

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

LOCATION INFORMATION

STREAM NAME: Piceance Creek
 XS LOCATION: South end of CPW property
 XS NUMBER: 2

 DATE: 12-Sep-12
 OBSERVERS: R. Smith, B. Lange

 1/4 SEC: SW
 SECTION: 14
 TWP: 1N
 RANGE: 97W
 PM: Sixth

 COUNTY: Rio Blanco
 WATERSHED: White River
 DIVISION: 6
 DOW CODE: 25343

 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: 0.0087

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: Piceance Creek
 XS LOCATION: South end of CPW property
 XS NUMBER: 2

DATA POINTS= 39

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
RS	0.00	3.86			0.00		0.00	0.00	0.0%
1 G	2.00	4.88			0.00		0.00	0.00	0.0%
	3.00	5.08			0.00		0.00	0.00	0.0%
	4.50	5.37			0.00		0.00	0.00	0.0%
	5.00	5.76			0.00		0.00	0.00	0.0%
W	5.60	6.10	0.00	0.00	0.00		0.00	0.00	0.0%
	6.00	6.35	0.25	0.00	0.47	0.25	0.11	0.00	0.0%
	6.50	6.20	0.10	0.14	0.52	0.10	0.05	0.01	0.1%
	7.00	6.20	0.10	0.54	0.50	0.10	0.05	0.03	0.5%
	7.50	6.30	0.20	1.17	0.51	0.20	0.10	0.12	2.2%
	8.00	6.35	0.25	1.30	0.50	0.25	0.13	0.16	3.0%
	8.50	6.55	0.45	1.28	0.54	0.45	0.23	0.29	5.4%
	9.00	6.50	0.40	1.93	0.50	0.40	0.20	0.39	7.2%
	9.50	6.45	0.35	0.78	0.50	0.35	0.18	0.14	2.5%
	10.00	6.40	0.30	1.41	0.50	0.30	0.15	0.21	3.9%
	10.50	6.35	0.25	1.67	0.50	0.25	0.13	0.21	3.9%
	11.00	6.50	0.40	1.32	0.52	0.40	0.20	0.26	4.9%
	11.50	6.45	0.35	1.23	0.50	0.35	0.18	0.22	4.0%
	12.00	6.50	0.40	1.14	0.50	0.40	0.20	0.23	4.3%
	12.50	6.45	0.35	1.12	0.50	0.35	0.18	0.20	3.7%
	13.00	6.60	0.50	0.00	0.52	0.50	0.25	0.00	0.0%
	13.50	6.60	0.50	2.09	0.50	0.50	0.25	0.52	9.7%
	14.00	6.50	0.40	2.04	0.51	0.40	0.20	0.41	7.6%
	14.50	6.40	0.30	2.37	0.51	0.30	0.15	0.36	6.6%
	15.00	6.35	0.25	2.42	0.50	0.25	0.13	0.30	5.6%
	15.50	6.35	0.25	1.76	0.50	0.25	0.13	0.22	4.1%
	16.00	6.30	0.20	1.35	0.50	0.20	0.10	0.14	2.5%
	16.50	6.35	0.25	1.46	0.50	0.25	0.13	0.18	3.4%
	17.00	6.25	0.15	1.84	0.51	0.15	0.08	0.14	2.6%
	17.50	6.20	0.10	0.97	0.50	0.10	0.05	0.05	0.9%
	18.00	6.20	0.10	1.34	0.50	0.10	0.05	0.07	1.2%
	18.50	6.40	0.30	1.11	0.54	0.30	0.15	0.17	3.1%
	19.00	6.35	0.25	1.88	0.50	0.25	0.13	0.24	4.4%
	19.50	6.35	0.25	1.53	0.50	0.25	0.09	0.13	2.5%
W	19.70	6.10	0.00	0.00	0.32		0.00	0.00	0.0%
	20.00	5.33			0.00		0.00	0.00	0.0%
	21.00	4.99			0.00		0.00	0.00	0.0%
1 G	21.80	4.86			0.00		0.00	0.00	0.0%
LS	23.00	4.62			0.00		0.00	0.00	0.0%

TOTALS -----

14.51 0.5 3.93 5.36 100.0%
 (Max.)

Manning's n = 0.0424
 Hydraulic Radius= 0.27055976

STREAM NAME: Piceance Creek
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 XS NUMBER: 2

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	3.93	3.93	0.0%
5.85	3.93	7.52	91.5%
5.87	3.93	7.23	84.1%
5.89	3.93	6.93	76.7%
5.91	3.93	6.64	69.2%
5.93	3.93	6.35	61.9%
5.95	3.93	6.06	54.5%
5.97	3.93	5.78	47.2%
5.99	3.93	5.49	39.8%
6.01	3.93	5.20	32.6%
6.03	3.93	4.92	25.3%
6.05	3.93	4.63	18.0%
6.06	3.93	4.49	14.4%
6.07	3.93	4.35	10.8%
6.08	3.93	4.21	7.2%
6.09	3.93	4.07	3.6%
6.10	3.93	3.93	0.0%
6.11	3.93	3.78	-3.6%
6.12	3.93	3.64	-7.2%
6.13	3.93	3.50	-10.7%
6.14	3.93	3.36	-14.3%
6.15	3.93	3.22	-17.9%
6.17	3.93	2.94	-25.0%
6.19	3.93	2.67	-32.1%
6.21	3.93	2.40	-38.9%
6.23	3.93	2.15	-45.2%
6.25	3.93	1.91	-51.3%
6.27	3.93	1.68	-57.1%
6.29	3.93	1.46	-62.8%
6.31	3.93	1.25	-68.3%
6.33	3.93	1.05	-73.3%
6.35	3.93	0.87	-77.9%

WATERLINE AT ZERO

AREA ERROR = 6.100

STREAM NAME: Piceance Creek
 XS LOCATION: South end of CPW property
 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	4.88	19.68	1.18	1.72	23.28	20.95	100.0%	1.11	81.61	3.50
	5.10	17.57	1.09	1.50	19.21	18.79	89.7%	1.02	63.64	3.31
	5.15	17.17	1.07	1.45	18.34	18.38	87.7%	1.00	59.81	3.26
	5.20	16.76	1.04	1.40	17.49	17.96	85.7%	0.97	56.13	3.21
	5.25	16.36	1.02	1.35	16.66	17.54	83.7%	0.95	52.59	3.16
	5.30	15.95	0.99	1.30	15.85	17.12	81.7%	0.93	49.20	3.10
	5.35	15.60	0.97	1.25	15.07	16.74	79.9%	0.90	45.87	3.04
	5.40	15.43	0.93	1.20	14.29	16.53	78.9%	0.86	42.36	2.96
	5.45	15.35	0.88	1.15	13.52	16.40	78.3%	0.82	38.84	2.87
	5.50	15.27	0.84	1.10	12.76	16.26	77.6%	0.78	35.44	2.78
	5.55	15.18	0.79	1.05	12.00	16.13	77.0%	0.74	32.16	2.68
	5.60	15.10	0.74	1.00	11.24	15.99	76.4%	0.70	29.01	2.58
	5.65	15.02	0.70	0.95	10.49	15.86	75.7%	0.66	25.99	2.48
	5.70	14.93	0.65	0.90	9.74	15.72	75.1%	0.62	23.10	2.37
	5.75	14.85	0.61	0.85	8.99	15.59	74.4%	0.58	20.35	2.26
	5.80	14.75	0.56	0.80	8.25	15.44	73.7%	0.53	17.75	2.15
	5.85	14.64	0.51	0.75	7.52	15.28	73.0%	0.49	15.30	2.04
	5.90	14.53	0.47	0.70	6.79	15.13	72.2%	0.45	12.99	1.91
	5.95	14.42	0.42	0.65	6.06	14.97	71.5%	0.41	10.84	1.79
	6.00	14.32	0.37	0.60	5.35	14.82	70.7%	0.36	8.85	1.66
	6.05	14.21	0.33	0.55	4.63	14.66	70.0%	0.32	7.02	1.52
WL	6.10	14.10	0.28	0.50	3.92	14.51	69.3%	0.27	5.36	1.37
	6.15	13.98	0.23	0.45	3.22	14.35	68.5%	0.22	3.89	1.21
	6.20	12.86	0.20	0.40	2.53	13.19	63.0%	0.19	2.74	1.09
	6.25	11.70	0.16	0.35	1.91	11.97	57.1%	0.16	1.84	0.96
	6.30	10.79	0.13	0.30	1.35	10.99	52.5%	0.12	1.09	0.81
	6.35	7.62	0.11	0.25	0.87	7.76	37.0%	0.11	0.66	0.76
	6.40	5.71	0.09	0.20	0.53	5.81	27.7%	0.09	0.35	0.66
	6.45	4.67	0.06	0.15	0.27	4.74	22.6%	0.06	0.13	0.49
	6.50	1.96	0.05	0.10	0.11	2.00	9.5%	0.05	0.05	0.47
	6.55	0.92	0.04	0.05	0.04	0.93	4.4%	0.04	0.01	0.37
	6.60	0.00	#DIV/0!	0.00	0.00	0.00	0.0%	#DIV/0!	#DIV/0!	#DIV/0!

STREAM NAME: Piceance Creek
 XS LOCATION: South end of CPW property
 XS NUMBER: 2

SUMMARY SHEET

MEASURED FLOW (Qm)=	5.36 cfs
CALCULATED FLOW (Qc)=	5.36 cfs
(Qm-Qc)/Qm * 100 =	0.0 %
MEASURED WATERLINE (WLm)=	6.10 ft
CALCULATED WATERLINE (WLc)=	6.10 ft
(WLm-WLc)/WLm * 100 =	0.0 %
MAX MEASURED DEPTH (Dm)=	0.50 ft
MAX CALCULATED DEPTH (Dc)=	0.50 ft
(Dm-Dc)/Dm * 100	0.0 %
MEAN VELOCITY=	1.37 ft/sec
MANNING'S N=	0.042
SLOPE=	0.0087 ft/ft
.4 * Qm =	2.1 cfs
2.5 * Qm=	13.4 cfs

RECOMMENDED INSTREAM FLOW:

=====

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

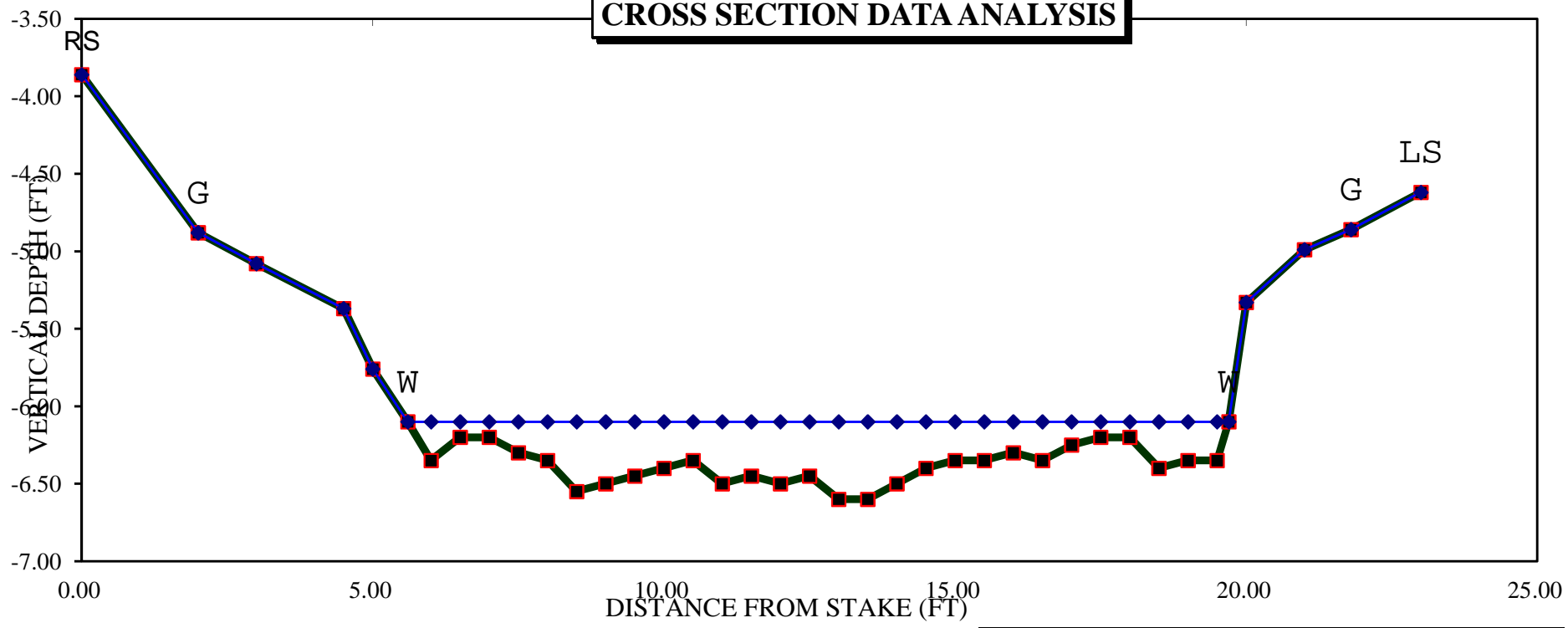
RATIONALE FOR RECOMMENDATION:

=====

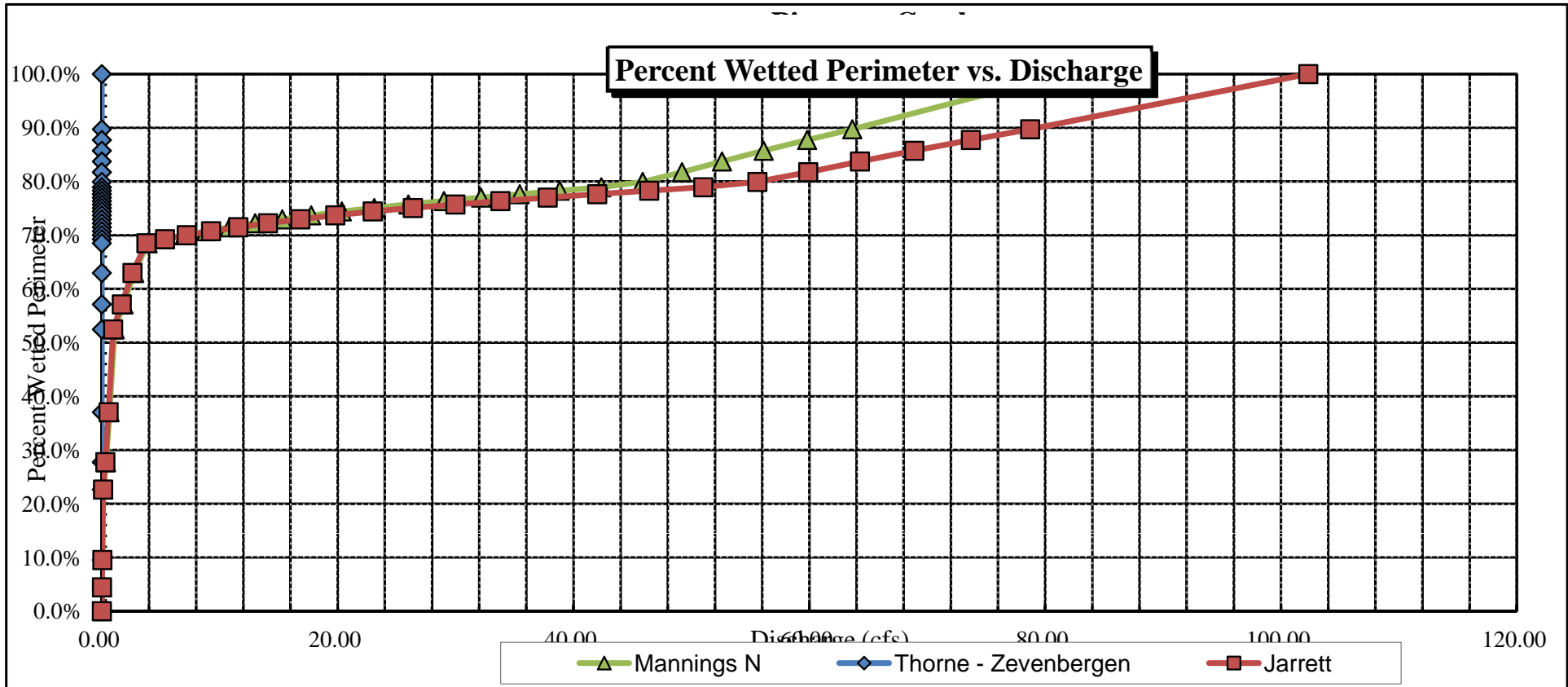
RECOMMENDATION BY: AGENCY DATE:

CWCB REVIEW BY: DATE:

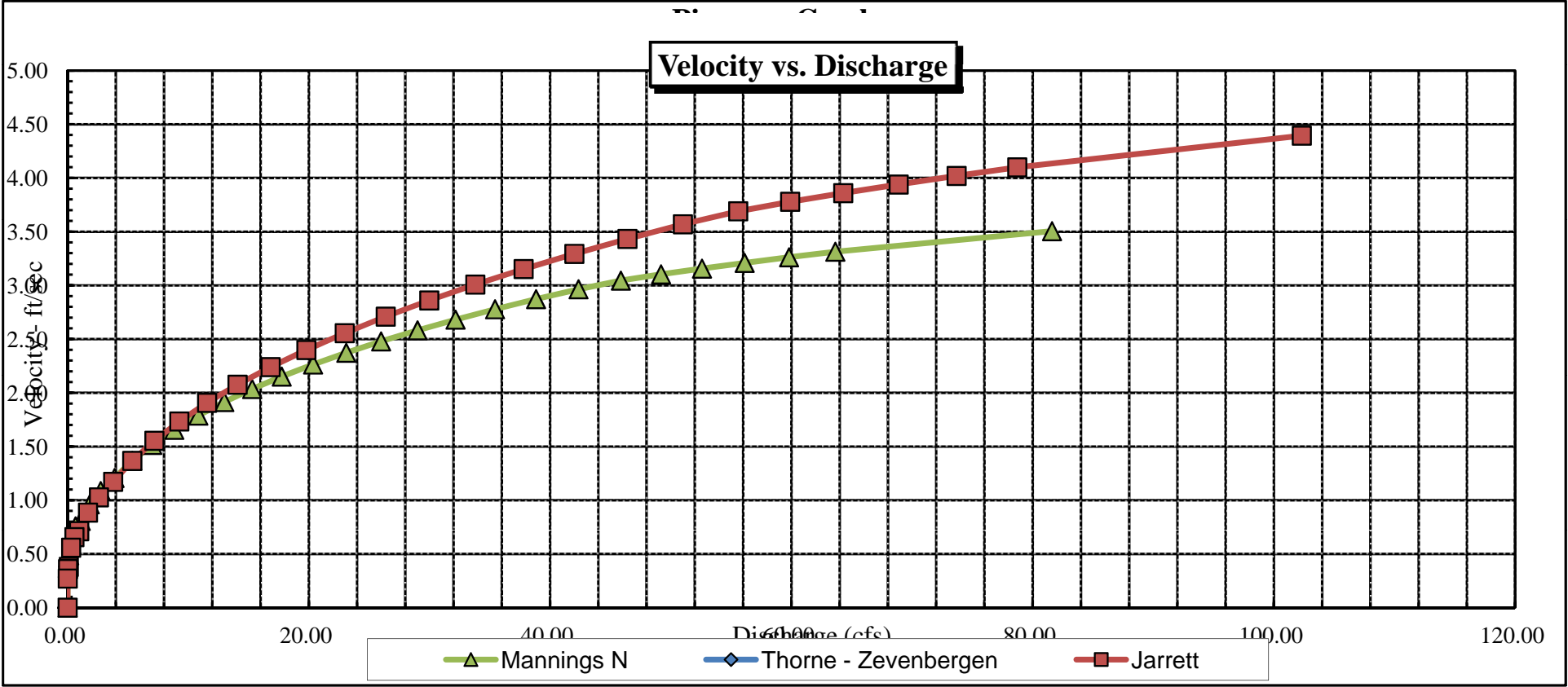
CROSS SECTION DATA ANALYSIS



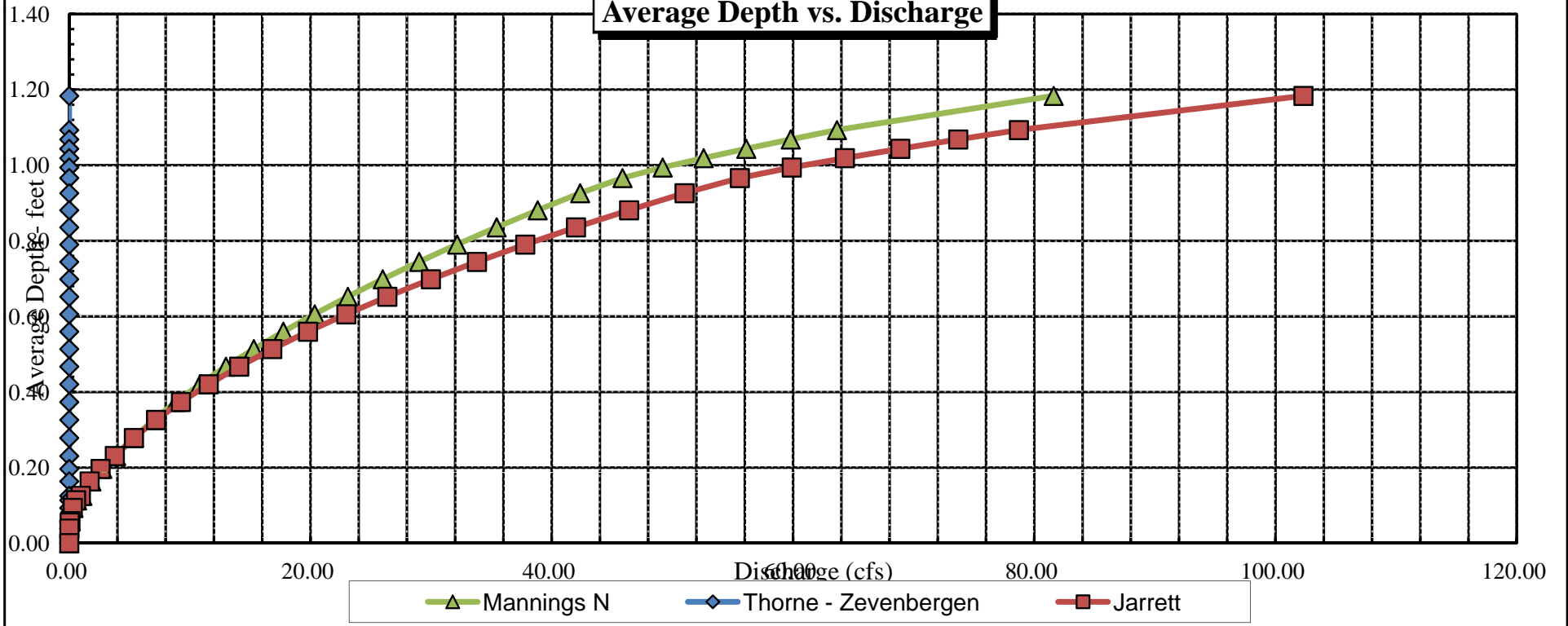
Channel Bottom Computed Water Line



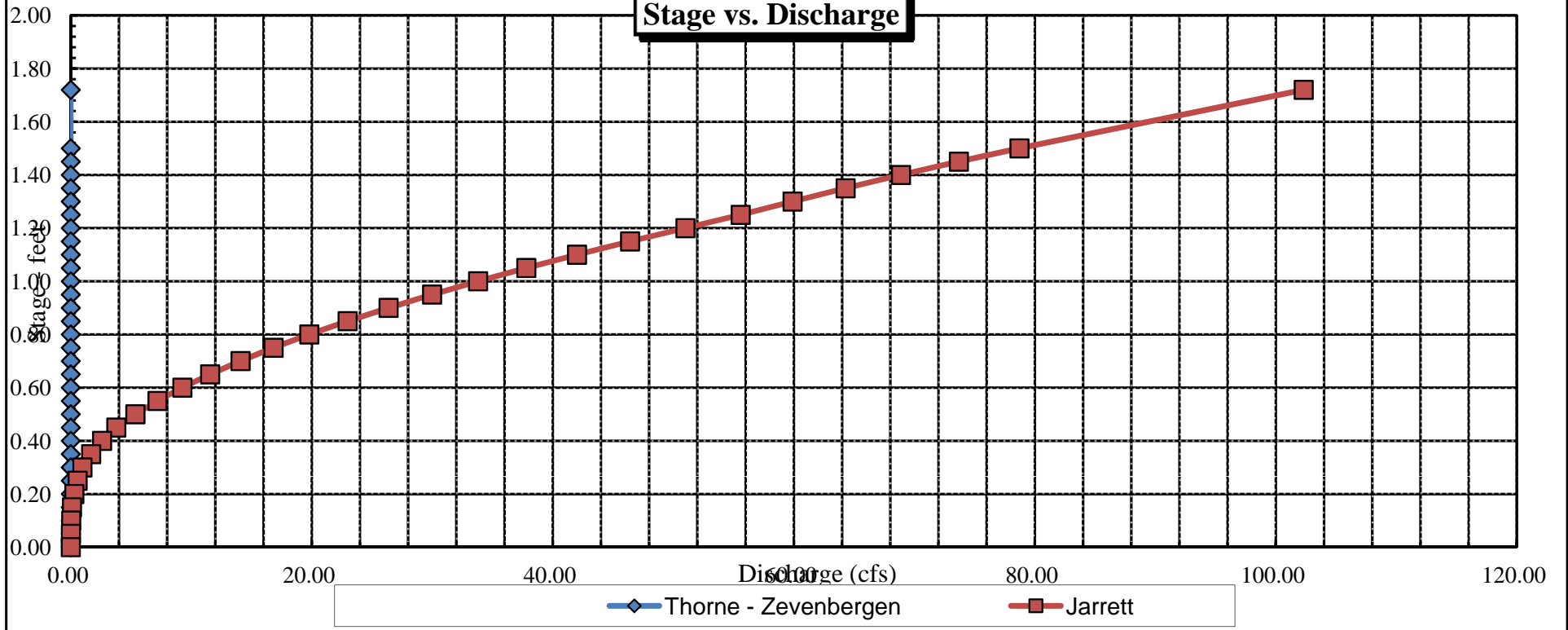
Velocity vs. Discharge



Average Depth vs. Discharge



Stage vs. Discharge





FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



COLORADO WATER
CONSERVATION BOARD

LOCATION INFORMATION

STREAM NAME: <u>Piceance Creek</u>							CROSS-SECTION NO.: <u>2</u>	
CROSS-SECTION LOCATION: <u>south end of CPW property</u>								
DATE: <u>9-12-12</u>		OBSERVERS: <u>R. Smith, B. Lange</u>						
LEGAL DESCRIPTION	1/4 SECTION: <u>SW</u>		SECTION: <u>14</u>		TOWNSHIP: <u>10N</u>	RANGE: <u>97E</u>	PM: <u>6th</u>	
COUNTY: <u>Rio Blanco</u>		WATERSHED: <u>White River</u>			WATER DIVISION: <u>6</u>		DOW WATER CODE: <u>25343</u>	
MAP(S):	USGS:							
	USFS:							

