2.20</u>		
Diag Test File: <u>Yes or No</u>	Raw Data File: <u>ETCNCWTC.001</u>		
Meas Type: <u>Wading</u> / Boat / Bridge / Cableway		Method: <u>0.6</u>	
<u>N/A</u> ft. or mi / upstream or downstream of gage			
Start Edge: <u>LEW 0.80</u>	End Edge: <u>REW 5.9</u>	Total Width: <u>5.1</u>	
Start Time: <u>12:49</u>	End Time: <u>13:31</u>		
Discharge: <u>3.78</u>	Uncertainty: <u>3.6</u>	# Stations: <u>20</u>	
Mean v: <u>1.68</u>	Width: <u>5.10</u>	Mean d: <u>0.44</u>	
Max v: <u>3.14</u>	Area: <u>2.26</u>	Max d: <u>0.72</u>	
Mean SNR: <u>51.0</u>	σv: <u>0.075</u>	Mean Temp: <u>56.0</u>	
Meas. By: <u>KC</u>		Notes By: <u>JE</u>	
Processed By:		Reviewed By:	

Remarks:

East Turkey Creek

- Meeting w/ Mark McElroy, HOFA President
- rained ~1.0" last night at his house
- creeks are flowing from precipitation and were much lower yesterday
- Jeff took pictures
- banks have held together well from big flows in May
 - more than three species along bank
 - woody vegetation along banks
 - abundant woody debris
 - cobble dominant bed
- coniferous forest
- BOE Pictures 1295
- 12:40 A.M. 294ⁿ Keith clearing x-section of grass from us looking ds



COLORADO

Colorado Water
Conservation Board

Department of Natural Resources

1313 Sherman Street, Room 721
Denver, CO 80203

Memorandum

To: File
From: Brian Epstein, Hydrologist
Date: November 18, 2015
Subject: Location Correction – August 10, 2015 Streamflow Measurement East Fork Turkey Creek

On August 10, 2015, Jeff Baessler, Deputy Section Chief; Keith Cunningham, Intern; and I erroneously attributed the location of a streamflow measurement as “East Turkey Creek near the confluence of West Turkey Creek.” We did not take a GPS location of the measurement site during the August investigation. September 22, 2015 I made a return visit and discovered the erroneous attribution. The true location is an unnamed tributary of Turkey Creek, approximately ¼ mile downstream from the confluence of East and West Turkey Creeks. Figure 1 shows the correct location, red square, spotted on a Google Earth image as well as blue flags, subsequently collected GPS locations.

Figure 1 – August 10, 2015 measurement (“ETCNWTC-001”) location compared to the confluence of East and West Turkey Creeks (“20150922TurkeyCr002”).





