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO		METER TYPE: <u>M-M</u>						
METER NUMBER:		DATE RATED:		CALIB/SPIN: _____ sec	TAPE WEIGHT: <u>surveyed</u> lbs/foot		TAPE TENSION: <u>surveyed</u> lbs	
CHANNEL BED MATERIAL SIZE RANGE: <u>gravel to 4" cobble</u>				PHOTOGRAPHS TAKEN: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO		NUMBER OF PHOTOGRAPHS: <u>3</u>		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)	SKETCH	
⊗ Tape @ Stake LB	0.0	<u>surveyed</u>		
⊗ Tape @ Stake RB	0.0	<u>surveyed</u>		
① WS @ Tape LB/RB	0.0	<u>6.10 / 6.10</u>		
② WS Upstream	<u>23.7</u>	<u>5.76</u>		
③ WS Downstream	<u>50.7</u>	<u>6.41</u>		
SLOPE		<u>0.65 / 74.4 = .0087</u>		

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO		DISTANCE ELECTROFISHED: _____ ft		FISH CAUGHT YES/NO		WATER CHEMISTRY SAMPLED: YES/NO: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> 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																	

COMMENTS

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek				CROSS-SECTION NO: 2		DATE: 9-12-12		SHEET OF 				
BEGINNING OF MEASUREMENT		EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE)			LEFT / RIGHT		Gage Reading: ft		TIME: 10:30 am			
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		
	RS	0.0		3.86								
	G	2.0		4.88								
		3.0		5.08								
		4.5		5.37								
		5.0		5.76								
	W	5.6		6.10	∅					∅		
		6		6.35	0.25					∅		
		6.5		6.2	0.10					0.14		
		7		6.2	0.10					0.54		
		7.5		6.3	0.20					1.17		
		8		6.35	0.25					1.30		
		8.5		6.55	0.45					1.28		
		9		6.50	0.40					1.93		
		9.5		6.45	0.35					0.78		
		10		6.40	0.30					1.41		
		10.5		6.35	0.25					1.67		
		11		6.50	0.40					1.32		
		11.5		6.45	0.35					1.23		
		12		6.50	0.40					1.14		
		12.5		6.45	0.35					1.12		
		13		6.6	0.50					∅		
		13.5		6.6	0.50					2.09		
		14		6.5	0.40					2.04		
		14.5		6.4	0.30					2.37		
		15		6.35	0.25					2.42		
		15.5		6.35	0.25					1.76		
		16		6.3	0.20					1.35		
		16.5		6.35	0.25					1.46		
		17		6.25	0.15					1.84		
		17.5		6.20	0.10					0.97		
		18		6.20	0.10					1.34		
		18.5		6.40	0.30					1.11		
		19		6.35	0.25					1.88		
		19.5		6.35	0.25					0.53		
	W	19.7		6.10	∅					∅		
		20.0		5.33								
		21.0		4.99								
	G	21.8		4.86								
	LS	23.0		4.67								
TOTALS												
End of Measurement		Time		Gage Reading		CALCULATIONS PERFORMED BY				CALCULATIONS CHECKED BY		

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 STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME: Piceance Creek
 XS LOCATION: CPW property - middle portion
 XS NUMBER: 3

DATE: 12-Sep-12
 OBSERVERS: R. Smith, B. Lange

1/4 SEC: SE
 SECTION: 11
 TWP: 1N
 RANGE: 97W
 PM: Sixth

COUNTY: Rio Blanco
 WATERSHED: White River
 DIVISION: 6
 DOW CODE: 25343

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: 0.005

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: Piceance Creek
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DATA POINTS= 33

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
RS	0.00	4.89			0.00		0.00	0.00	0.0%
1 G	7.50	5.52			0.00		0.00	0.00	0.0%
	9.50	7.30			0.00		0.00	0.00	0.0%
W	17.70	7.55	0.00	0.00	0.00		0.00	0.00	0.0%
	18.00	7.70	0.15	0.48	0.34	0.15	0.06	0.03	0.5%
	18.50	7.75	0.20	0.43	0.50	0.20	0.10	0.04	0.7%
	19.00	7.75	0.20	0.31	0.50	0.20	0.10	0.03	0.5%
	19.50	7.75	0.20	0.35	0.50	0.20	0.10	0.04	0.6%
	20.00	7.75	0.20	0.60	0.50	0.20	0.10	0.06	1.0%
	20.50	7.80	0.25	0.33	0.50	0.25	0.13	0.04	0.7%
	21.00	7.85	0.30	0.50	0.50	0.30	0.15	0.08	1.3%
	21.50	7.90	0.35	0.89	0.50	0.35	0.18	0.16	2.7%
	22.00	7.90	0.35	1.07	0.50	0.35	0.18	0.19	3.2%
	22.50	7.85	0.30	1.28	0.50	0.30	0.15	0.19	3.3%
	23.00	7.90	0.35	1.55	0.50	0.35	0.18	0.27	4.7%
	23.50	7.95	0.40	1.71	0.50	0.40	0.20	0.34	5.9%
	24.00	7.95	0.40	1.79	0.50	0.40	0.20	0.36	6.2%
	24.50	7.95	0.40	2.01	0.50	0.40	0.20	0.40	7.0%
	25.00	7.95	0.40	1.59	0.50	0.40	0.20	0.32	5.5%
	25.50	7.95	0.40	1.71	0.50	0.40	0.20	0.34	5.9%
	26.00	7.95	0.40	1.79	0.50	0.40	0.20	0.36	6.2%
	26.50	7.95	0.40	1.92	0.50	0.40	0.20	0.38	6.6%
	27.00	7.95	0.40	1.89	0.50	0.40	0.20	0.38	6.5%
	27.50	7.95	0.40	1.77	0.50	0.40	0.20	0.35	6.1%
	28.00	7.95	0.40	1.46	0.50	0.40	0.20	0.29	5.1%
	28.50	8.00	0.45	1.70	0.50	0.45	0.23	0.38	6.6%
	29.00	7.95	0.40	1.81	0.50	0.40	0.20	0.36	6.3%
	29.50	7.95	0.40	1.27	0.50	0.40	0.20	0.25	4.4%
	30.00	7.95	0.40	0.65	0.50	0.40	0.20	0.13	2.3%
	30.50	8.00	0.45	0.00	0.50	0.45	0.20	0.00	0.0%
W	30.90	7.55	0.00	0.00	0.60		0.00	0.00	0.0%
1 G	31.00	5.52			0.00		0.00	0.00	0.0%
LS	35.30	4.60			0.00		0.00	0.00	0.0%

TOTALS -----

13.46 0.45 4.44 5.78 100.0%
 (Max.)

Manning's n = 0.0385
 Hydraulic Radius= 0.32962108

STREAM NAME: Piceance Creek
 XS LOCATION: CPW property - middle portion
 XS NUMBER: 3

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	4.44	4.44	0.0%
7.30	4.44	8.76	97.5%
7.32	4.44	8.34	88.0%
7.34	4.44	7.93	78.8%
7.36	4.44	7.54	69.9%
7.38	4.44	7.16	61.3%
7.40	4.44	6.79	52.9%
7.42	4.44	6.43	44.9%
7.44	4.44	6.09	37.2%
7.46	4.44	5.76	29.8%
7.48	4.44	5.44	22.6%
7.50	4.44	5.14	15.8%
7.51	4.44	4.99	12.5%
7.52	4.44	4.85	9.3%
7.53	4.44	4.71	6.1%
7.54	4.44	4.57	3.0%
7.55	4.44	4.44	0.0%
7.56	4.44	4.31	-3.0%
7.57	4.44	4.17	-5.9%
7.58	4.44	4.04	-8.9%
7.59	4.44	3.91	-11.8%
7.60	4.44	3.78	-14.8%
7.62	4.44	3.52	-20.7%
7.64	4.44	3.26	-26.5%
7.66	4.44	3.00	-32.3%
7.68	4.44	2.75	-38.1%
7.70	4.44	2.49	-43.9%
7.72	4.44	2.24	-49.6%
7.74	4.44	1.99	-55.2%
7.76	4.44	1.76	-60.4%
7.78	4.44	1.55	-65.1%
7.80	4.44	1.34	-69.7%

WATERLINE AT ZERO
 AREA ERROR = 7.550

STREAM NAME: Piceance Creek
 XS LOCATION: CPW property - middle portion
 XS NUMBER: 3

Constant Manning's n

GL = lowest Grassline elevation corrected for sag
 WL = Waterline corrected for variations in field measured water surface elevations and sag

STAGING TABLE

	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	5.52	23.50	2.07	2.48	48.74	26.38	100.0%	1.85	200.22	4.11
	6.55	22.29	1.13	1.45	25.15	23.80	90.2%	1.06	71.21	2.83
	6.60	22.23	1.08	1.40	24.04	23.67	89.7%	1.02	66.27	2.76
	6.65	22.17	1.03	1.35	22.93	23.55	89.3%	0.97	61.46	2.68
	6.70	22.12	0.99	1.30	21.82	23.42	88.8%	0.93	56.80	2.60
	6.75	22.06	0.94	1.25	20.72	23.29	88.3%	0.89	52.28	2.52
	6.80	22.00	0.89	1.20	19.62	23.17	87.8%	0.85	47.90	2.44
	6.85	21.94	0.84	1.15	18.52	23.04	87.4%	0.80	43.67	2.36
	6.90	21.88	0.80	1.10	17.42	22.92	86.9%	0.76	39.59	2.27
	6.95	21.82	0.75	1.05	16.33	22.79	86.4%	0.72	35.67	2.18
	7.00	21.76	0.70	1.00	15.24	22.67	85.9%	0.67	31.91	2.09
	7.05	21.71	0.65	0.95	14.15	22.54	85.5%	0.63	28.31	2.00
	7.10	21.65	0.60	0.90	13.07	22.42	85.0%	0.58	24.89	1.90
	7.15	21.59	0.56	0.85	11.99	22.29	84.5%	0.54	21.63	1.80
	7.20	21.53	0.51	0.80	10.91	22.17	84.0%	0.49	18.56	1.70
	7.25	21.47	0.46	0.75	9.84	22.04	83.6%	0.45	15.67	1.59
	7.30	21.41	0.41	0.70	8.76	21.92	83.1%	0.40	12.98	1.48
	7.35	19.77	0.39	0.65	7.73	20.23	76.7%	0.38	11.12	1.44
	7.40	18.13	0.37	0.60	6.79	18.53	70.3%	0.37	9.48	1.40
	7.45	16.48	0.36	0.55	5.92	16.84	63.9%	0.35	8.05	1.36
	7.50	14.84	0.35	0.50	5.14	15.15	57.5%	0.34	6.82	1.33
WL	7.55	13.20	0.34	0.45	4.44	13.46	51.0%	0.33	5.78	1.30
	7.60	13.06	0.29	0.40	3.78	13.28	50.4%	0.28	4.46	1.18
	7.65	12.91	0.24	0.35	3.13	13.11	49.7%	0.24	3.29	1.05
	7.70	12.77	0.20	0.30	2.49	12.93	49.0%	0.19	2.27	0.91
	7.75	10.72	0.17	0.25	1.87	10.86	41.2%	0.17	1.57	0.84
	7.80	10.18	0.13	0.20	1.34	10.29	39.0%	0.13	0.94	0.70
	7.85	9.63	0.09	0.15	0.85	9.72	36.8%	0.09	0.45	0.54
	7.90	7.59	0.05	0.10	0.40	7.64	29.0%	0.05	0.16	0.38
	7.95	1.54	0.02	0.05	0.04	1.57	6.0%	0.02	0.01	0.23

STREAM NAME: Piceance Creek
XS LOCATION: CPW property - middle portion
XS NUMBER: 3

SUMMARY SHEET

MEASURED FLOW (Qm)= 5.78 cfs
CALCULATED FLOW (Qc)= 5.78 cfs
(Qm-Qc)/Qm * 100 = 0.0 %

MEASURED WATERLINE (WLm)= 7.55 ft
CALCULATED WATERLINE (WLc)= 7.55 ft
(WLm-WLc)/WLm * 100 = 0.0 %

MAX MEASURED DEPTH (Dm)= 0.45 ft
MAX CALCULATED DEPTH (Dc)= 0.45 ft
(Dm-Dc)/Dm * 100 = 0.0 %

MEAN VELOCITY= 1.30 ft/sec
MANNING'S N= 0.039
SLOPE= 0.005 ft/ft

.4 * Qm = 2.3 cfs
2.5 * Qm= 14.4 cfs

RECOMMENDED INSTREAM FLOW:

=====

FLOW (CFS) PERIOD

=====

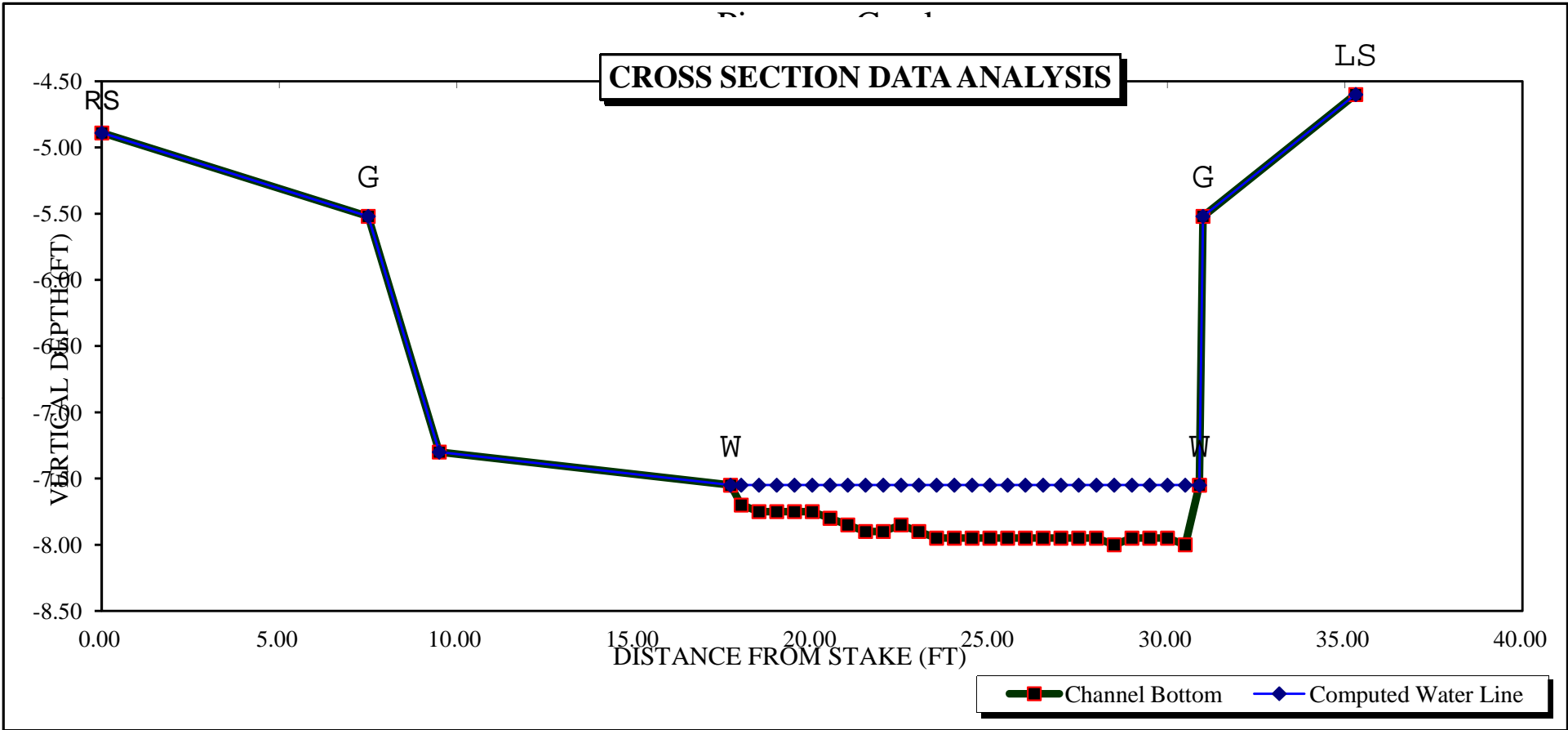
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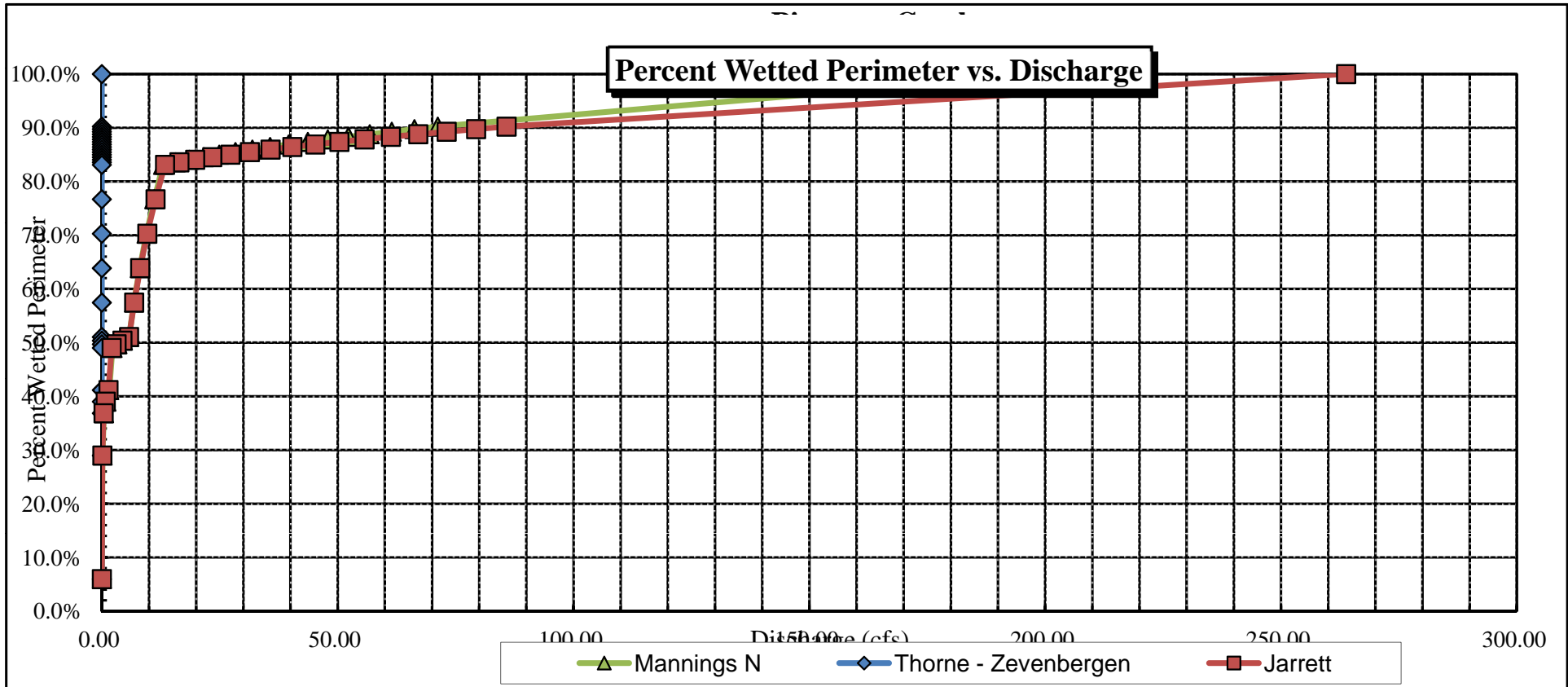
FLOW (CFS)	PERIOD
_____	_____
_____	_____
_____	_____
_____	_____

RATIONALE FOR RECOMMENDATION:

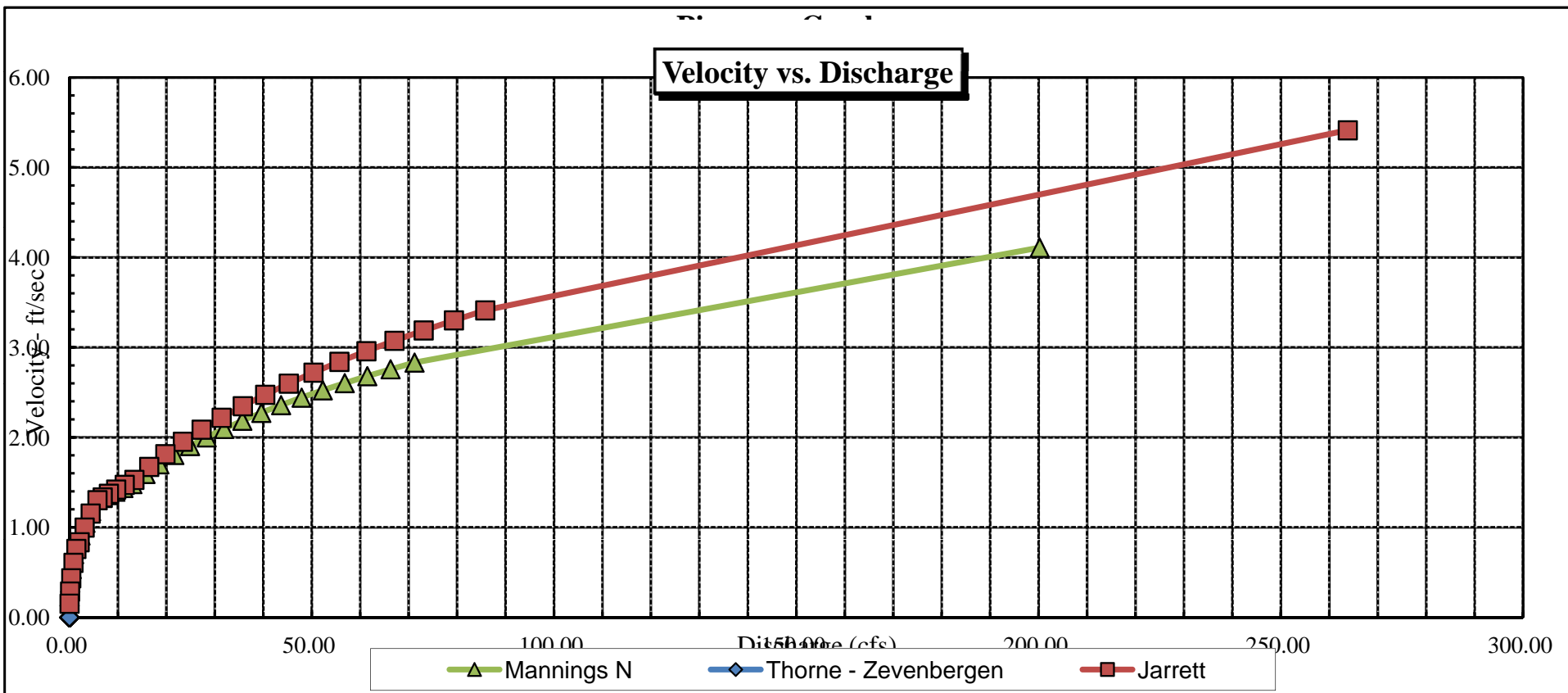
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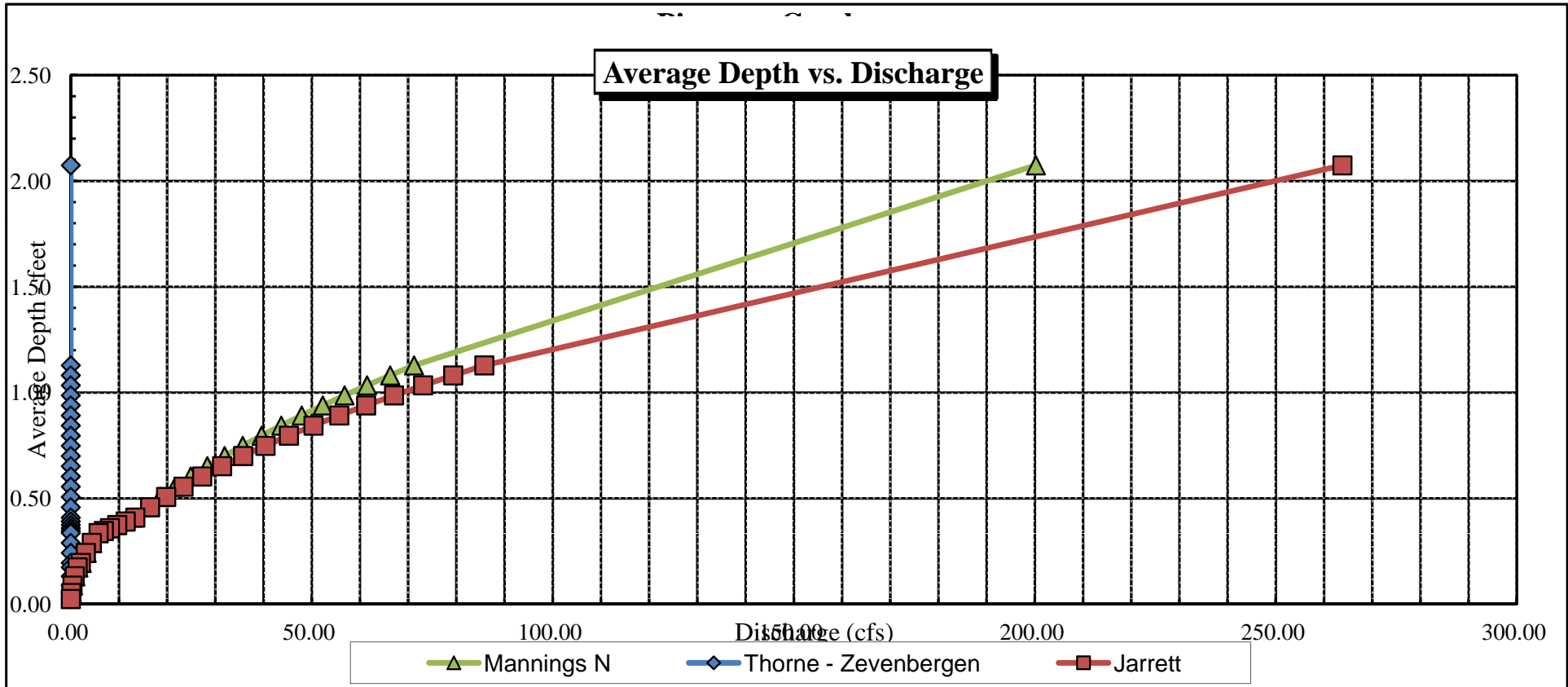
RECOMMENDATION BY: AGENCY..... DATE:.....
CWCB REVIEW BY: DATE:.....



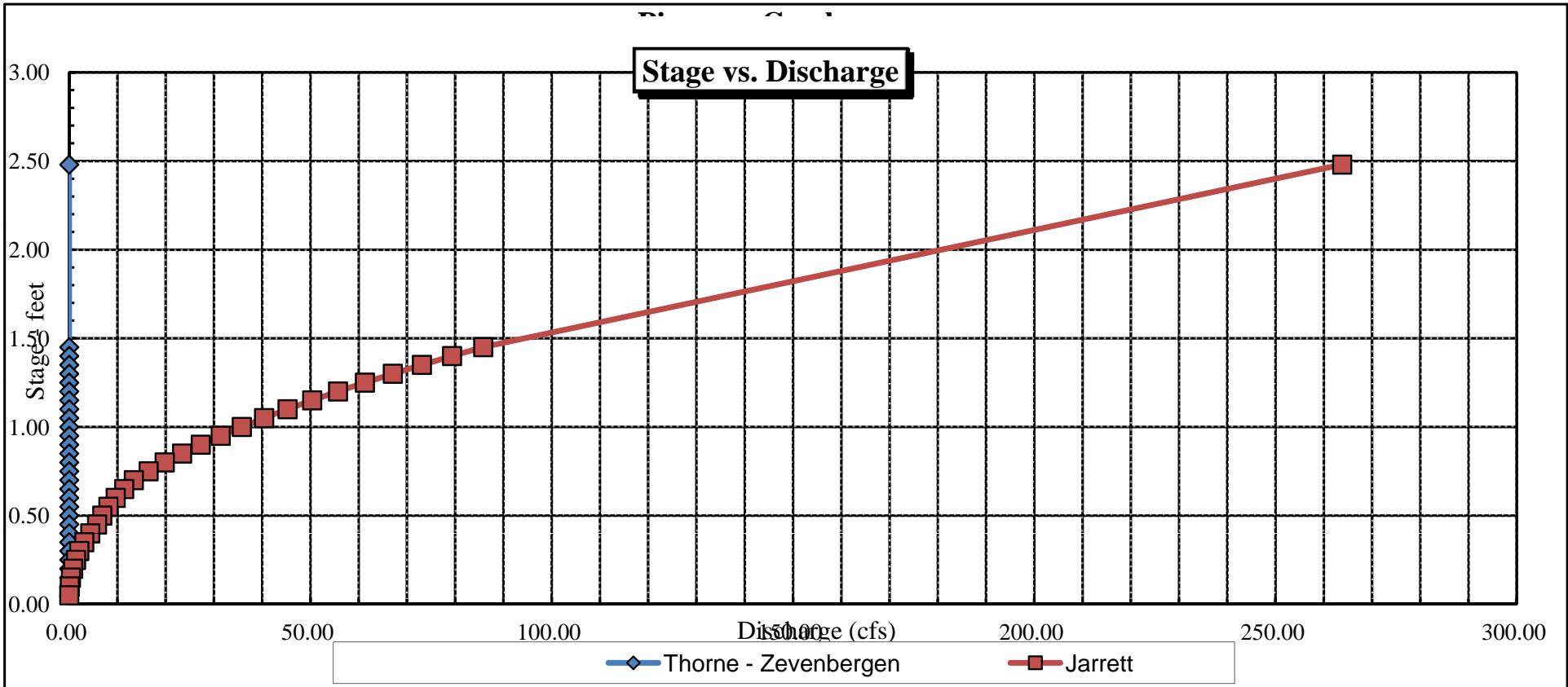


Velocity vs. Discharge





Stage vs. Discharge





FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



COLORADO WATER
CONSERVATION BOARD

LOCATION INFORMATION

STREAM NAME: <u>Piceance Creek</u>		CROSS-SECTION NO.: <u>3</u>
CROSS-SECTION LOCATION: <u>on CPW property - middle portion</u>		
DATE: <u>9-12-12</u>	OBSERVERS: <u>R. Smith, B. Lange</u>	
LEGAL DESCRIPTION	1/4 SECTION: <u>SE</u>	SECTION: <u>11</u>
	TOWNSHIP: <u>10N</u>	RANGE: <u>97E</u> PM: <u>6H</u>
COUNTY: <u>Rio Blanco</u>	WATERSHED: <u>White River</u>	WATER DIVISION: <u>6</u>
		DOW WATER CODE: <u>25343</u>
MAP(S):	USGS: <u>GPS Zone 12 734971</u>	USFS: <u>NAA 83 443 8665</u>

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION	YES/NO	METER TYPE: <u>M-M</u>
METER NUMBER	DATE RATED:	CALIB/SPIN: _____ sec
		TAPE WEIGHT: <u>sunweyd</u> lbs/foot
		TAPE TENSION: <u>sunweyd</u> lbs
CHANNEL BED MATERIAL SIZE RANGE: <u>silt to 8" boulders</u>	PHOTOGRAPHS TAKEN: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	NUMBER OF PHOTOGRAPHS: <u>3</u>

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)	S K E T C H	LEGEND: Stake (X) Station (O) Photo (◇) Direction of Flow (→)
(X) Tape @ Stake LB	0.0	<u>sunweyd</u>		
(X) Tape @ Stake RB	0.0	<u>sunweyd</u>		
(O) WS @ Tape LB/RB	0.0	<u>7.55 / 7.58</u>		
(2) WS Upstream	<u>21.5</u>	<u>7.44</u>		
(3) WS Downstream	<u>30.7</u>	<u>7.70</u>		
SLOPE	<u>0.26 / 52.2 = .005</u>			

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	DISTANCE ELECTROFISHED _____ ft	FISH CAUGHT YES/NO	WATER CHEMISTRY SAMPLED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>														
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																	

COMMENTS

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

LOCATION INFORMATION

STREAM NAME: Piceance Creek
 XS LOCATION: Below USGS Gage
 XS NUMBER: 1

DATE: 5-Jul-06
 OBSERVERS: N. Dieterich

1/4 SEC: SE
 SECTION: SE
 TWP: 1N
 RANGE: 97W
 PM: Sixth

COUNTY: Rio Blanco
 WATERSHED: White River
 DIVISION: 6
 DOW CODE: 25343

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: 0.0011

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: Piceance Creek
 XS LOCATION: Below USGS Gage
 XS NUMBER: 1

DATA POINTS= 44

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
LS	6.00	6.71			0.00		0.00	0.00	0.0%
1 G	7.00	6.78			0.00		0.00	0.00	0.0%
	8.00	7.45			0.00		0.00	0.00	0.0%
	9.00	7.72			0.00		0.00	0.00	0.0%
	9.50	7.84			0.00		0.00	0.00	0.0%
	10.00	8.22			0.00		0.00	0.00	0.0%
	12.00	8.78			0.00		0.00	0.00	0.0%
W	13.20	9.13	0.00	0.00	0.00		0.00	0.00	0.0%
	13.50	9.20	0.10	0.00	0.31	0.10	0.03	0.00	0.0%
	13.70	9.20	0.10	0.00	0.20	0.10	0.03	0.00	0.0%
	14.10	9.25	0.15	0.00	0.40	0.15	0.05	0.00	0.0%
	14.40	9.25	0.15	0.10	0.30	0.15	0.05	0.00	0.2%
	14.70	9.25	0.15	0.15	0.30	0.15	0.05	0.01	0.3%
	15.00	9.35	0.25	0.58	0.32	0.25	0.08	0.04	1.9%
	15.30	9.40	0.30	0.83	0.30	0.30	0.09	0.07	3.2%
	15.60	9.50	0.40	1.00	0.32	0.40	0.12	0.12	5.2%
	15.90	9.50	0.40	0.99	0.30	0.40	0.12	0.12	5.1%
	16.20	9.50	0.40	1.01	0.30	0.40	0.12	0.12	5.2%
	16.50	9.50	0.40	0.90	0.30	0.40	0.12	0.11	4.7%
	16.80	9.50	0.40	0.96	0.30	0.40	0.12	0.12	5.0%
	17.10	9.55	0.45	0.97	0.30	0.45	0.14	0.13	5.7%
	17.40	9.60	0.50	1.03	0.30	0.50	0.15	0.15	6.7%
	17.70	9.60	0.50	0.79	0.30	0.50	0.15	0.12	5.1%
	18.00	9.60	0.50	0.90	0.30	0.50	0.15	0.14	5.8%
	18.30	9.50	0.40	0.91	0.32	0.40	0.12	0.11	4.7%
	18.60	9.50	0.40	0.88	0.30	0.40	0.12	0.11	4.6%
	18.90	9.55	0.45	0.94	0.30	0.45	0.14	0.13	5.5%
	19.20	9.55	0.45	1.02	0.30	0.45	0.14	0.14	5.9%
	19.50	9.50	0.40	0.72	0.30	0.40	0.12	0.09	3.7%
	19.80	9.50	0.40	0.77	0.30	0.40	0.12	0.09	4.0%
	20.10	9.50	0.40	0.82	0.30	0.40	0.12	0.10	4.3%
	20.40	9.50	0.40	0.71	0.30	0.40	0.12	0.09	3.7%
	20.70	9.50	0.40	0.75	0.30	0.40	0.12	0.09	3.9%
	21.00	9.45	0.35	0.69	0.30	0.35	0.11	0.07	3.1%
	21.30	9.40	0.30	0.66	0.30	0.30	0.09	0.06	2.6%
	21.60	9.35	0.25	0.00	0.30	0.25	0.07	0.00	0.0%
	21.90	9.25	0.15	0.00	0.32	0.15	0.04	0.00	0.0%
W	22.10	9.08	0.00	0.00	0.26		0.00	0.00	0.0%
	23.00	8.73			0.00		0.00	0.00	0.0%
	24.50	8.57			0.00		0.00	0.00	0.0%
	25.00	8.07			0.00		0.00	0.00	0.0%
	26.00	7.79			0.00		0.00	0.00	0.0%
1 G	27.00	6.99			0.00		0.00	0.00	0.0%
RS	28.00				0.00		0.00	0.00	0.0%

TOTALS -----

9.07 0.5 2.97 2.32 100.0%
 (Max.)

Manning's n = 0.0299
 Hydraulic Radius= 0.3268415

STREAM NAME: Piceance Creek
 XS LOCATION: Below USGS Gage
 XS NUMBER: 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	2.97	2.92	-1.4%
8.86	2.97	5.34	80.2%
8.88	2.97	5.14	73.2%
8.90	2.97	4.93	66.3%
8.92	2.97	4.73	59.5%
8.94	2.97	4.53	52.7%
8.96	2.97	4.33	46.1%
8.98	2.97	4.14	39.5%
9.00	2.97	3.94	33.0%
9.02	2.97	3.75	26.5%
9.04	2.97	3.56	20.2%
9.06	2.97	3.38	13.9%
9.07	2.97	3.29	10.8%
9.08	2.97	3.20	7.8%
9.09	2.97	3.10	4.7%
9.10	2.97	3.01	1.7%
9.11	2.97	2.92	-1.4%
9.12	2.97	2.84	-4.4%
9.13	2.97	2.75	-7.4%
9.14	2.97	2.66	-10.4%
9.15	2.97	2.57	-13.3%
9.16	2.97	2.48	-16.3%
9.18	2.97	2.31	-22.1%
9.20	2.97	2.14	-27.9%
9.22	2.97	1.97	-33.4%
9.24	2.97	1.81	-38.9%
9.26	2.97	1.66	-44.0%
9.28	2.97	1.52	-48.8%
9.30	2.97	1.38	-53.6%
9.32	2.97	1.24	-58.2%
9.34	2.97	1.10	-62.7%
9.36	2.97	0.97	-67.2%

WATERLINE AT ZERO
 AREA ERROR = 9.100

STREAM NAME: Piceance Creek
 XS LOCATION: Below USGS Gage
 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	6.99	19.69	1.78	2.61	35.01	20.90	100.0%	1.67	81.26	2.32
	8.10	15.13	1.02	1.50	15.36	15.73	75.3%	0.98	24.86	1.62
	8.15	15.01	0.97	1.45	14.60	15.58	74.5%	0.94	23.01	1.58
	8.20	14.90	0.93	1.40	13.85	15.43	73.8%	0.90	21.22	1.53
	8.25	14.71	0.89	1.35	13.11	15.21	72.8%	0.86	19.55	1.49
	8.30	14.48	0.86	1.30	12.38	14.96	71.5%	0.83	17.97	1.45
	8.35	14.25	0.82	1.25	11.67	14.70	70.3%	0.79	16.46	1.41
	8.40	14.02	0.78	1.20	10.96	14.44	69.1%	0.76	15.00	1.37
	8.45	13.80	0.74	1.15	10.26	14.19	67.9%	0.72	13.61	1.33
	8.50	13.57	0.71	1.10	9.58	13.93	66.6%	0.69	12.28	1.28
	8.55	13.34	0.67	1.05	8.91	13.67	65.4%	0.65	11.01	1.24
	8.60	12.86	0.64	1.00	8.25	13.17	63.0%	0.63	9.94	1.20
	8.65	12.21	0.62	0.95	7.62	12.52	59.9%	0.61	9.01	1.18
	8.70	11.56	0.61	0.90	7.03	11.86	56.7%	0.59	8.16	1.16
	8.75	11.05	0.58	0.85	6.46	11.34	54.3%	0.57	7.31	1.13
	8.80	10.75	0.55	0.80	5.92	11.02	52.7%	0.54	6.44	1.09
	8.85	10.45	0.52	0.75	5.39	10.70	51.2%	0.50	5.61	1.04
	8.90	10.15	0.48	0.70	4.87	10.39	49.7%	0.47	4.85	0.99
	8.95	9.85	0.44	0.65	4.38	10.07	48.2%	0.43	4.13	0.94
	9.00	9.55	0.41	0.60	3.89	9.75	46.7%	0.40	3.47	0.89
	9.05	9.25	0.37	0.55	3.42	9.44	45.1%	0.36	2.86	0.84
WL	9.10	8.98	0.33	0.50	2.96	9.15	43.8%	0.32	2.30	0.78
	9.15	8.73	0.29	0.45	2.52	8.87	42.4%	0.28	1.79	0.71
	9.20	8.25	0.25	0.40	2.09	8.37	40.1%	0.25	1.37	0.65
	9.25	7.20	0.24	0.35	1.69	7.29	34.9%	0.23	1.05	0.62
	9.30	6.90	0.19	0.30	1.34	6.98	33.4%	0.19	0.73	0.55
	9.35	6.59	0.15	0.25	1.00	6.66	31.9%	0.15	0.47	0.47
	9.40	6.00	0.11	0.20	0.69	6.05	29.0%	0.11	0.27	0.39
	9.45	5.55	0.07	0.15	0.40	5.59	26.7%	0.07	0.11	0.28
	9.50	2.39	0.06	0.10	0.13	2.42	11.6%	0.06	0.03	0.24
	9.55	1.05	0.04	0.05	0.04	1.06	5.1%	0.04	0.01	0.19

STREAM NAME: Piceance Creek
 XS LOCATION: Below USGS Gage
 XS NUMBER: 1

SUMMARY SHEET

MEASURED FLOW (Qm)=	2.32 cfs
CALCULATED FLOW (Qc)=	2.30 cfs
(Qm-Qc)/Qm * 100 =	0.5 %
MEASURED WATERLINE (WLm)=	9.11 ft
CALCULATED WATERLINE (WLc)=	9.10 ft
(WLm-WLc)/WLm * 100 =	0.0 %
MAX MEASURED DEPTH (Dm)=	0.50 ft
MAX CALCULATED DEPTH (Dc)=	0.50 ft
(Dm-Dc)/Dm * 100	0.1 %
MEAN VELOCITY=	0.78 ft/sec
MANNING'S N=	0.030
SLOPE=	0.0011 ft/ft
.4 * Qm =	0.9 cfs
2.5 * Qm=	5.8 cfs

RECOMMENDED INSTREAM FLOW:

=====

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

_____	_____
_____	_____
_____	_____
_____	_____

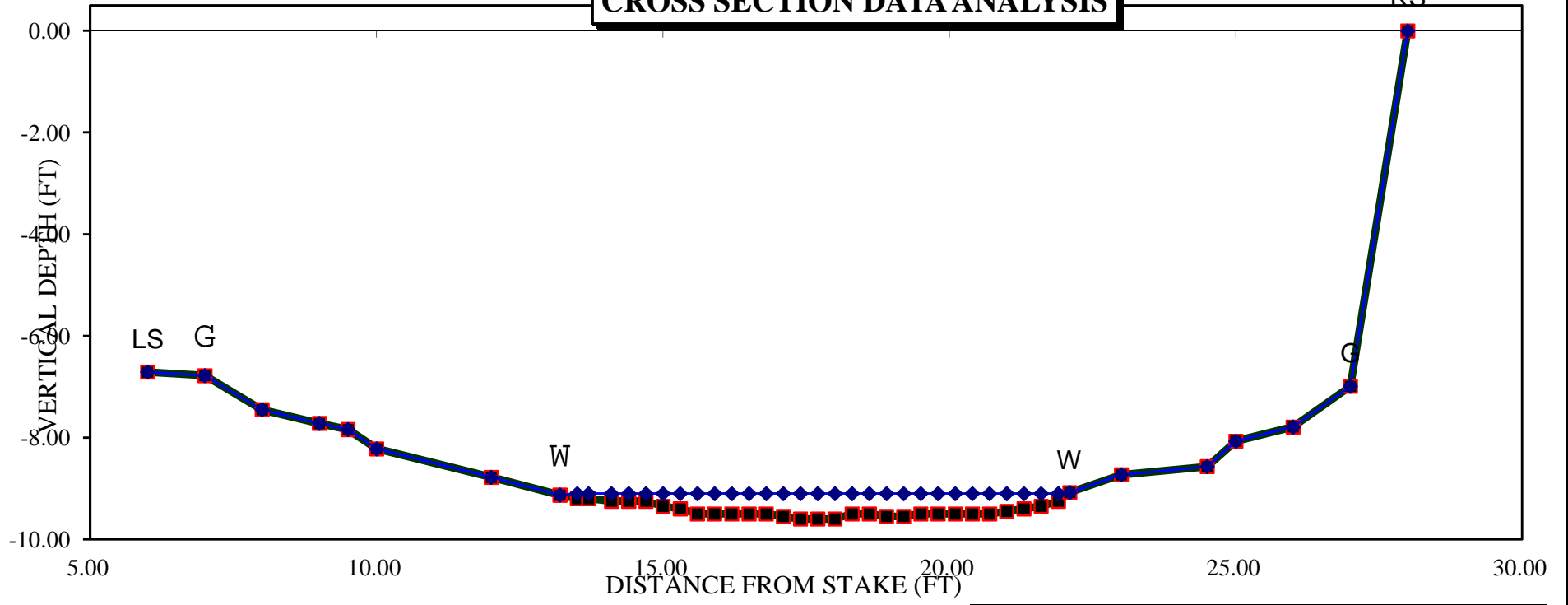
RATIONALE FOR RECOMMENDATION:

=====

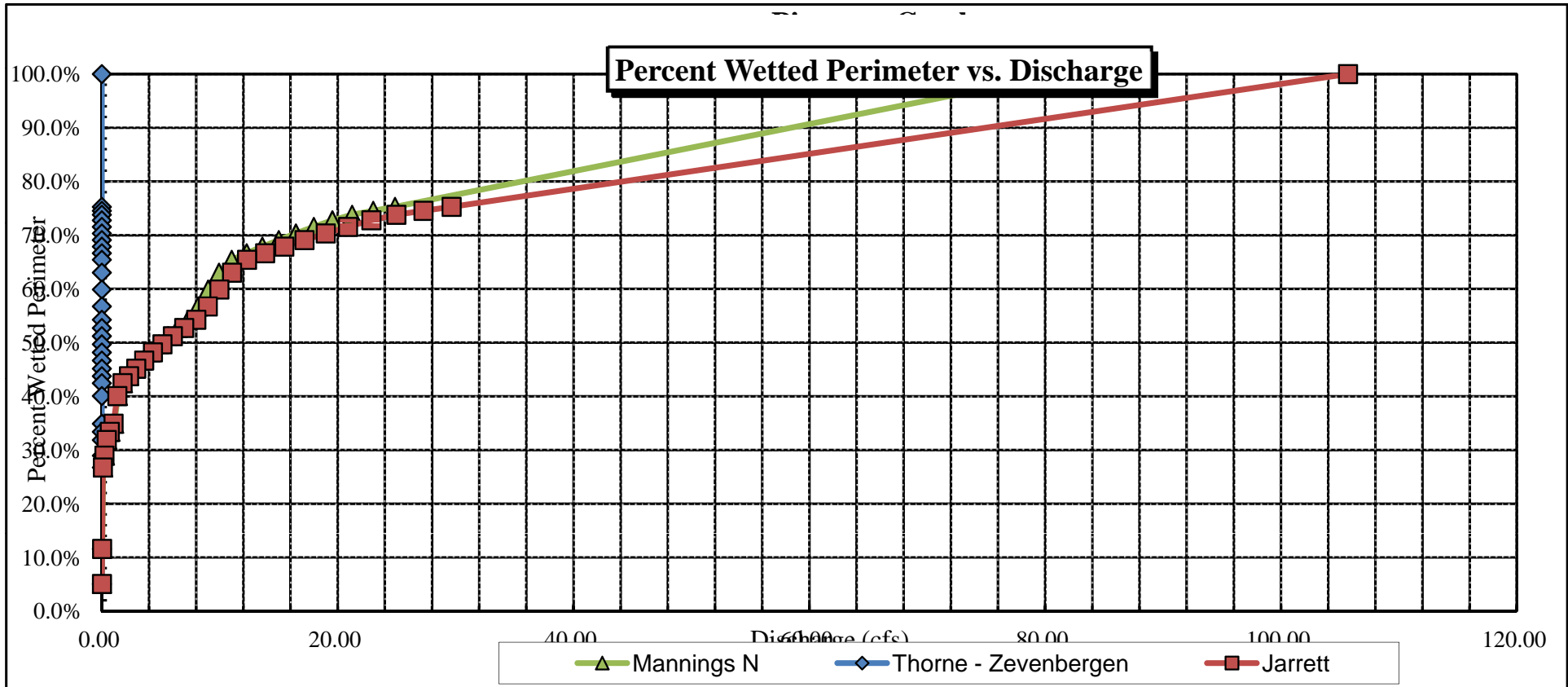
RECOMMENDATION BY: AGENCY..... DATE:.....

CWCB REVIEW BY: DATE:.....

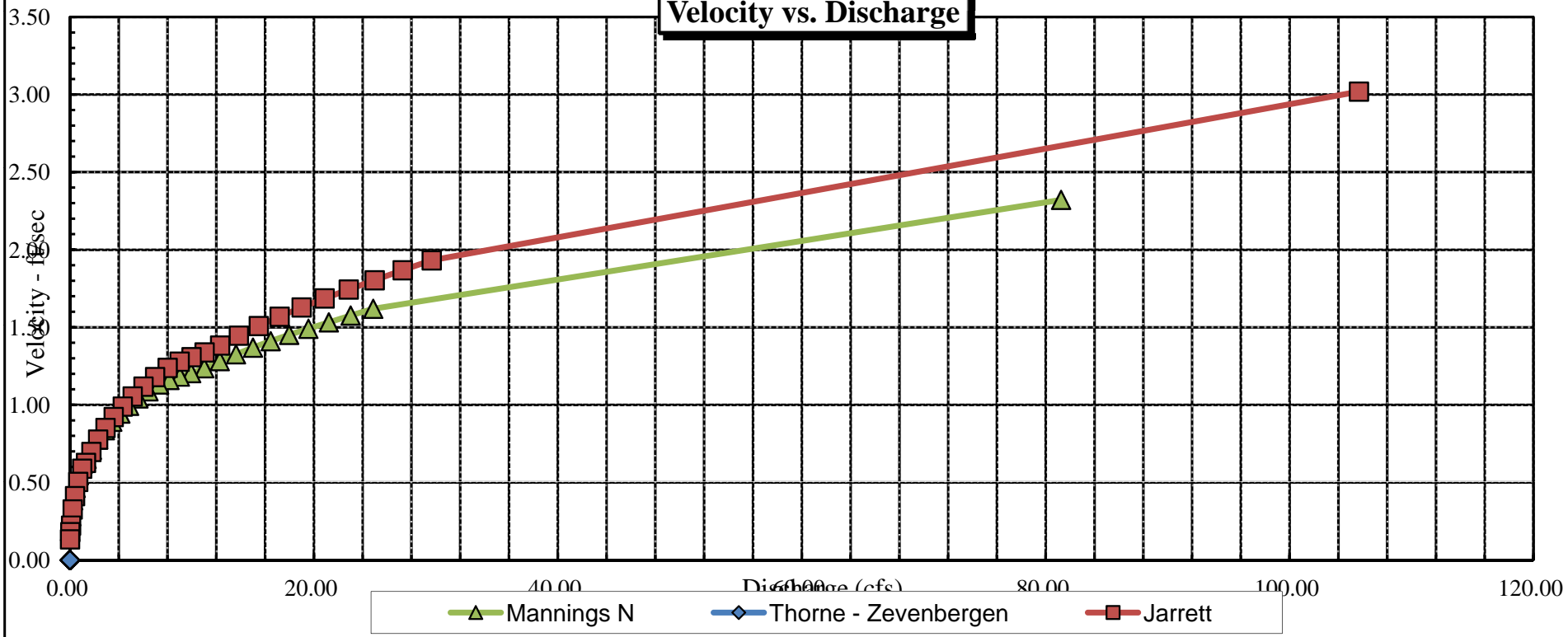
CROSS SECTION DATA ANALYSIS

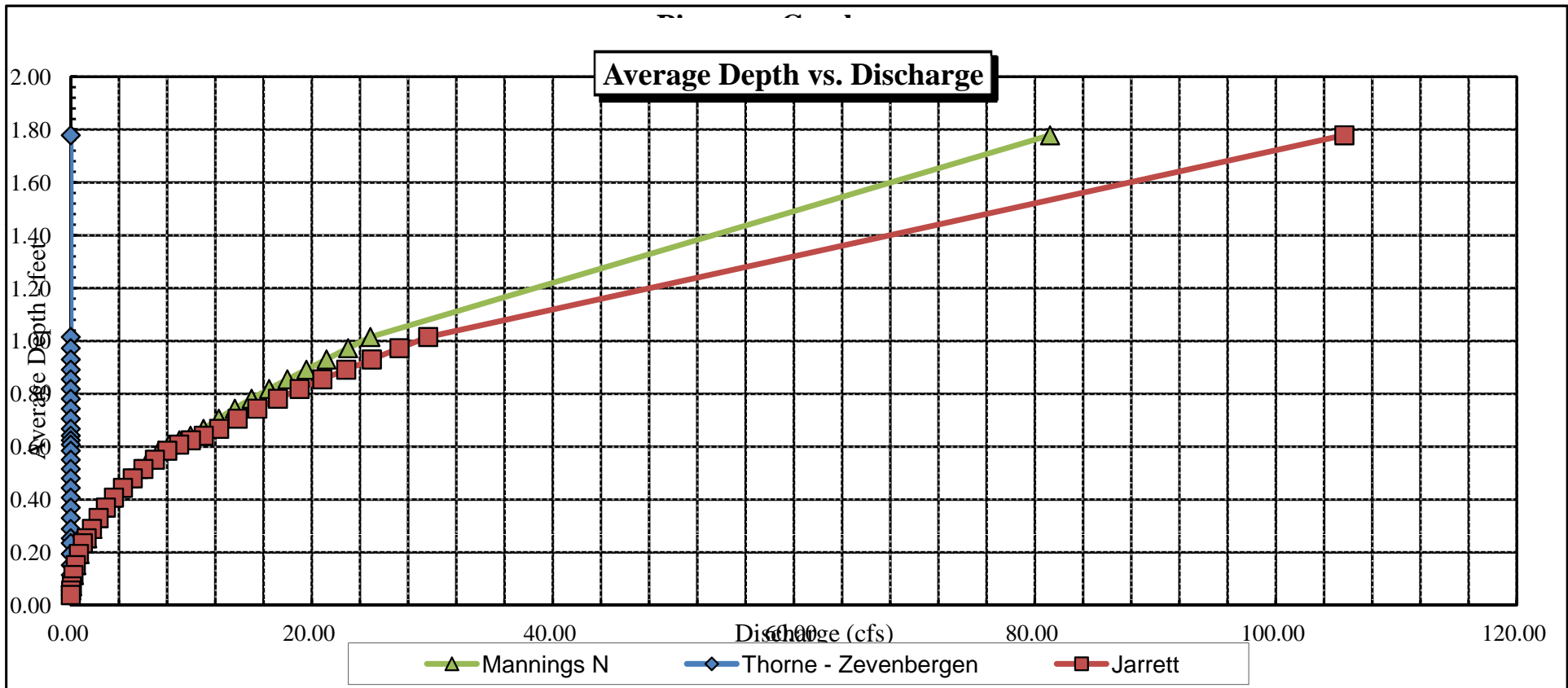


Channel Bottom Computed Water Line

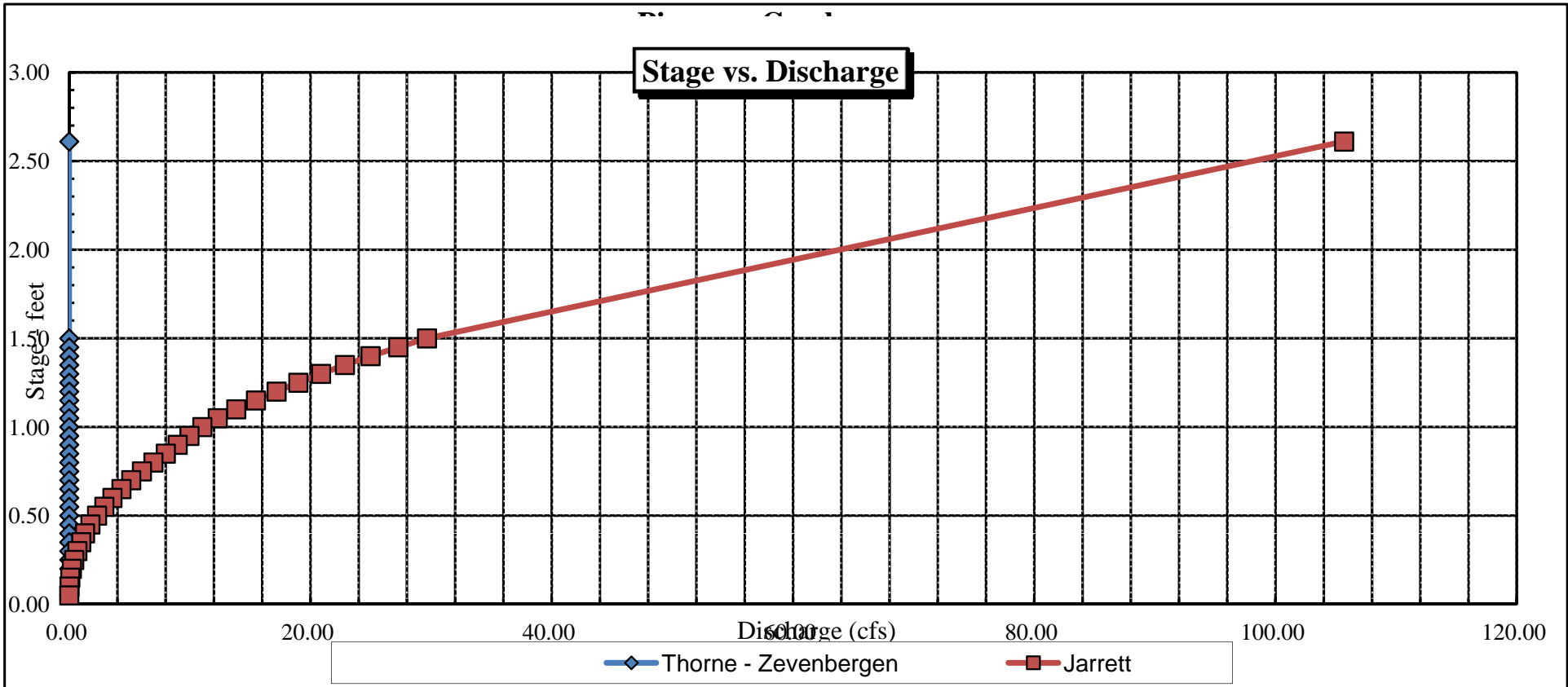


Velocity vs. Discharge





Stage vs. Discharge





FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



COLORADO WATER
CONSERVATION BOARD

LOCATION INFORMATION

STREAM NAME: Pileasny Creek

CROSS-SECTION LOCATION: Adams USGS Gage (09306222) Lat 40°04'41", Long 108°14'09"

CROSS-SECTION NO.: 1

DATE: 7/5/06 OBSERVERS: Dieterich/Hollard

TIN R9730 Section 2 SESE

LEGAL DESCRIPTION: SECTION: SESE SECTION: 2 TOWNSHIP: 1 DWS RANGE: 97 EW PM:

COUNTY: Rio Blanco WATERSHED: Pileasny Creek (WR) WATER DIVISION: 6 DOW WATER CODE: HUC 14050006

USGS: _____
USFS: _____

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES/NO _____ METER TYPE: Magn. McIlroy Flow Meter

METER NUMBER: _____ DATE RATED: _____ CALIB/SPIN: _____ TAPE WEIGHT: _____ lbs/foot TAPE TENSION: _____ lbs

CHANNEL BED MATERIAL SIZE RANGE: Sand - fine gravel PHOTOGRAPHS TAKEN: YES/NO _____ NUMBER OF PHOTOGRAPHS: _____

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)	SKETCH				
⊗ Tape @ Stake LB	0.0						LEGEND: Stake ⊗ Station ① Photo ① Direction of Flow →
⊗ Tape @ Stake RB	0.0						
① WS @ Tape LB/RB	0.0						
② WS Upstream							
③ WS Downstream							
SLOPE							

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:

COMMENTS

air temp = 68° F
 H₂O temp = 64° F
 pH = 6.63
 sc = 3420

BLM-White River Field Office: Watershed Field Data Sheet

ROSGEN CHANNEL CLASSIFICATION

Stream Name: Pileasance Cr. (below USGS 1079) Reach ID: R246 Date: 7/5/2006 English/Metri
 Crew: Dickinson & Hollowed
 Channel Type: _____ Elev. Start Reach: _____ Reach Length: _____
 Reviewed Channel Type: _____ Permanent X-section Basin Survey: Reference: Y/N Stream Order: _____
 Reviewer(s): _____ Date: _____

- 1) Thread:
 single no side channels
 single w/ side channels
 multiple channels

- 2) Entrenchment: Measured / Estimated
 _____ / BF widths /
20 BF width @ station
2.6 max BF depth
97.2 FPW (width @ 2x max BFD) +.38
 Entrenchment Ratio (FPW/BFW) _____

- 3) W/D Ratio: Measured / Estimated
 _____ computed BF Area
 _____ Ave. BF Depth (BFA/BFW @ station)
 _____ W/D Ratio (BFW @ station/Ave. BFD) _____

- 4) Sinuosity: Measured / Estimated Air Photo
 _____ Stream length (thalweg)
 _____ Valley length (strait line)
 _____ Sinuosity (stream length/valley length) _____

- 5) Gradient: Measured / Estimated
 _____ Elev. Change
 _____ Distance
 _____ Gradient
 _____ Ave. Gradient

- 6) Particle Size Distribution: Measured / Est.
 _____ dominant size class (mm)
 _____ D 50 (mm) Description: _____
 _____ D 85 (mm)

- 7) Depositional Patterns:
 point bars
 point bars w/ mid channel bars
 many side-channel bars
 side or diagonal bars
 channel composed of bars/islands
 none

- 8) Bed Features:
 Cascade
 Cascade/Pool
 Step/Pool
 Plane bed/Glide
 Pool/Riffle
 Other: _____

- ① Channel 9.41 H₂O 9.08 } 93.5 } length
X-SECT Channel 9.58 H₂O 9.13 }
 ③ Channel 9.75 H₂O 9.3 } 106.7 } length

Station	BS	MI	FS	Elevation	BF Elevation	Ave BFD	BF Area	Notes
(m)	(m)	(m)	(m)	(m)	(m)	((E-BFE)+(E prev-BFE))/2	W x Ave. BFD	BFA/BFW
1	4.86	104.50	✓	100	✓			
1			4.87					BM#
1			4.28					LBP#
4			5.40					LBP#
5			5.81					
6			6.71					
7			6.98					
8			7.45					LBF
9			7.72					
9.5			7.84					
10			8.22					
12			8.78					
13.2			9.13					
15			9.45					LWE
16			9.47					
17			9.52					
18			9.58					
19			9.55					
20			9.53					
21			9.48					
22.1			9.07					
23			9.73					RWF
24.5			8.57					
25			8.87					
26			7.79					
27			6.99					
28			6.5					RBF
23			6.03					
35			5.97					
36			5.19					
38			4.84					Terrace

Additional Remarks: TRBP - 4.19 RBP 9.85
RBP = 4.81 LBP = 4.87 (behind terrace)
BM#1 = 100 RBP = 41.4 LBP = 1
BF = 74 (8.99), (27.1)
4.35

Photos:
 # 1 Description: Bench mark pole next to gauging station (base of B)
 # 2 Description: looking US from vialle X-section
 # 3 Description: looking DS from vialle X-section
 # Description:
 # Description:

Rifle

DISCHARGE/CROSS SECTION NOTES

22.1-132 = 8.9 @ 1040

STREAM NAME:

Pleasant Creek

CROSS SECTION NO: 1

DATE: 7/5/06

SHEET ___ OF ___

BEGINNING OF MEASUREMENT

EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE)

LEFT / RIGHT

Gage Reading: ___ ft

TIME: 1045

Features	Stake Crossing (C) 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		
	LWE	13.2	0.3		0	0.6						
		13.5			0.05			20.8	0		0	0
		13.8			0.1				0		0.015	0
		14.1			0.15				0		0.03	0
		14.4			0.15				0		0.045	0
		14.7			0.15				0.1		0.045	0.0045
		15			0.25				0.15		0.045	0.0275
		15.3			0.30				0.58		0.075	0.0435
		15.6			0.40				0.83		0.09	0.0747
		15.9			0.40				1.0		0.12	0.12
		16.2			0.40				0.99		0.12	0.188
		16.5			0.40				1.01		0.12	0.1212
		16.8			0.40				0.90		0.12	0.108
		17.1			0.45				0.96		0.12	0.1152
		17.4			0.50				0.97		0.135	0.13095
		17.7			0.50				1.03		0.15	0.1545
		18.0			0.50				0.79		0.15	0.1185
		18.3			0.40				0.90		0.15	0.135
		18.6			0.40				0.91		0.12	0.1092
		18.9			0.45				0.88		0.12	0.1056
		19.2			0.45				0.94		0.135	0.1269
		19.5			0.40				1.02		0.135	0.1377
		19.8			0.40				0.72		0.12	0.0864
		20.1			0.40				0.77		0.12	0.0924
		20.4			0.40				0.82		0.12	0.0984
		20.7			0.40				0.71		0.12	0.0852
		21.0			0.35				0.75		0.12	0.09
		21.3			0.30				0.69		0.105	0.07245
		21.6			0.25				0.66		0.09	0.0594
		21.9			0.15				0		0.075	0
		22.1	0.2		0				0		0.045	0
									0		0	0

Total = 2.385 cfs

TOTALS:

End of Measurement Time: Gage Reading: CALCULATIONS PERFORMED BY: CALCULATIONS CHECKED BY:

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

LOCATION INFORMATION

STREAM NAME: Piceance Creek
 XS LOCATION: 50 yds u/s of CPW fence 40 03'57.6" 108 14' 29.6"
 XS NUMBER: 1

 DATE: 21-Jun-05
 OBSERVERS: Uppendahl, Graf, Dilger

 1/4 SEC: SE
 SECTION: 11
 TWP: 1N
 RANGE: 97W
 PM: Sixth

 COUNTY: Rio Blanco
 WATERSHED: White River
 DIVISION: 6
 DOW CODE: 25343

 USGS MAP: White River City 7.5'
 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: 0.01009515

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: Piceance Creek
 XS LOCATION: 50 yds u/s of CPW fence 40 03'57.6" 108 14' 29.6"
 XS NUMBER: 1

DATA POINTS= 34

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
S	0.00	5.00			0.00		0.00	0.00	0.0%
	0.50	4.90			0.00		0.00	0.00	0.0%
	2.50	5.30			0.00		0.00	0.00	0.0%
1 G	3.50	5.75			0.00		0.00	0.00	0.0%
	5.00	6.65			0.00		0.00	0.00	0.0%
	7.00	6.85			0.00		0.00	0.00	0.0%
W	8.50	6.91	0.00	0.00	0.00		0.00	0.00	0.0%
	9.25	7.10	0.20	0.00	0.77	0.20	0.15	0.00	0.0%
	10.00	7.35	0.45	0.00	0.79	0.45	0.34	0.00	0.0%
	10.75	7.40	0.50	0.77	0.75	0.50	0.31	0.24	2.2%
	11.25	7.45	0.55	1.56	0.50	0.55	0.34	0.54	4.8%
	12.00	7.50	0.60	1.73	0.75	0.60	0.45	0.78	7.0%
	12.75	7.55	0.65	1.66	0.75	0.65	0.49	0.81	7.3%
	13.50	7.60	0.70	2.27	0.75	0.70	0.53	1.19	10.8%
	14.25	7.40	0.50	2.27	0.78	0.50	0.38	0.85	7.7%
	15.00	7.25	0.35	2.66	0.76	0.35	0.26	0.70	6.3%
	15.75	7.20	0.30	2.92	0.75	0.30	0.23	0.66	5.9%
	16.50	7.20	0.30	2.35	0.75	0.30	0.23	0.53	4.8%
	17.25	7.30	0.40	1.57	0.76	0.40	0.30	0.47	4.3%
	18.00	7.40	0.50	1.41	0.76	0.50	0.38	0.53	4.8%
	18.75	7.35	0.50	2.27	0.75	0.50	0.38	0.85	7.7%
	19.50	7.40	0.50	1.64	0.75	0.50	0.38	0.62	5.6%
	20.25	7.40	0.50	1.92	0.75	0.50	0.38	0.72	6.5%
	21.00	7.40	0.50	2.24	0.75	0.50	0.38	0.84	7.6%
	21.75	7.50	0.60	1.12	0.76	0.60	0.45	0.50	4.6%
	22.50	7.55	0.65	0.42	0.75	0.65	0.49	0.20	1.8%
	23.25	7.80	0.90	0.06	0.79	0.90	0.68	0.04	0.4%
	24.00	7.35	0.45	0.01	0.87	0.45	0.34	0.00	0.0%
	24.75	7.35	0.45	0.00	0.75	0.45	0.36	0.00	0.0%
W	25.60	6.89	0.00	0.00	0.97		0.00	0.00	0.0%
	27.00	6.40			0.00		0.00	0.00	0.0%
	29.00	6.00			0.00		0.00	0.00	0.0%
1 G	29.75	5.75			0.00		0.00	0.00	0.0%
S	31.40	4.60			0.00		0.00	0.00	0.0%

TOTALS -----

17.52 0.9 8.18 11.07 100.0%
 (Max.)

Manning's n = 0.0664
 Hydraulic Radius= 0.46675041

STREAM NAME: Piceance Creek
 XS LOCATION: 50 yds u/s of CPW fence 40 03'57.6" 108 14' 29.6"
 XS NUMBER: 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	8.18	8.14	-0.4%
6.65	8.18	13.04	59.5%
6.67	8.18	12.62	54.3%
6.69	8.18	12.20	49.2%
6.71	8.18	11.79	44.1%
6.73	8.18	11.38	39.2%
6.75	8.18	10.98	34.2%
6.77	8.18	10.58	29.4%
6.79	8.18	10.19	24.6%
6.81	8.18	9.80	19.8%
6.83	8.18	9.42	15.2%
6.85	8.18	9.04	10.6%
6.86	8.18	8.86	8.3%
6.87	8.18	8.67	6.1%
6.88	8.18	8.49	3.9%
6.89	8.18	8.32	1.7%
6.90	8.18	8.14	-0.4%
6.91	8.18	7.97	-2.6%
6.92	8.18	7.80	-4.6%
6.93	8.18	7.63	-6.7%
6.94	8.18	7.46	-8.8%
6.95	8.18	7.29	-10.8%
6.97	8.18	6.96	-14.9%
6.99	8.18	6.62	-19.0%
7.01	8.18	6.29	-23.1%
7.03	8.18	5.96	-27.1%
7.05	8.18	5.64	-31.1%
7.07	8.18	5.31	-35.0%
7.09	8.18	4.99	-39.0%
7.11	8.18	4.67	-42.9%
7.13	8.18	4.36	-46.7%
7.15	8.18	4.04	-50.6%

WATERLINE AT ZERO

AREA ERROR = 6.898

STREAM NAME: Piceance Creek
 XS LOCATION: 50 yds u/s of CPW fence 40 03'57.6" 108 14' 29.6"
 XS NUMBER: 1

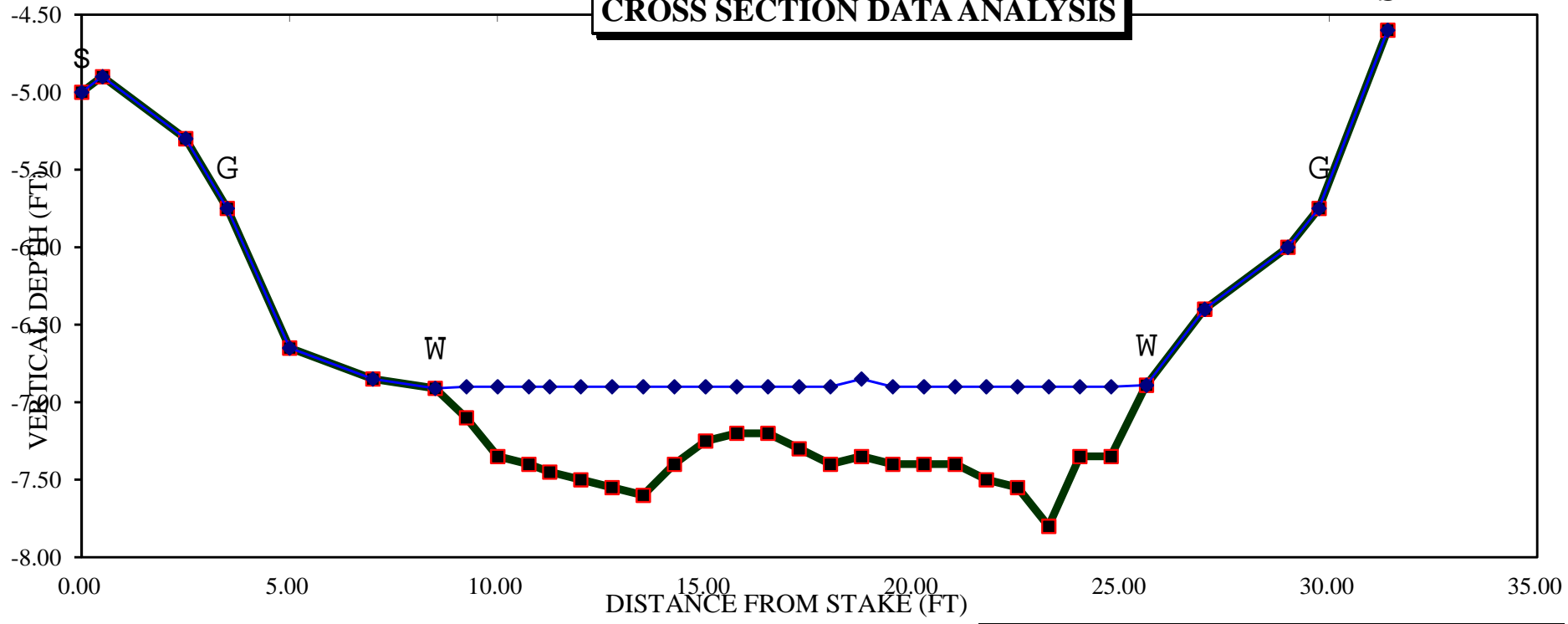
Constant Manning's n

GL = lowest Grassline elevation corrected for sag

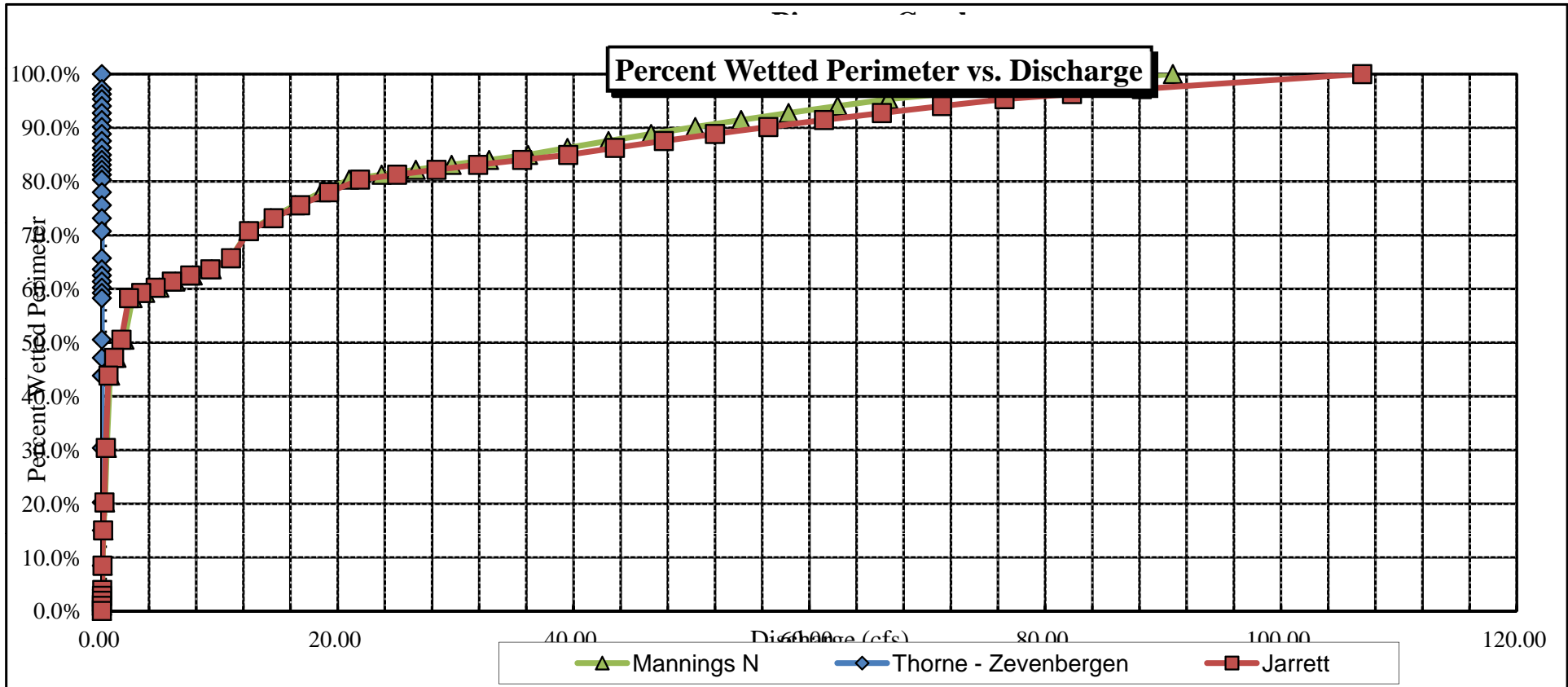
STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

	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	5.75	26.25	1.31	2.05	34.42	27.10	100.0%	1.27	90.83	2.64
	5.90	25.56	1.20	1.90	30.59	26.34	97.2%	1.16	76.03	2.49
	5.95	25.33	1.16	1.85	29.32	26.09	96.3%	1.12	71.30	2.43
	6.00	25.09	1.12	1.80	28.06	25.83	95.3%	1.09	66.70	2.38
	6.05	24.76	1.08	1.75	26.81	25.48	94.0%	1.05	62.39	2.33
	6.10	24.43	1.05	1.70	25.58	25.13	92.7%	1.02	58.23	2.28
	6.15	24.10	1.01	1.65	24.37	24.78	91.4%	0.98	54.21	2.22
	6.20	23.76	0.98	1.60	23.17	24.43	90.1%	0.95	50.33	2.17
	6.25	23.43	0.94	1.55	21.99	24.07	88.8%	0.91	46.58	2.12
	6.30	23.10	0.90	1.50	20.83	23.72	87.5%	0.88	42.96	2.06
	6.35	22.76	0.86	1.45	19.68	23.37	86.2%	0.84	39.49	2.01
	6.40	22.43	0.83	1.40	18.55	23.02	84.9%	0.81	36.15	1.95
	6.45	22.20	0.79	1.35	17.44	22.76	84.0%	0.77	32.84	1.88
	6.50	21.97	0.74	1.30	16.33	22.52	83.1%	0.73	29.66	1.82
	6.55	21.75	0.70	1.25	15.24	22.27	82.2%	0.68	26.62	1.75
	6.60	21.52	0.66	1.20	14.16	22.02	81.3%	0.64	23.73	1.68
	6.65	21.30	0.61	1.15	13.09	21.77	80.3%	0.60	20.97	1.60
	6.70	20.67	0.58	1.10	12.04	21.13	78.0%	0.57	18.61	1.55
	6.75	20.03	0.55	1.05	11.02	20.48	75.6%	0.54	16.40	1.49
	6.80	19.38	0.52	1.00	10.04	19.83	73.2%	0.51	14.34	1.43
	6.85	18.74	0.48	0.95	9.08	19.17	70.8%	0.47	12.42	1.37
WL	6.90	17.39	0.47	0.90	8.18	17.81	65.7%	0.46	10.95	1.34
	6.95	16.84	0.44	0.85	7.33	17.25	63.6%	0.42	9.32	1.27
	7.00	16.55	0.39	0.80	6.49	16.94	62.5%	0.38	7.71	1.19
	7.05	16.26	0.35	0.75	5.67	16.63	61.4%	0.34	6.23	1.10
	7.10	15.97	0.30	0.70	4.87	16.32	60.2%	0.30	4.89	1.00
	7.15	15.73	0.26	0.65	4.07	16.06	59.3%	0.25	3.67	0.90
	7.20	15.49	0.21	0.60	3.29	15.79	58.3%	0.21	2.61	0.79
	7.25	13.42	0.19	0.55	2.59	13.70	50.5%	0.19	1.92	0.74
	7.30	12.53	0.15	0.50	1.94	12.78	47.2%	0.15	1.24	0.64
	7.35	11.66	0.11	0.45	1.33	11.88	43.9%	0.11	0.70	0.52
	7.40	8.04	0.11	0.40	0.86	8.24	30.4%	0.10	0.43	0.50
	7.45	5.32	0.11	0.35	0.56	5.49	20.3%	0.10	0.27	0.49
	7.50	3.93	0.08	0.30	0.33	4.08	15.0%	0.08	0.14	0.42
	7.55	2.18	0.08	0.25	0.17	2.30	8.5%	0.08	0.07	0.40
	7.60	0.98	0.10	0.20	0.10	1.07	4.0%	0.09	0.04	0.45
	7.65	0.71	0.08	0.15	0.05	0.78	2.9%	0.07	0.02	0.38
	7.70	0.48	0.05	0.10	0.02	0.52	1.9%	0.05	0.01	0.29
	7.75	0.24	0.03	0.05	0.01	0.27	1.0%	0.02	0.00	0.19
	7.80	0.01	0.00	0.00	0.00	0.01	0.0%	0.00	0.00	0.02

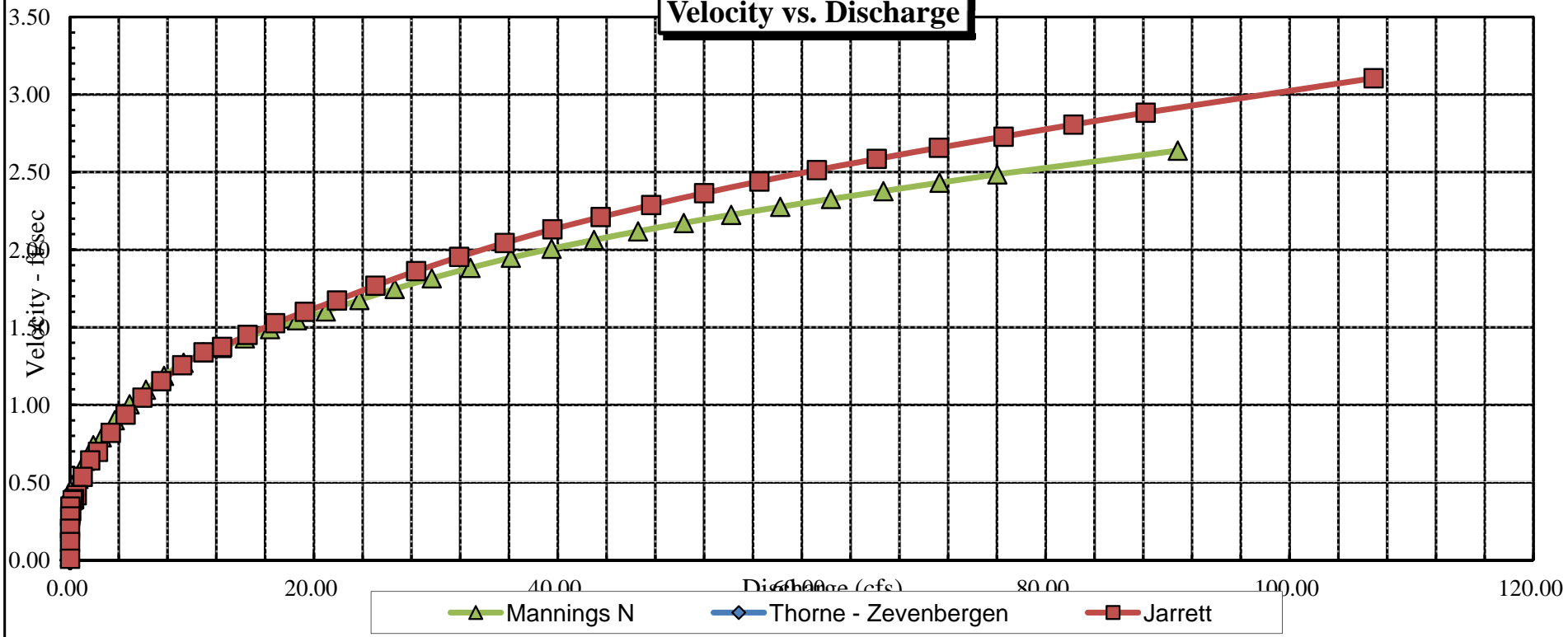
CROSS SECTION DATA ANALYSIS

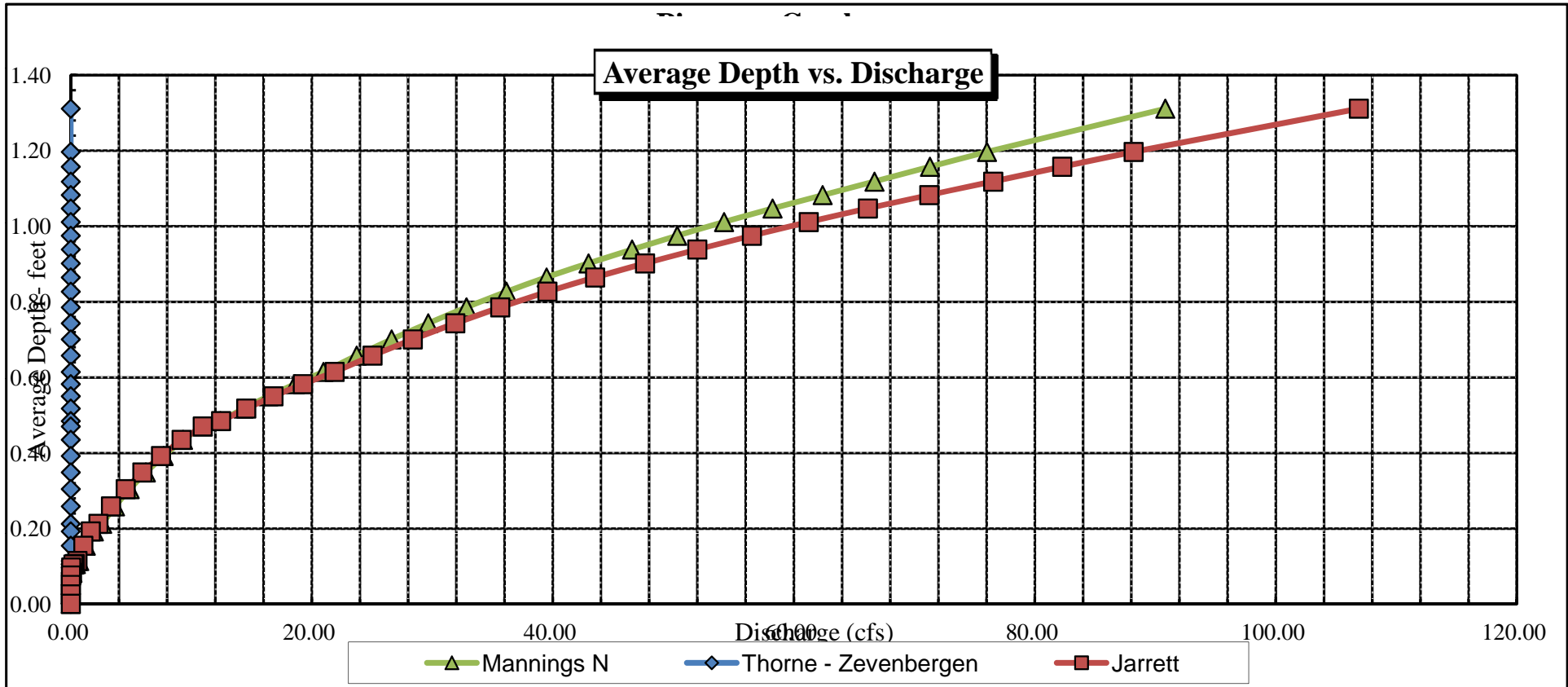


Channel Bottom Computed Water Line

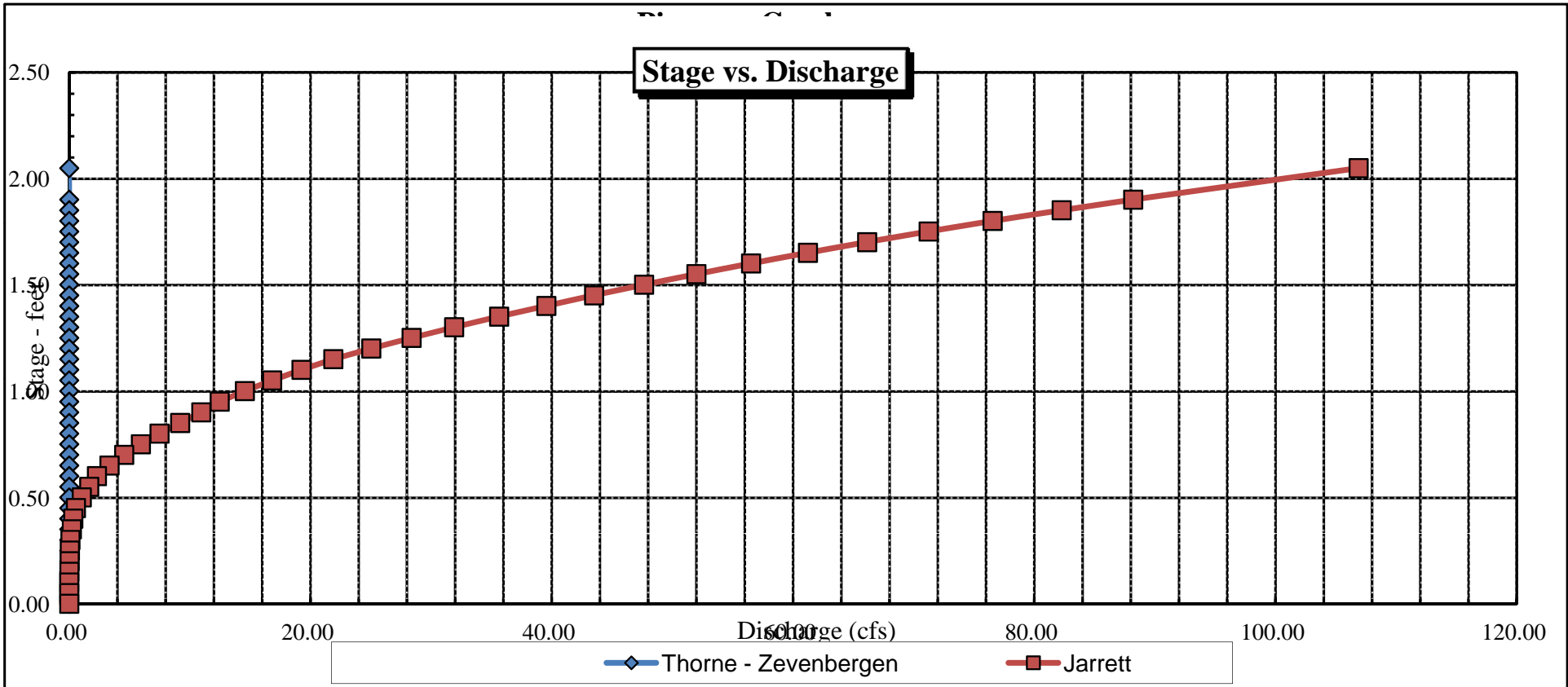


Velocity vs. Discharge





Stage vs. Discharge



FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



LOCATION INFORMATION

COLORADO WATER CONSERVATION BOARD		CROSS-SECTION NO.: 2062105	
STREAM NAME: Piceance Creek			
CROSS-SECTION LOCATION: 50 YDS U/S OF LOW FACE			
DATE: 6/21 05		OBSERVERS: UPPENHAHL / Dinger / Gropf	
LEGAL DESCRIPTION: Rio Blanco		CROSS-SECTION COORDINATES: 40° 03' 57.6" 108 14 29.6	
COUNTY: White River City		SECTION: SE SECTION: 11 TOWNSHIP: 1 N RANGE: 97 EW SECTION: 6	
WATERSHIP: Piceance CK		WATER DIVISION: 6 white	
MAPS:		DOW WATER CODE:	

SUPPLEMENTAL DATA

BAG TAPE SECTION SAME AS DISCHARGE SECTION: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		METER TYPE: FLO-MATE	
METER NUMBER:		DATE RATED:	
CHANNEL BED MATERIAL:		CALIB/SPIN: 800 TAPE WEIGHT: lb/foot TAPE TENSION: lbs	
SIZE RANGE:		PHOTOGRAPHS TAKEN: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
NUMBER OF PHOTOGRAPHS:		NUMBER OF PHOTOGRAPHS:	

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)	ELEVATION
② Tape @ Stake L/B	0.0	4.60	
② Tape @ Stake R/B	0.0	5.00	
① WS @ Tape L/B/R/B	62	6.89 / 6.91	
② WS Upstream	42	6.60	
③ WS Downstream		7.65	
SLOPE: 1.05/104 = 0.010			

LEGEND:

- Stake (⊗)
- Station (⓪)
- Photo (Ⓛ)

Direction of Flow (→)

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> 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	16	17	18	19	20	TOTAL	
AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:																						

COMMENTS

6.65 READING = STAKE 2.26 Q = 20.0 cfs

Internet

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek CROSS-SECTION NO.: 03062105 DATE: 6/2/05 SHEET 1 OF 1

BEGINNING OF MEASUREMENT: _____ EDGE OF WATER LOOKING DOWNSTREAM: (LEFT) RIGHT Gage Reading: _____ TIME: 12:15

Features	Stake 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		
S				5.00								
Top of r.		.5		4.90								
BF		2.5		5.30								
LL		3.5		5.75								
		5.0		6.65								
		7.0		6.85								
W		8.5		6.91	Ø					Ø		
		9.25		7.1	.20					Ø		
		10.0		7.35	.45					Ø		
		10.75		7.40	.50					.77		
		11.25		7.45	.55					1.56		
		12.0		7.50	.60					1.73		
		12.75		7.55	.65					1.66		
		13.50		7.60	.70					2.27		
		14.25		7.40	.50					2.27		
		15.0		7.25	.35					2.66		
		15.75		7.20	.30					2.92		
		16.5		7.20	.30					2.35		
		17.25		7.30	.40					1.57		
		18.0		7.40	.50					1.41		
		18.75		7.35	.50					2.27		
		19.60		7.40	.50					1.64		
		20.25		7.40	.50					1.92		
		21.0		7.40	.50					2.24		
		21.75		7.50	.60					1.12		
		22.5		7.55	.65					0.47		
		23.25		7.80	.90					0.05		
		24.0		7.35	.45					0.01		
		24.75		7.35	.45					Ø		
W		25.6		6.89	Ø					Ø		
		27.0		6.40								
Ø		29.0		6.00								
BL		29.75		5.75								
S		31.4		4.60								

TOTALS: _____

End of Measurement Time: 13:00 Gage Reading: _____ ft CALCULATIONS PERFORMED BY: _____ CALCULATIONS CHECKED BY: _____

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

LOCATION INFORMATION

STREAM NAME: Piceance Creek
 XS LOCATION: 500 ft upst from County Rd 5 bridge
 XS NUMBER: 1

 DATE: 18-Sep-00
 OBSERVERS: R.Smith, P. Daggett, C. Hollowed

 1/4 SEC: NW NW
 SECTION: 12
 TWP: 1N
 RANGE: 97W
 PM: 6th

 COUNTY: Rio Blanco
 WATERSHED: White River
 DIVISION: 5
 DOW CODE: 25343

 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: 0.001

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: Piceance Creek
 XS LOCATION: 500 ft upst from County Rd 5 bridge
 XS NUMBER: 1

DATA POINTS= 29

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
S	0.00	2.59	0.00	0.00	0.00		0.00	0.00	0.0%
	3.00	2.78	0.00	0.00	0.00		0.00	0.00	0.0%
	5.00	3.38	0.00	0.00	0.00		0.00	0.00	0.0%
1 G	5.60	3.83	0.00	0.00	0.00		0.00	0.00	0.0%
	6.40	4.19	0.00	0.00	0.00		0.00	0.00	0.0%
	7.50	4.74	0.00	0.00	0.00		0.00	0.00	0.0%
W	8.60	5.07	0.00	0.00	0.00		0.00	0.00	0.0%
	11.00	5.37	0.30	0.03	2.42	0.30	0.51	0.02	0.3%
	12.00	5.55	0.50	0.58	1.02	0.50	0.50	0.29	6.3%
	13.00	5.45	0.40	1.10	1.00	0.40	0.40	0.44	9.5%
	14.00	5.42	0.40	1.00	1.00	0.40	0.40	0.40	8.6%
	15.00	5.49	0.45	0.78	1.00	0.45	0.45	0.35	7.6%
	16.00	5.39	0.35	0.85	1.00	0.35	0.35	0.30	6.4%
	17.00	5.35	0.30	0.85	1.00	0.30	0.30	0.26	5.5%
	18.00	5.36	0.30	0.75	1.00	0.30	0.30	0.23	4.9%
	19.00	5.34	0.30	0.89	1.00	0.30	0.30	0.27	5.8%
	20.00	5.32	0.30	0.40	1.00	0.30	0.30	0.12	2.6%
	21.00	5.35	0.30	0.93	1.00	0.30	0.30	0.28	6.0%
	22.00	5.33	0.30	1.11	1.00	0.30	0.30	0.33	7.2%
	23.00	5.46	0.40	0.83	1.01	0.40	0.40	0.33	7.2%
	24.00	5.56	0.50	0.78	1.00	0.50	0.50	0.39	8.4%
	25.00	5.58	0.50	0.78	1.00	0.50	0.50	0.39	8.4%
	26.00	5.57	0.50	0.49	1.00	0.50	0.50	0.25	5.3%
	27.00	5.46	0.40	0.00	1.01	0.40	0.40	0.00	0.0%
	28.00	5.18	0.10	0.00	1.04	0.10	0.15	0.00	0.0%
W	30.00	5.07	0.00	0.00	2.00		0.00	0.00	0.0%
	32.50	4.60	0.00	0.00	0.00		0.00	0.00	0.0%
1 G	35.00	3.76	0.00	0.00	0.00		0.00	0.00	0.0%
LS	36.00	2.68	0.00	0.00	0.00		0.00	0.00	0.0%
TOTALS -----					21.51	0.5	6.86	4.63	100.0%
					(Max.)				
					Manning's n =		0.0325		
					Hydraulic Radius=		0.31891125		

STREAM NAME: Piceance Creek
 XS LOCATION: 500 ft upst from County Rd 5 bridge
 XS NUMBER: 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	6.86	6.54	-4.7%
4.82	6.86	12.16	77.2%
4.84	6.86	11.69	70.3%
4.86	6.86	11.22	63.6%
4.88	6.86	10.76	56.8%
4.90	6.86	10.30	50.1%
4.92	6.86	9.84	43.5%
4.94	6.86	9.39	36.9%
4.96	6.86	8.94	30.3%
4.98	6.86	8.50	23.9%
5.00	6.86	8.05	17.4%
5.02	6.86	7.62	11.0%
5.03	6.86	7.40	7.8%
5.04	6.86	7.18	4.7%
5.05	6.86	6.96	1.5%
5.06	6.86	6.75	-1.6%
5.07	6.86	6.54	-4.7%
5.08	6.86	6.32	-7.8%
5.09	6.86	6.11	-10.9%
5.10	6.86	5.90	-13.9%
5.11	6.86	5.70	-16.9%
5.12	6.86	5.50	-19.9%
5.14	6.86	5.10	-25.6%
5.16	6.86	4.72	-31.3%
5.18	6.86	4.34	-36.7%
5.20	6.86	3.97	-42.1%
5.22	6.86	3.61	-47.4%
5.24	6.86	3.25	-52.6%
5.26	6.86	2.89	-57.8%
5.28	6.86	2.55	-62.9%
5.30	6.86	2.20	-67.9%
5.32	6.86	1.86	-72.9%

WATERLINE AT ZERO

AREA ERROR = 5.055

STREAM NAME: Piceance Creek
 XS LOCATION: 500 ft upst from County Rd 5 bridge
 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

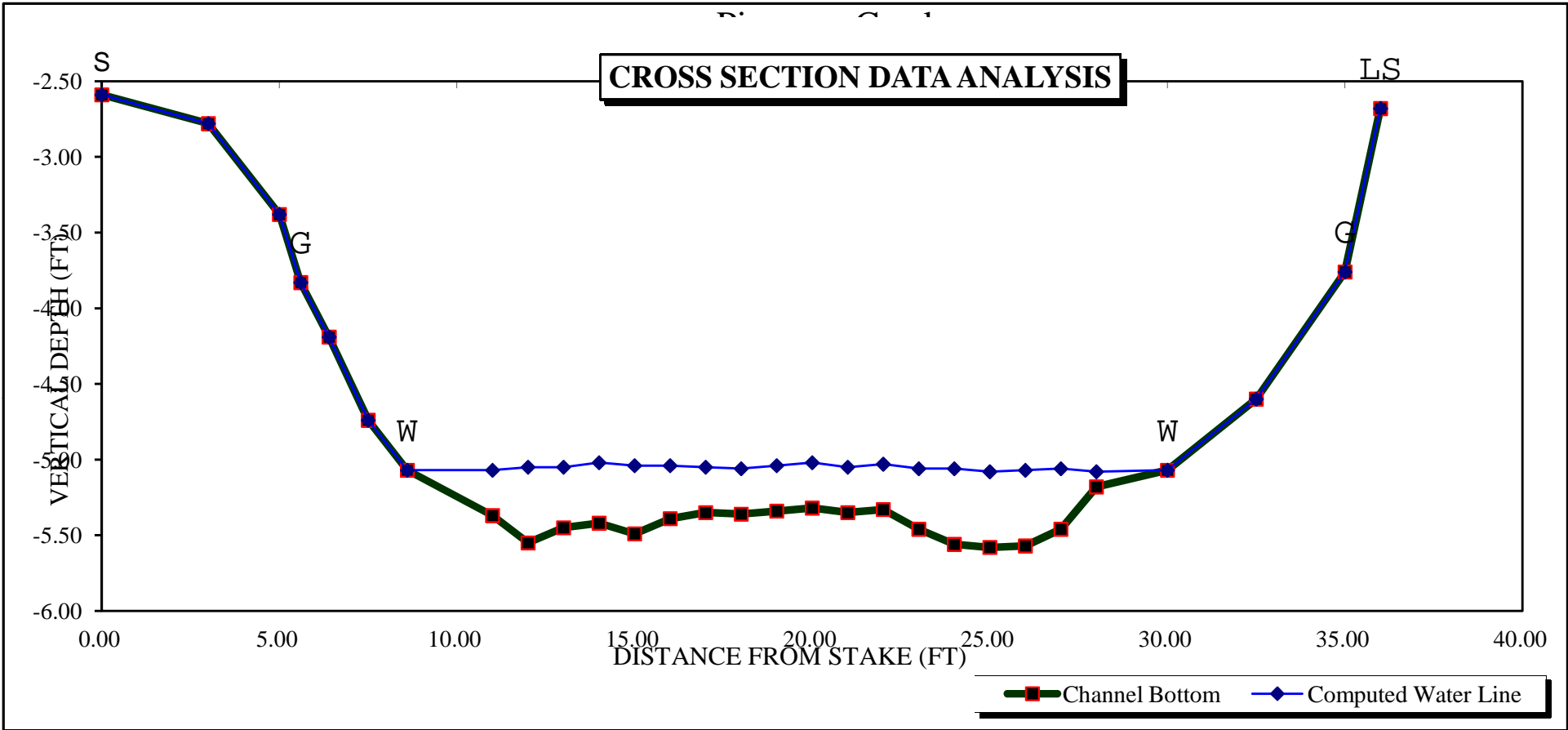
	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	3.83	29.19	1.32	1.75	38.49	29.73	100.0%	1.29	66.12	1.72
	4.05	28.02	1.14	1.53	32.06	28.47	95.8%	1.13	50.17	1.56
	4.10	27.76	1.10	1.48	30.66	28.19	94.8%	1.09	46.89	1.53
	4.15	27.50	1.06	1.43	29.28	27.92	93.9%	1.05	43.71	1.49
	4.20	27.25	1.02	1.38	27.91	27.64	93.0%	1.01	40.63	1.46
	4.25	27.00	0.98	1.33	26.56	27.37	92.1%	0.97	37.63	1.42
	4.30	26.75	0.94	1.28	25.21	27.10	91.2%	0.93	34.74	1.38
	4.35	26.50	0.90	1.23	23.88	26.83	90.3%	0.89	31.95	1.34
	4.40	26.25	0.86	1.18	22.56	26.56	89.4%	0.85	29.26	1.30
	4.45	26.00	0.82	1.13	21.26	26.30	88.5%	0.81	26.67	1.25
	4.50	25.75	0.78	1.08	19.96	26.03	87.6%	0.77	24.19	1.21
	4.55	25.50	0.73	1.03	18.68	25.76	86.6%	0.73	21.80	1.17
	4.60	25.24	0.69	0.98	17.41	25.48	85.7%	0.68	19.53	1.12
	4.65	24.88	0.65	0.93	16.16	25.10	84.4%	0.64	17.42	1.08
	4.70	24.51	0.61	0.88	14.92	24.71	83.1%	0.60	15.42	1.03
	4.75	24.13	0.57	0.83	13.71	24.31	81.8%	0.56	13.53	0.99
	4.80	23.69	0.53	0.78	12.51	23.87	80.3%	0.52	11.76	0.94
	4.85	23.26	0.49	0.73	11.34	23.42	78.8%	0.48	10.11	0.89
	4.90	22.83	0.45	0.68	10.19	22.98	77.3%	0.44	8.56	0.84
	4.95	22.40	0.40	0.63	9.06	22.53	75.8%	0.40	7.13	0.79
	5.00	21.96	0.36	0.58	7.95	22.09	74.3%	0.36	5.81	0.73
WL	5.05	21.53	0.32	0.53	6.86	21.65	72.8%	0.32	4.61	0.67
	5.10	20.49	0.28	0.48	5.80	20.59	69.3%	0.28	3.61	0.62
	5.15	19.18	0.25	0.43	4.81	19.28	64.9%	0.25	2.76	0.57
	5.20	18.23	0.21	0.38	3.88	18.33	61.7%	0.21	1.99	0.51
	5.25	17.65	0.17	0.33	2.99	17.74	59.7%	0.17	1.32	0.44
	5.30	17.08	0.12	0.28	2.12	17.15	57.7%	0.12	0.76	0.36
	5.35	11.95	0.11	0.23	1.35	12.02	40.4%	0.11	0.45	0.34
	5.40	9.28	0.09	0.18	0.84	9.33	31.4%	0.09	0.24	0.29
	5.45	6.39	0.07	0.13	0.44	6.42	21.6%	0.07	0.10	0.24
	5.50	3.85	0.05	0.08	0.19	3.86	13.0%	0.05	0.04	0.19
	5.55	2.19	0.02	0.03	0.04	2.19	7.4%	0.02	0.00	0.09

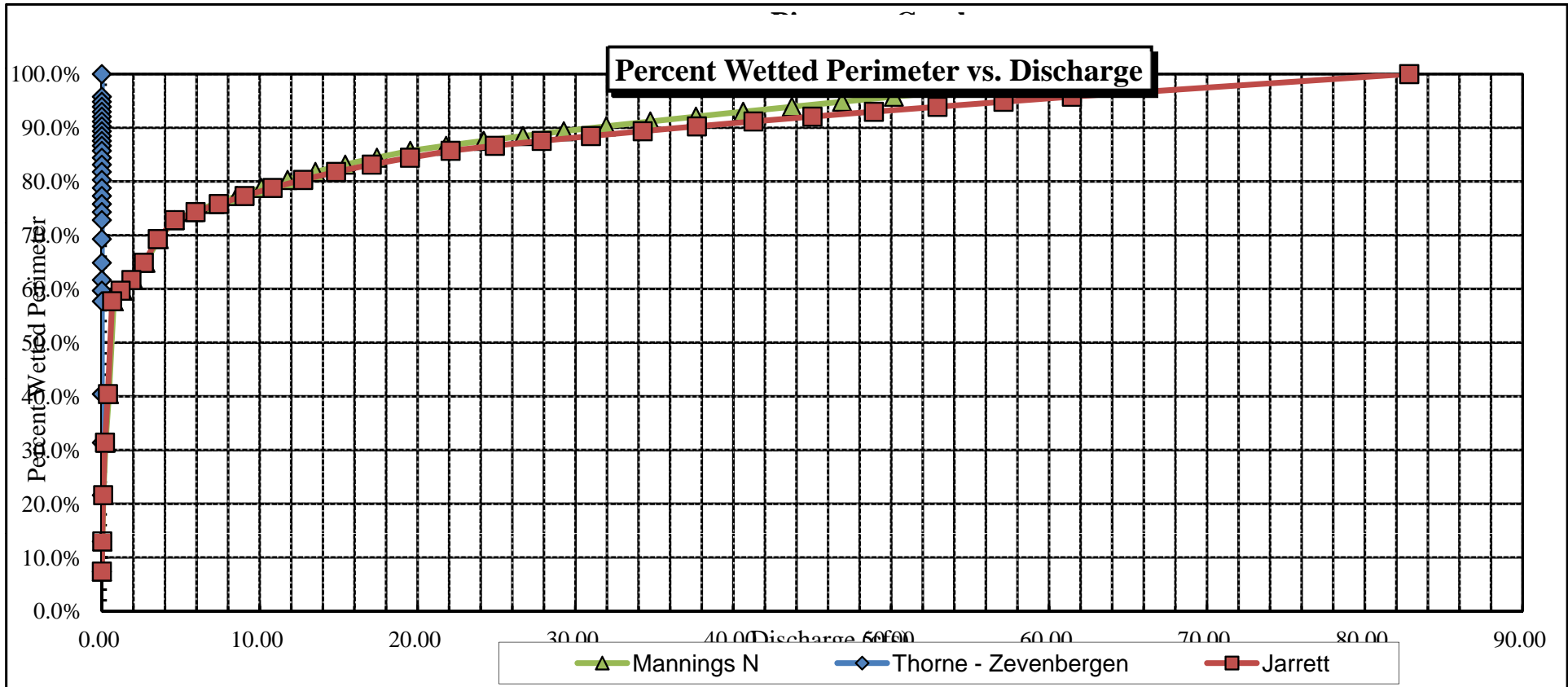
STREAM NAME: Piceance Creek
 XS LOCATION: 500 ft upst from County Rd 5 bridge
 XS NUMBER: 1 Jarrett Variable Manning's n Correction Applied

GL = lowest Grassline elevation corrected for sag
 WL = Waterline corrected for variations in field measured water surface elevations and sag

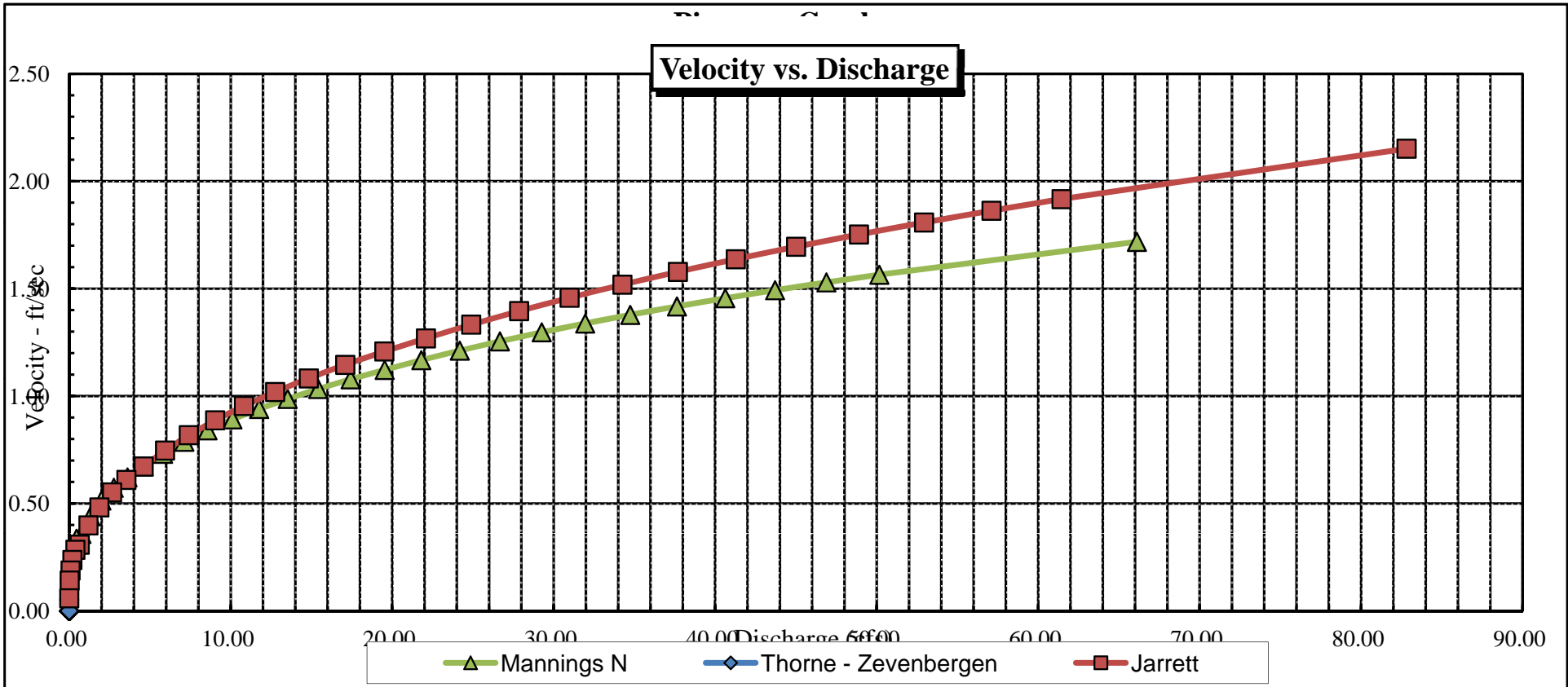
STAGING TABLE

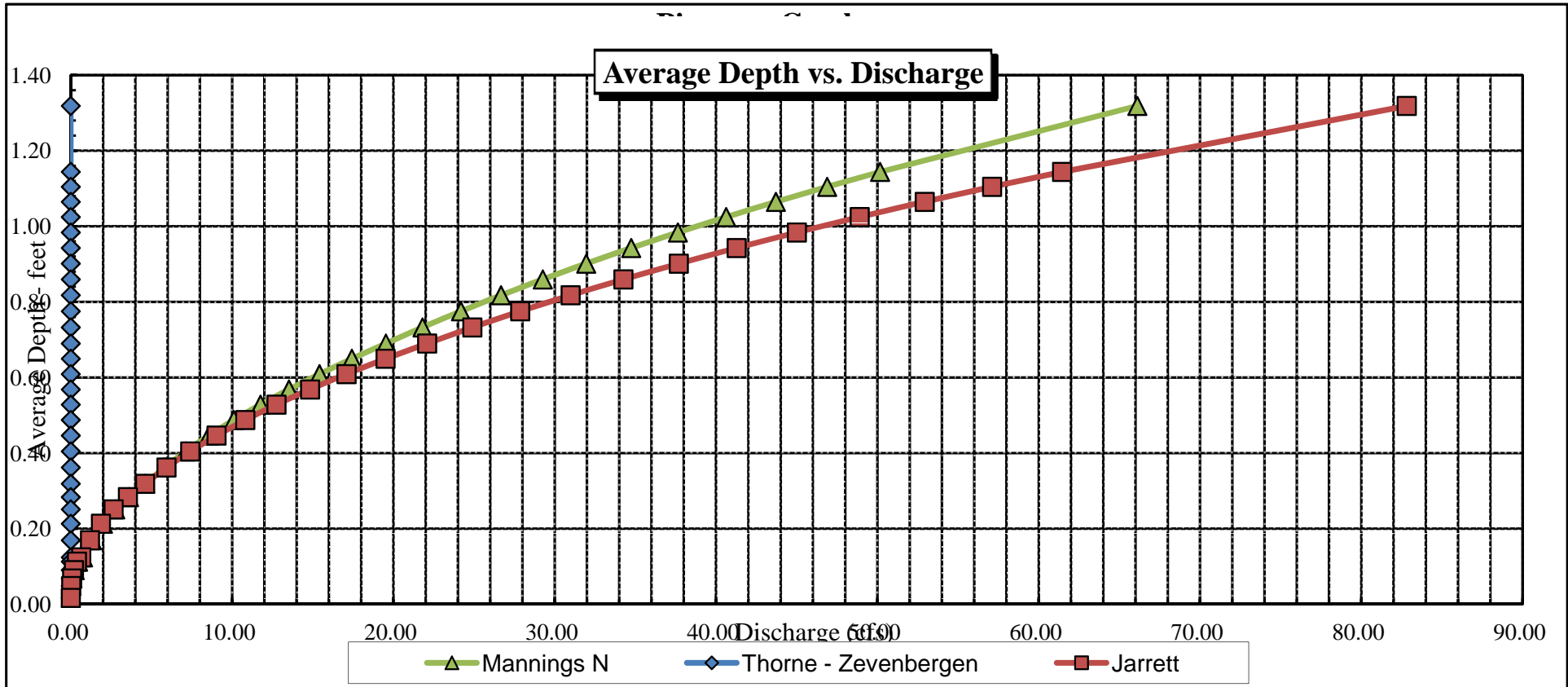
	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	3.83	29.19	1.32	1.75	38.49	29.73	100.0%	1.29	82.81	2.15
	4.05	28.02	1.14	1.53	32.06	28.47	95.8%	1.13	61.45	1.92
	4.10	27.76	1.10	1.48	30.66	28.19	94.8%	1.09	57.11	1.86
	4.15	27.50	1.06	1.43	29.28	27.92	93.9%	1.05	52.93	1.81
	4.20	27.25	1.02	1.38	27.91	27.64	93.0%	1.01	48.90	1.75
	4.25	27.00	0.98	1.33	26.56	27.37	92.1%	0.97	45.01	1.69
	4.30	26.75	0.94	1.28	25.21	27.10	91.2%	0.93	41.27	1.64
	4.35	26.50	0.90	1.23	23.88	26.83	90.3%	0.89	37.69	1.58
	4.40	26.25	0.86	1.18	22.56	26.56	89.4%	0.85	34.26	1.52
	4.45	26.00	0.82	1.13	21.26	26.30	88.5%	0.81	30.98	1.46
	4.50	25.75	0.78	1.08	19.96	26.03	87.6%	0.77	27.86	1.40
	4.55	25.50	0.73	1.03	18.68	25.76	86.6%	0.73	24.89	1.33
	4.60	25.24	0.69	0.98	17.41	25.48	85.7%	0.68	22.09	1.27
	4.65	24.88	0.65	0.93	16.16	25.10	84.4%	0.64	19.52	1.21
	4.70	24.51	0.61	0.88	14.92	24.71	83.1%	0.60	17.09	1.15
	4.75	24.13	0.57	0.83	13.71	24.31	81.8%	0.56	14.83	1.08
	4.80	23.69	0.53	0.78	12.51	23.87	80.3%	0.52	12.75	1.02
	4.85	23.26	0.49	0.73	11.34	23.42	78.8%	0.48	10.82	0.95
	4.90	22.83	0.45	0.68	10.19	22.98	77.3%	0.44	9.04	0.89
	4.95	22.40	0.40	0.63	9.06	22.53	75.8%	0.40	7.41	0.82
	5.00	21.96	0.36	0.58	7.95	22.09	74.3%	0.36	5.93	0.75
WL	5.05	21.53	0.32	0.53	6.86	21.65	72.8%	0.32	4.61	0.67
	5.10	20.49	0.28	0.48	5.80	20.59	69.3%	0.28	3.54	0.61
	5.15	19.18	0.25	0.43	4.81	19.28	64.9%	0.25	2.66	0.55
	5.20	18.23	0.21	0.38	3.88	18.33	61.7%	0.21	1.87	0.48
	5.25	17.65	0.17	0.33	2.99	17.74	59.7%	0.17	1.19	0.40
	5.30	17.08	0.12	0.28	2.12	17.15	57.7%	0.12	0.65	0.31
	5.35	11.95	0.11	0.23	1.35	12.02	40.4%	0.11	0.38	0.28
	5.40	9.28	0.09	0.18	0.84	9.33	31.4%	0.09	0.20	0.24
	5.45	6.39	0.07	0.13	0.44	6.42	21.6%	0.07	0.08	0.19
	5.50	3.85	0.05	0.08	0.19	3.86	13.0%	0.05	0.03	0.14
	5.55	2.19	0.02	0.03	0.04	2.19	7.4%	0.02	0.00	0.06



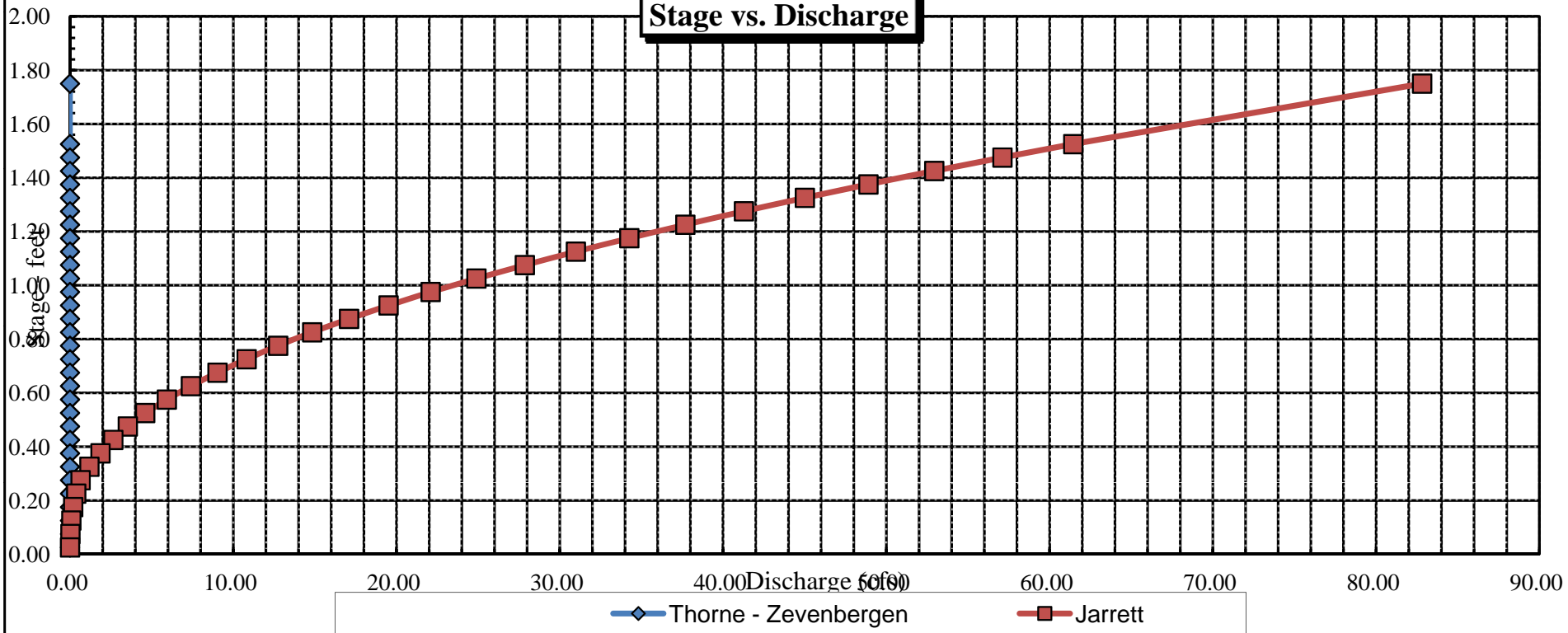


Velocity vs. Discharge





Stage vs. Discharge





FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



COLORADO WATER
CONSERVATION BOARD

LOCATION INFORMATION

STREAM NAME: <u>Piceance Creek - bridge location</u>		CROSS-SECTION NO.: <u>1</u>
CROSS-SECTION LOCATION: <u>500' upstream from County Rd 5 bridge crossing</u>		
DATE: <u>9.18.00</u>	OBSERVERS: <u>R. Smith, P. Daggett, C. Hollowed</u>	
LEGAL DESCRIPTION:	SECTION: <u>NW NW</u>	SECTION: <u>12</u>
COUNTY: <u>Rio Blanco</u>	WATERSHED: <u>White River</u>	WATER DIVISION: <u>5</u>
USGS: <u>White River city, CO</u>	TOWNSHIP: <u>1(N)S</u>	RANGE: <u>97 E/W</u>
USFS:	PM: <u>Sixth</u>	DOW WATER CODE: <u>25343</u>

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: <input checked="" type="radio"/> YES / <input type="radio"/> NO	METER TYPE: <u>Marsh-McBerney</u>
METER NUMBER:	DATE RATED:
CALIB/SPIN: _____ sec	TAPE WEIGHT: <u>surveyed</u> lbs/foot
CHANNEL BED MATERIAL SIZE RANGE: <u>silt to 2" cobbles</u>	TAPE TENSION: <u>surveyed</u> lbs
PHOTOGRAPHS TAKEN: <input checked="" type="radio"/> YES / <input type="radio"/> NO	NUMBER OF PHOTOGRAPHS: <u>3</u>

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)	SKETCH		LEGEND: Stake (X) Station (1) Photo (diamond with arrow) Direction of Flow (arrow)
(X) Tape to Stake LB	0.0	<u>surveyed</u>			
(X) Tape to Stake RB	0.0	<u>surveyed</u>			
(1) WS to Tape LB/RB	0.0				
(2) WS Upstream	<u>15.0</u>	<u>5.04</u>			
(3) WS Downstream	<u>15.0</u>	<u>5.07</u>			
SLOPE					

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
<u>see previous survey</u>																	
AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME.																	
<u>stone fly, snails, mayfly</u>																	

COMMENTS

Ph = 8.8
TDS > 2000
Stream Temp = 22°

Measurement taken after extremely dry water year.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME:

Piceance Creek

CROSS-SECTION NO:

DATE: 9-18-00

SHEET 1 of 1

BEGINNING OF MEASUREMENT

EDGE OF WATER LOOKING DOWNSTREAM:
(0.0 AT STAKE)

LEFT / RIGHT

Gage Reading: 0.5 ft

TIME: 3:50

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		
	RS	0.0		2.59								
		3.0		2.78								
		5.0		3.38								
	GL	5.6		3.83								
		6.4		4.19								
		7.5		4.74								
	WE	8.6		5.07	∅							
		11.0	1.2	5.37	0.30					∅		
		12.0	1.0	5.55	0.50					0.03	0.36	0.011
		13.0		5.45	0.40					0.58	0.5	0.290
		14.0		5.42	0.40					1.10	0.4	0.440
		15.0		5.49	0.45					1.00	0.4	0.400
		16.0		5.39	0.35					0.78	0.45	0.350
		17.0		5.35	0.30					0.85	0.35	0.298
		18.0		5.36	0.30					0.85	0.30	0.255
		19.0		5.34	0.30					0.75	0.30	0.225
		20.0		5.32	0.30					0.89	0.30	0.267
		21.0		5.35	0.30					0.40	0.30	0.120
		22.0		5.33	0.30					0.93	0.30	0.279
		23.0		5.46	0.40					1.11	0.30	0.333
		24.0		5.56	0.50					0.83	0.40	0.332
		25.0		5.58	0.50					0.78	0.50	0.390
		26.0		5.57	0.50					0.78	0.50	0.390
		27.0	✓	5.46	0.40					0.49	0.50	0.245
		28.0	1.5	5.18	0.10					0.00	0.40	∅
	WE	30.0		5.07	∅					∅	0.15	∅
		32.5		4.60						∅		
	GL	35.0		3.76								
	LS	36.0		2.68								

4.40 cfs

TOTALS: 29

End of Measurement Time: 4:00 Gage Reading: 0.5 ft CALCULATIONS PERFORMED BY: CALCULATIONS CHECKED BY:

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

LOCATION INFORMATION

STREAM NAME: Piceance Creek
 XS LOCATION: 0.8 mi u/s fr County Rd 5 bridge
 XS NUMBER: 2

 DATE: 18-Sep-00
 OBSERVERS: R. Smith, C. Hollowed, P. Daggett

 1/4 SEC: NW SE
 SECTION: 11
 TWP: 1N
 RANGE: 97W
 PM: Sixth

 COUNTY: Rio Blanco
 WATERSHED: White River
 DIVISION: 6
 DOW CODE: 25343

 USGS MAP: White River City 7.5'
 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: 0.05667

INPUT DATA CHECKED BY:DATE.....

ASSIGNED TO:DATE.....

STREAM NAME: Piceance Creek
 XS LOCATION: 0.8 mi u/s fr County Rd 5 bridge
 XS NUMBER: 2

DATA POINTS= 33

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL
RS	0.00	2.25		
1 G	1.00	2.45		
	2.50	2.87		
	8.00	3.96		
	12.00	4.13		
	15.00	4.10		
	18.00	4.47		
W	19.00	4.56	0.00	0.00
	21.00	4.79	0.25	0.00
	21.50	4.91	0.35	1.06
	22.00	4.88	0.30	0.96
	22.50	4.87	0.30	1.14
	23.00	4.85	0.30	1.58
	23.50	4.92	0.35	1.11
	24.00	4.94	0.35	1.06
	24.50	4.96	0.40	1.30
	25.00	4.87	0.30	0.95
	25.50	4.96	0.40	1.18
	26.00	4.99	0.40	1.61
	26.50	4.96	0.40	1.76
	27.00	4.91	0.35	1.68
	27.50	4.95	0.35	1.33
	28.00	4.91	0.35	1.42
	28.50	4.95	0.35	1.31
	29.00	4.95	0.35	0.60
	29.50	4.92	0.35	0.91
	30.00	4.86	0.30	0.48
	31.00	4.76	0.20	0.07
W	31.30	4.57	0.00	0.00
	32.00	4.56		
	33.00	4.20		
	34.00	3.16		
1 LS & G	35.00	2.45		

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%
0.00		0.00	0.00	0.0%
0.00		0.00	0.00	0.0%
2.01	0.25	0.31	0.00	0.0%
0.51	0.35	0.18	0.19	4.9%
0.50	0.30	0.15	0.14	3.8%
0.50	0.30	0.15	0.17	4.5%
0.50	0.30	0.15	0.24	6.2%
0.50	0.35	0.18	0.19	5.1%
0.50	0.35	0.18	0.19	4.9%
0.50	0.40	0.20	0.26	6.8%
0.51	0.30	0.15	0.14	3.7%
0.51	0.40	0.20	0.24	6.2%
0.50	0.40	0.20	0.32	8.4%
0.50	0.40	0.20	0.35	9.2%
0.50	0.35	0.18	0.29	7.7%
0.50	0.35	0.18	0.23	6.1%
0.50	0.35	0.18	0.25	6.5%
0.50	0.35	0.18	0.23	6.0%
0.50	0.35	0.18	0.11	2.8%
0.50	0.35	0.18	0.16	4.2%
0.50	0.30	0.23	0.11	2.8%
1.00	0.20	0.13	0.01	0.2%
0.36		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 -----

12.42 0.4 3.64 3.82 100.0%
 (Max.)

Manning's n = 0.1490
 Hydraulic Radius= 0.29317807

STREAM NAME: Piceance Creek
 XS LOCATION: 0.8 mi u/s fr County Rd 5 bridge
 XS NUMBER: 2

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	3.64	3.67	0.9%
4.32	3.64	7.30	100.5%
4.34	3.64	6.99	91.8%
4.36	3.64	6.67	83.2%
4.38	3.64	6.37	74.8%
4.40	3.64	6.06	66.5%
4.42	3.64	5.76	58.2%
4.44	3.64	5.47	50.1%
4.46	3.64	5.18	42.2%
4.48	3.64	4.89	34.3%
4.50	3.64	4.61	26.6%
4.52	3.64	4.34	19.1%
4.53	3.64	4.20	15.3%
4.54	3.64	4.07	11.7%
4.55	3.64	3.93	8.0%
4.56	3.64	3.80	4.4%
4.57	3.64	3.67	0.9%
4.58	3.64	3.55	-2.5%
4.59	3.64	3.43	-5.9%
4.60	3.64	3.31	-9.1%
4.61	3.64	3.19	-12.4%
4.62	3.64	3.07	-15.7%
4.64	3.64	2.84	-22.1%
4.66	3.64	2.61	-28.3%
4.68	3.64	2.39	-34.5%
4.70	3.64	2.17	-40.6%
4.72	3.64	1.95	-46.5%
4.74	3.64	1.74	-52.3%
4.76	3.64	1.53	-58.1%
4.78	3.64	1.32	-63.6%
4.80	3.64	1.13	-69.0%
4.82	3.64	0.94	-74.2%

WATERLINE AT ZERO
 AREA ERROR = 4.568

STREAM NAME: Piceance Creek
 XS LOCATION: 0.8 mi u/s fr County Rd 5 bridge
 XS NUMBER: 2

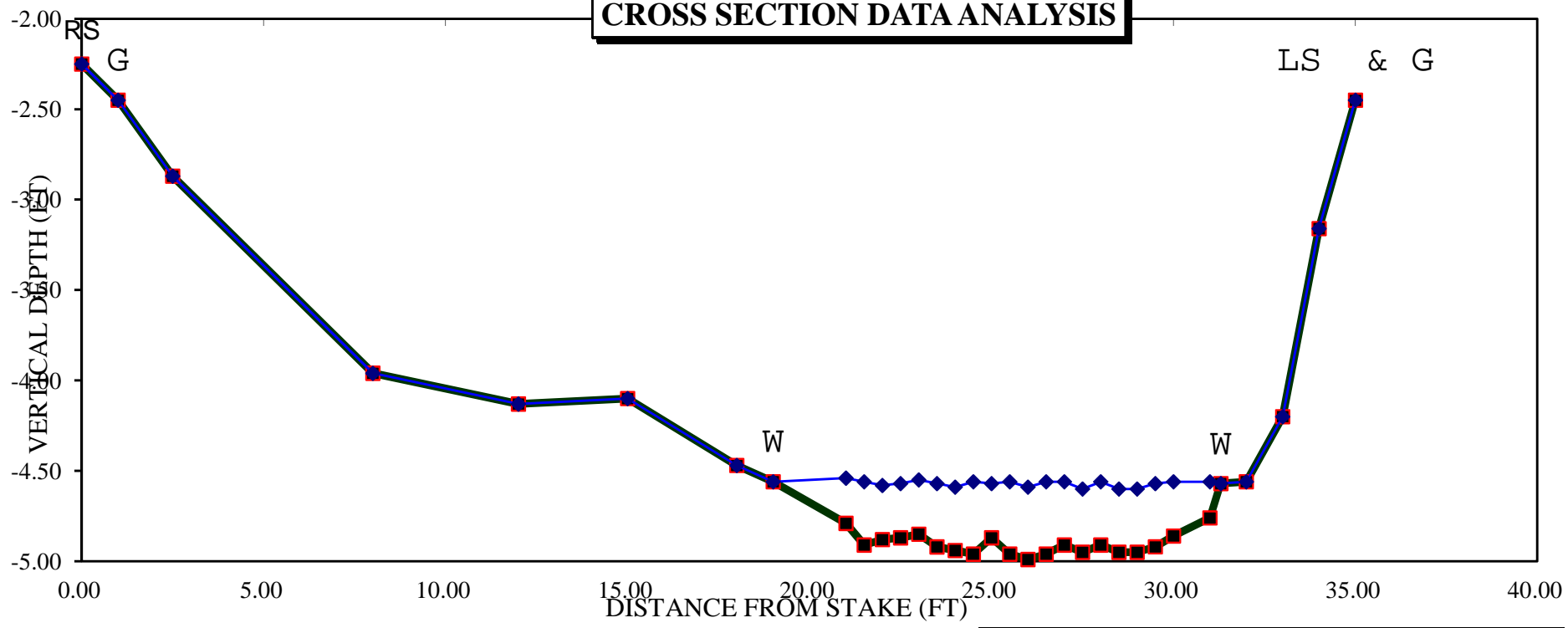
Constant Manning's n

GL = lowest Grassline elevation corrected for sag
 WL = Waterline corrected for variations in field measured water surface elevations and sag

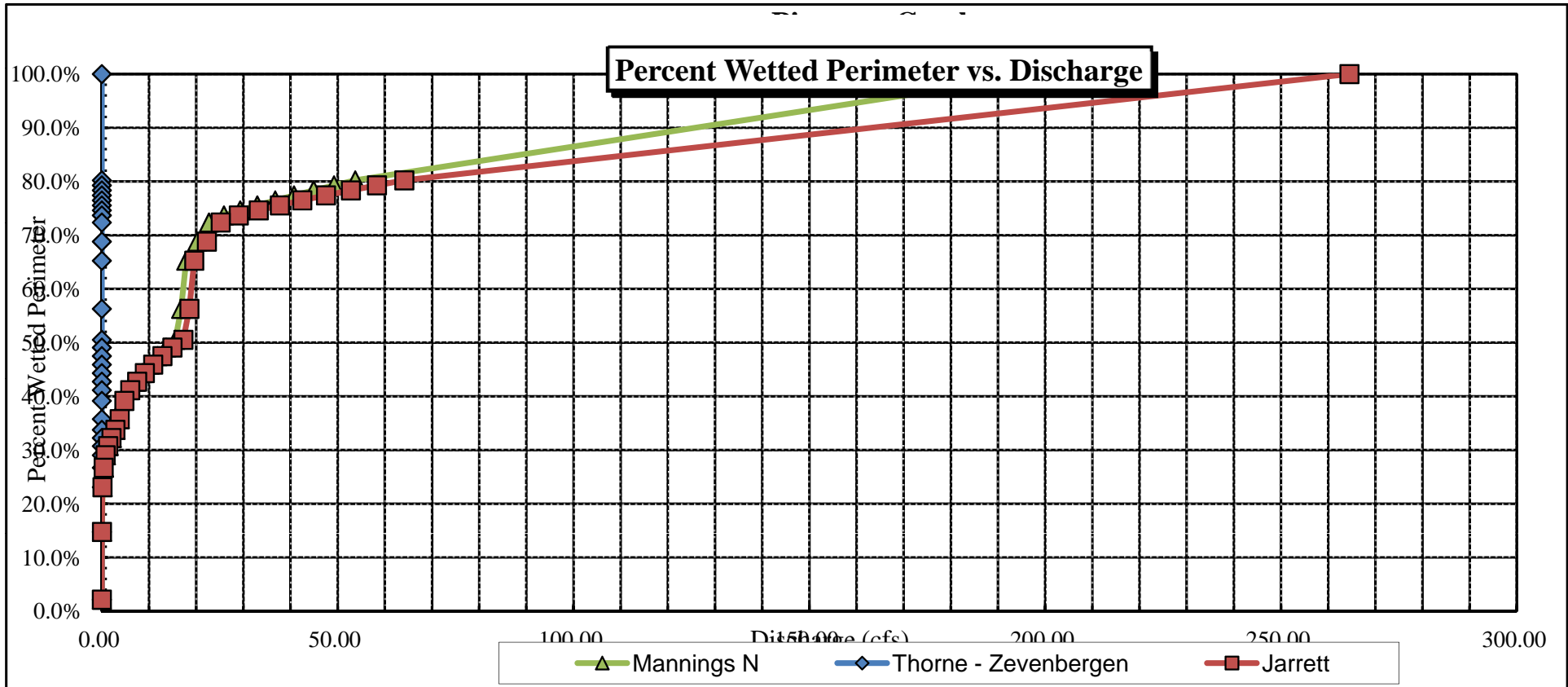
STAGING TABLE

	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	2.45	34.00	1.74	2.54	59.25	35.05	100.0%	1.69	199.58	3.37
	3.57	27.59	0.89	1.42	24.69	28.11	80.2%	0.88	53.73	2.18
	3.62	27.29	0.85	1.37	23.31	27.79	79.3%	0.84	49.23	2.11
	3.67	26.99	0.81	1.32	21.96	27.46	78.3%	0.80	44.90	2.04
	3.72	26.69	0.77	1.27	20.61	27.13	77.4%	0.76	40.74	1.98
	3.77	26.39	0.73	1.22	19.29	26.81	76.5%	0.72	36.76	1.91
	3.82	26.09	0.69	1.17	17.98	26.48	75.5%	0.68	32.96	1.83
	3.87	25.79	0.65	1.12	16.68	26.15	74.6%	0.64	29.33	1.76
	3.92	25.49	0.60	1.07	15.40	25.83	73.7%	0.60	25.89	1.68
	3.97	25.05	0.56	1.02	14.13	25.36	72.4%	0.56	22.71	1.61
	4.02	23.82	0.54	0.97	12.91	24.12	68.8%	0.54	20.20	1.56
	4.07	22.60	0.52	0.92	11.75	22.87	65.2%	0.51	17.89	1.52
	4.12	19.48	0.55	0.87	10.67	19.73	56.3%	0.54	16.80	1.58
	4.17	17.48	0.56	0.82	9.77	17.71	50.5%	0.55	15.60	1.60
	4.22	17.00	0.52	0.77	8.91	17.20	49.1%	0.52	13.64	1.53
	4.27	16.45	0.49	0.72	8.07	16.65	47.5%	0.48	11.83	1.47
	4.32	15.91	0.46	0.67	7.26	16.09	45.9%	0.45	10.15	1.40
	4.37	15.37	0.42	0.62	6.48	15.53	44.3%	0.42	8.59	1.33
	4.42	14.82	0.39	0.57	5.73	14.98	42.7%	0.38	7.16	1.25
	4.47	14.28	0.35	0.52	5.00	14.42	41.1%	0.35	5.86	1.17
	4.52	13.59	0.32	0.47	4.30	13.72	39.2%	0.31	4.71	1.10
WL	4.57	12.41	0.29	0.42	3.64	12.53	35.8%	0.29	3.79	1.04
	4.62	11.72	0.26	0.37	3.04	11.83	33.8%	0.26	2.92	0.96
	4.67	11.21	0.22	0.32	2.47	11.30	32.2%	0.22	2.13	0.86
	4.72	10.70	0.18	0.27	1.92	10.77	30.7%	0.18	1.45	0.75
	4.77	10.12	0.14	0.22	1.40	10.18	29.0%	0.14	0.89	0.63
	4.82	9.31	0.10	0.17	0.92	9.36	26.7%	0.10	0.46	0.50
	4.87	8.05	0.06	0.12	0.47	8.09	23.1%	0.06	0.17	0.36
	4.92	5.15	0.03	0.07	0.14	5.17	14.8%	0.03	0.03	0.22
	4.97	0.75	0.01	0.02	0.01	0.75	2.1%	0.01	0.00	0.12

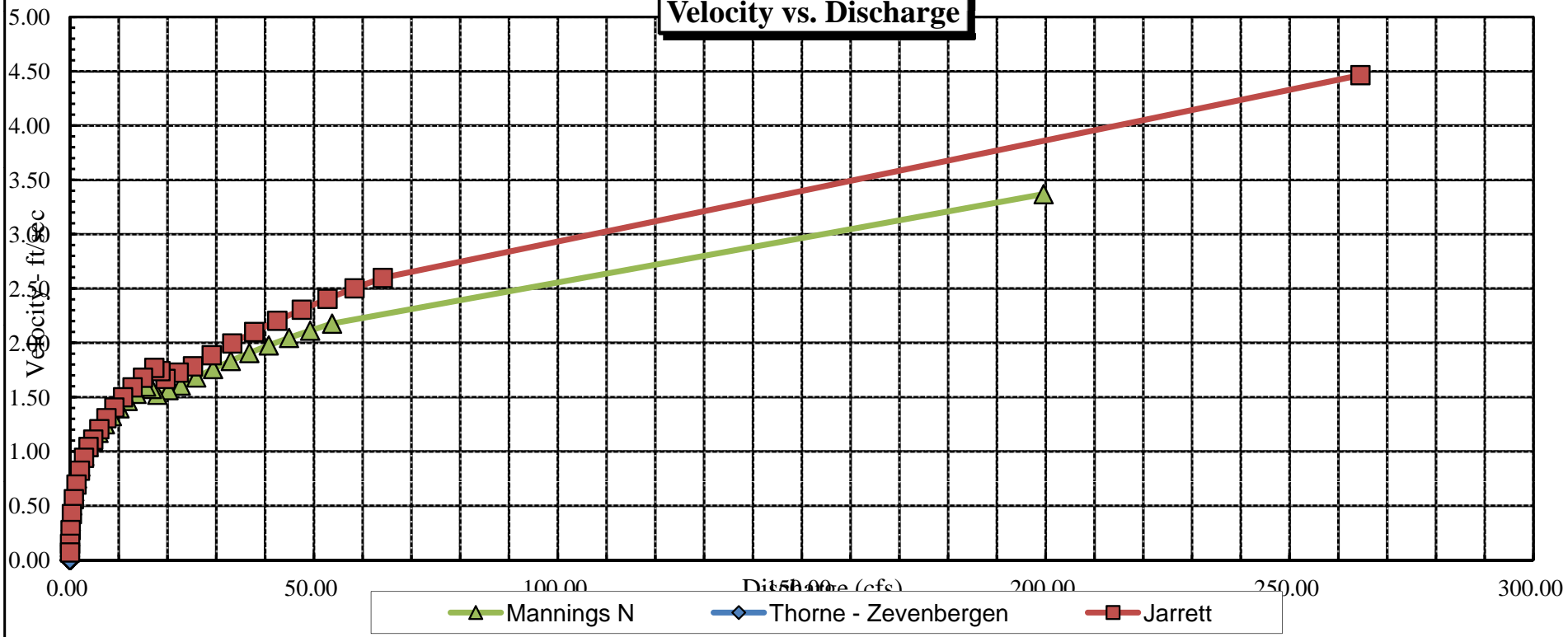
CROSS SECTION DATA ANALYSIS

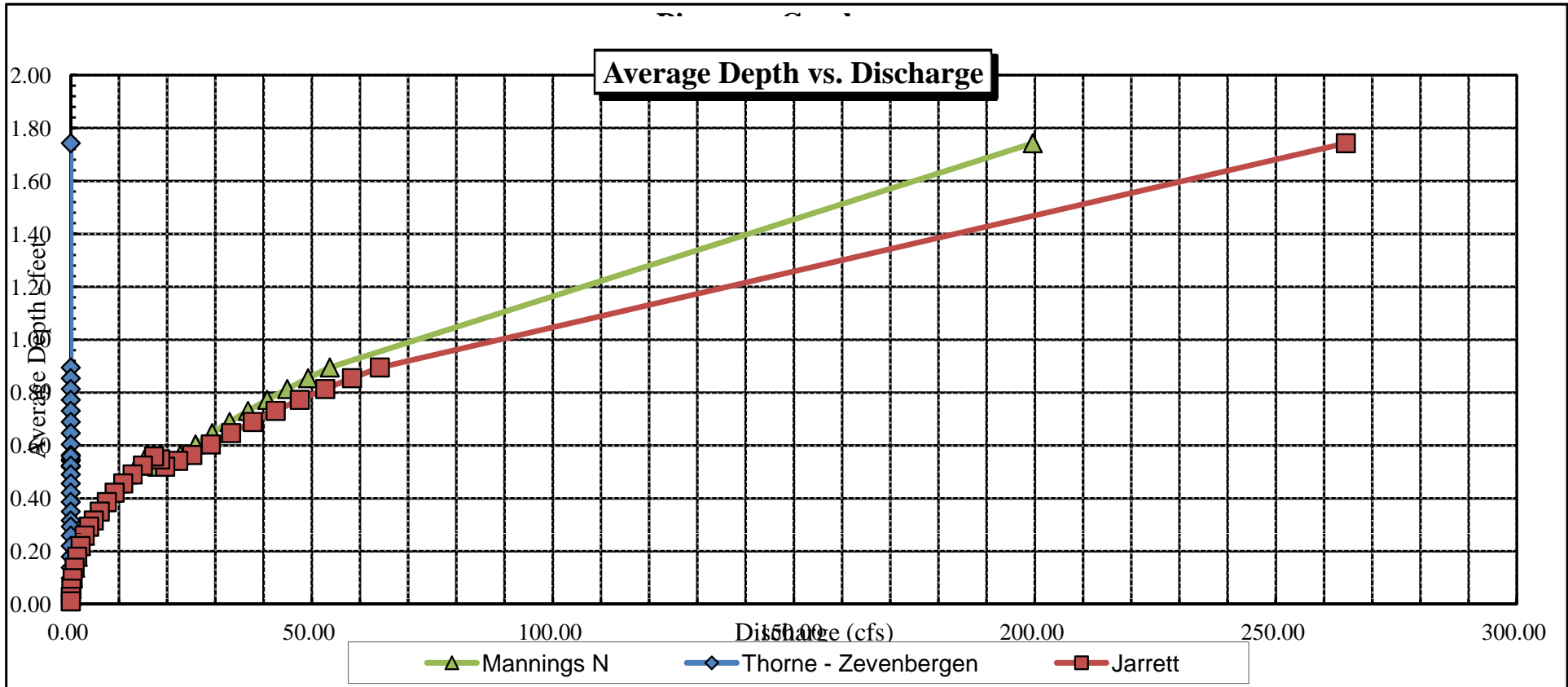


Channel Bottom Computed Water Line

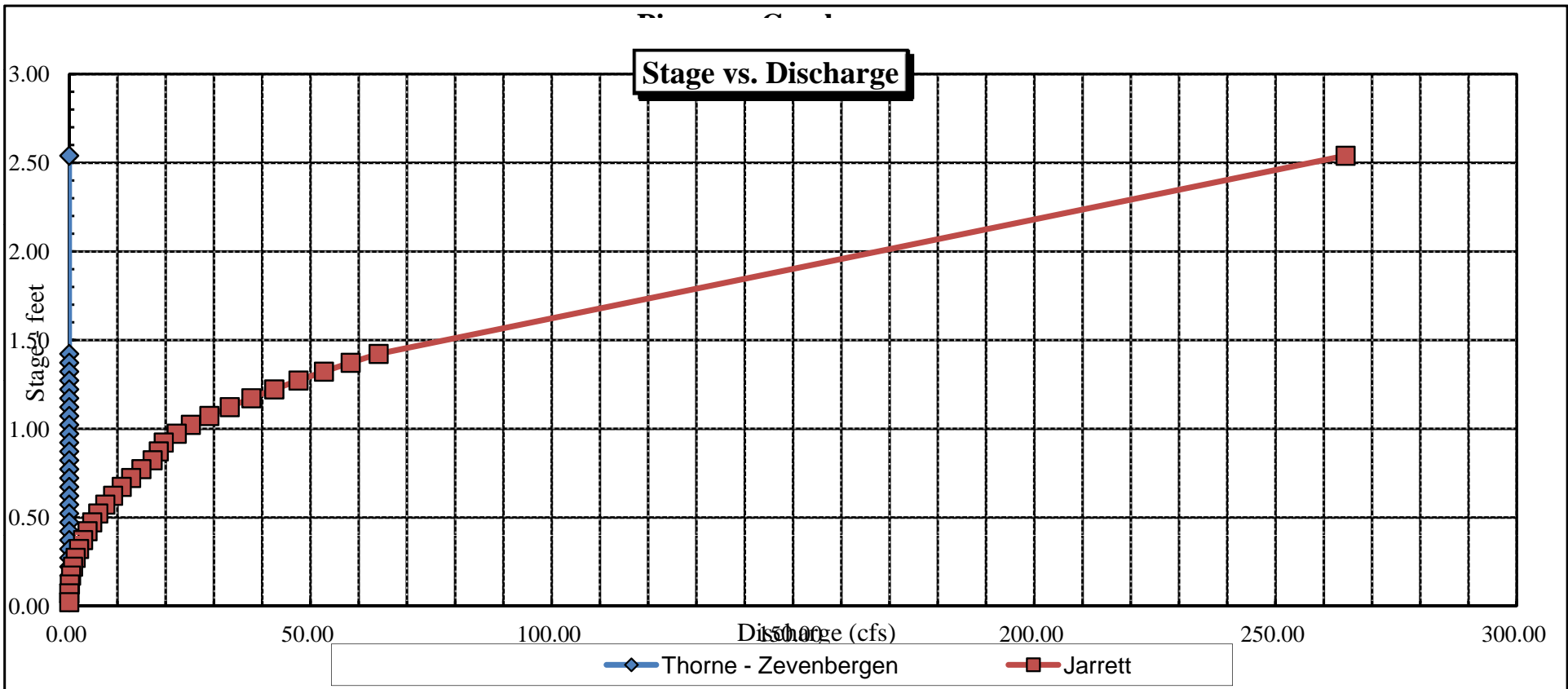


Velocity vs. Discharge





Stage vs. Discharge





FIELD DATA FOR INSTREAM FLOW DETERMINATIONS



COLORADO WATER
CONSERVATION BOARD

LOCATION INFORMATION

STREAM NAME: <u>Piceance Creek</u>		CROSS-SECTION NO. <u>2</u>
CROSS SECTION LOCATION: <u>0.5 mile upstream from County Rd. 5 bridge crossing</u>		
DATE: <u>9-18-00</u>	OBSERVERS: <u>R. Smith, C. Hollowed, P. Daggett</u>	
LEGAL DESCRIPTION:	SECTION: <u>NW SE</u>	SECTION: <u>11</u>
TOWNSHIP: <u>1 N/S</u>	RANGE: <u>97 E/W</u>	PM: <u>Sixth</u>
COUNTY: <u>Pio Blanco</u>	WATERSHED: <u>White</u>	WATER DIVISION: <u>5</u>
USGS: <u>White River City, CO</u>		DOW WATER CODE: <u>25343</u>
USFS:		

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES/NO	METER TYPE: <u>Marsh-McBirney</u>
METER NUMBER:	DATE RATED:
CALIB/SPIN: <u>surveyed</u>	sec
TAPE WEIGHT: <u>surveyed</u>	lbs/foot
TAPE TENSION: <u>surveyed</u>	lbs
CHANNEL BED MATERIAL SIZE RANGE: <u>gravel to 8" slate cobbles</u>	PHOTOGRAPHS TAKEN (YES/NO): <u>(X)</u>
	NUMBER OF PHOTOGRAPHS: <u>3</u>

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
(X) Tape & Stake LB	0.0	<u>Surveyed</u>
(X) Tape & Stake RB	0.0	<u>surveyed</u>
(1) WS & Tape LB/RB	0.0	<u>4.57 / 4.56</u>
(2) WS Upstream	<u>15.0</u>	<u>4.50</u>
(3) WS Downstream	<u>15.0</u>	<u>4.67</u>
SLOPE	<u>0.17 = 30.0</u>	

SECTION

LEGEND

- Stake (X)
- Station (1)
- Photo (diamond with arrow)
- Direction of Flow (circle with arrow)

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
<u>see previous sample</u>																	
AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME																	
<u>stonefly, snails, leeches, mayfly</u>																	

COMMENTS

<u>Ph = 8.7</u>	<u>Measurement taken after extremely dry water year - calls on creek.</u>
<u>Temp = 22°</u>	
<u>TDS > 2000</u>	

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Piceance Creek CROSS-SECTION NO: Z DATE: 9-18-00 SHEET OF

BEGINNING OF MEASUREMENT: _____ EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) _____ LEFT / RIGHT: _____ Gage Reading: 0.3 ft TIME: 4:45 pm

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		
	RS	0.0		2.25								
	GL	1.0		2.45								
		2.5		2.87								
		8.0		3.96								
		12.0		4.13								
		15.0		4.10								
		18.0		4.47								
	WE	19.0		4.56	∅				∅			
		21.0	0.75	4.79	.25				∅			∅
		21.5	0.75	4.91	.35				∅			∅
		22.0	0.5	4.88	.30				1.06		0.26	0.276
		22.5		4.87	.30				0.96		0.15	0.144
		23.0		4.85	.30				1.14		0.15	0.171
		23.5		4.92	.35				1.58		0.15	0.237
		24.0		4.94	.35				1.11		0.175	0.194
		24.5		4.96	.40				1.06		0.175	0.186
		25.0		4.87	.30				1.30		0.20	0.260
		25.5		4.96	.40				0.95		0.15	0.145
		26.0		4.99	.40				1.18		0.20	0.236
		26.5		4.96	.40				1.61		0.20	0.322
		27.0		4.91	.35				1.76		0.20	0.352
		27.5		4.95	.35				1.68		0.175	0.294
		28.0		4.91	.35				1.33		0.175	0.233
		28.5		4.95	.35				1.42		0.175	0.249
		29.0		4.95	.35				1.31		0.175	0.230
		29.5	↓	4.92	.35				0.60		0.175	0.105
		30.0	0.75	4.86	.30				0.91		0.175	0.159
		31.0	0.65	4.76	.20				0.48		0.225	0.108
	WE	31.3		4.57	∅				0.07		0.130	0.009
		32.0		4.56					∅			
		33.0		4.20								
		34.0		3.16								
	LS+GL	35.0		2.45								

3.91 cfs

TOTALS: 33 End of Measurement: _____ Time: 5:10p Gage Reading: 0.3 ft CALCULATIONS PERFORMED BY: _____ CALCULATIONS CHECKED BY: _____

WaterId	WaterName	Location	Station	Elevation	SampleDate	StationLength	AvgWidth	TotalCatch	TotalWeight	TotalEffort	EffortMetric	SpeciesCode
25343	Piceance Creek	750 M BLW Black Sulphur Creek	WR0422	6134	8/4/2006			80	20918.5	2	PASS	FMS
25343	Piceance Creek	750 M BLW Black Sulphur Creek	WR0422	6134	8/4/2006			80	20918.5	2	PASS	LOC
25343	Piceance Creek	750 M BLW Black Sulphur Creek	WR0422	6134	8/4/2006			80	20918.5	2	PASS	MOS
25343	Piceance Creek	750 M BLW Black Sulphur Creek	WR0422	6134	8/4/2006			80	20918.5	2	PASS	RBT
25343	Piceance Creek	750 M BLW Black Sulphur Creek	WR0422	6134	8/4/2006			80	20918.5	2	PASS	RXN
25343	Piceance Creek	750 M BLW Black Sulphur Creek	WR0422	6134	8/4/2006			80	20918.5	2	PASS	SPD
25343	Piceance Creek	ABV CO RD 24	WR0028	6075	7/21/1993	150		72		1	PASS	MOS
25343	Piceance Creek	ABV CO RD 24	WR0028	6075	7/21/1993	150		72		1	PASS	SPD
25343	Piceance Creek	ABV Bear Gulch On Piceance SWA (EMAP WCOP 04-R010)	WR0287	6008	8/3/2004	656.17	16.4	127		1	PASS	MOS
25343	Piceance Creek	ABV Bear Gulch On Piceance SWA (EMAP WCOP 04-R010)	WR0287	6008	8/3/2004	656.17	16.4	127		1	PASS	SPD
25343	Piceance Creek	ABV Bear Gulch On Piceance SWA (EMAP WCOP 04-R010)	WR0287	6008	11/14/2005	408	17	51	11987	2	PASS	FMS
25343	Piceance Creek	ABV Bear Gulch On Piceance SWA (EMAP WCOP 04-R010)	WR0287	6008	11/14/2005	408	17	51	11987	2	PASS	MOS
25343	Piceance Creek	ABV Bear Gulch On Piceance SWA (EMAP WCOP 04-R010)	WR0287	6008	11/14/2005	408	17	51	11987	2	PASS	SPD
25343	Piceance Creek	250 M ABV Dry Fk Piceance Creek	WR0306	5890	8/3/2001			32		1	PASS	SPD
25343	Piceance Creek	250 M ABV Dry Fk Piceance Creek	WR0306	5890	8/1/2006	458	13.6	261	2248	2	PASS	FMS
25343	Piceance Creek	250 M ABV Dry Fk Piceance Creek	WR0306	5890	8/1/2006	458	13.6	261	2248	2	PASS	MOS
25343	Piceance Creek	250 M ABV Dry Fk Piceance Creek	WR0306	5890	8/1/2006	458	13.6	261	2248	2	PASS	SPD
25343	Piceance Creek	1.75 MI S On CO RD 5 From Co Rd 5 & Piceance Creek Crossing	WR0476	5822	8/1/2006	400	12.9	95	303	2	PASS	SPD
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	7/19/2000	400	10	92		1	PASS	FMW
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	7/19/2000	400	10	92		1	PASS	MOS
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	7/19/2000	400	10	92		1	PASS	SPD
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	6/8/2011	1190	19.6	36	10157	1	PASS	FMS
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	6/8/2011	1190	19.6	36	10157	1	PASS	FMW
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	6/8/2011	1190	19.6	36	10157	1	PASS	LOC
25343	Piceance Creek	BLW Gauging station to bridge	WR0004	5738	6/8/2011	1190	19.6	36	10157	1	PASS	SPD
25343	Piceance Creek	800 M BLW CO RD 5	WR0228	5719	7/21/1993	250		0		1	PASS	

Surveyors	DataSource
L.MARTIN AND CREW	Northwest Region Fisheries Management
L.MARTIN AND CREW	Northwest Region Fisheries Management
L.MARTIN AND CREW	Northwest Region Fisheries Management
L.MARTIN AND CREW	Northwest Region Fisheries Management
L.MARTIN AND CREW	Northwest Region Fisheries Management
L.MARTIN AND CREW	Northwest Region Fisheries Management
WMS, HORSTMN	Northwest Region Fisheries Management
WMS, HORSTMN	Northwest Region Fisheries Management
ACKERMAN, VIOSCA, QUINN, KUNDTZ	CDOW Water Quality
ACKERMAN, VIOSCA, QUINN, KUNDTZ	CDOW Water Quality
ELMBLAD, MCKENNA, TALLEY	Northwest Region Fisheries Management
ELMBLAD, MCKENNA, TALLEY	Northwest Region Fisheries Management
ELMBLAD, MCKENNA, TALLEY	Northwest Region Fisheries Management
DAVE LANGLOIS	Scientific Collections Permit
ELMBLAD, KRIZMAN, RICE, BOUGH	Northwest Region Fisheries Management
ELMBLAD, KRIZMAN, RICE, BOUGH	Northwest Region Fisheries Management
ELMBLAD, KRIZMAN, RICE, BOUGH	Northwest Region Fisheries Management
ELMBLAD, KRIZMAN, RICE, BOUGH	Northwest Region Fisheries Management
NOT LISTED	CDOW Water Quality
NOT LISTED	CDOW Water Quality
NOT LISTED	CDOW Water Quality
Amanda G, Jesse L, Greg F, Andrew N	Species Conservation
Amanda G, Jesse L, Greg F, Andrew N	Species Conservation
Amanda G, Jesse L, Greg F, Andrew N	Species Conservation
Amanda G, Jesse L, Greg F, Andrew N	Species Conservation
WMS, HORSTMN	elmladb