October 27, 2022

Mr. Robert Viehl
Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

Dear Mr. Viehl,

High Country Conservation Advocates (HCCA) submits this instream flow recommendation for Cameron Creek, located in Gunnison County, Water Division 4.

HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around Gunnison County. Many of our members live and work here and enjoy recreational opportunities and a quality of life that is preserved by our valley's wildlife, habitat, and water resources. HCCA's 29 year-old water program has a long history of protecting waters in the Upper Gunnison Basin and in developing an environmental voice within key regional and state forums. In the past HCCA has partnered with the Bureau of Land Management to support instream flow proposals on the Slate River and Oh-Be-Joyful Creek. In 2016 HCCA submitted proposals to protect updated instream flows for Coal Creek and Brush Creek. HCCA partnered with Western Resource Advocates in 2017 to submit an instream flow proposal on Dutchman Creek. More recently HCCA submitted instream flow proposals for Gold Creek, Cement Creek, Spring Creek, Elk Creek and Wildcat Creek, all in Division 4.

The headwaters of Cameron Creek originate on United States Forest Service lands in Gunnison County. The Cameron Creek riparian area supports diverse habitat including beaver pond complexes with ample high-quality habitat dominated by willows. HCCA staff observed several small trout and macroinvertebrates when completing R2Cross assessments in 2021. In 2022, CPW staff conducted a fish survey in Cameron Creek.

HCCA has coordinated with local consultants to arrive at a preliminary instream flow recommendation. In considering this application, the Colorado Water Conservation Board (CWCB) has an opportunity to protect an important stream ecosystem by moving forward with an instream flow protection that would preserve the natural environment to a reasonable degree.

Enclosed you will find the preliminary instream flow proposal, R2Cross modeling runs, stream photos, and maps of the relevant reach. If you have any further questions regarding this recommendation, please feel free to contact Julie Nania at (509) 999-0012. HCCA thanks CPW and the CWCB for their support in developing this recommendation.

Sincerely,

Julie Nania
High Country Conservation Advocates
Water Director

Enclosure

ENCLOSURE - INSTREAM FLOW RECOMMENDATIONS FOR CAMERON CREEK

Below is a description of the proposed instream flow. Additional details can be found in Attachments A-D.

Location

Cameron Creek is located within the Upper Taylor Watershed (HUC-12: 140200010202) in Gunnison County, Water Division 4. The headwaters originate between Cross Mountain and Cameron Mountain. Cameron Creek flows north to the confluence with the Lottis Creek, a tributary to the Taylor Fork of the Gunnison River. The Cameron Creek watershed is about three-square miles and is on the Fairview Peak United States Geologic Survey quad map (Attachment A).

The stream segment identified for the proposed instream flow appropriation is approximately 3.69 miles long from its headwaters to the confluence with Lottis Creek.

Table 1. Land Status in the Cameron Creek Watershed.

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			Private (%)	Public (%)[1]
Headwaters	Confluence with Lottis Creek	3.7	Riparian Corridor[2] 3%	Riparian Corridor 97%
			Watershed Composition 6%	Watershed Composition 94%

1. The public land in the Cameron Creek Watershed is managed by the USFS.
2. The riparian corridor ownership percentages were estimated using stream length.

The Cameron Creek watershed is approximately 94 percent public land managed by the United States Forest Service (USFS). The riparian corridor of the proposed segment is approximately 97 percent public land managed by the USFS.

Existing Instream Flow Rights

Cameron Creek does not have an existing instream flow water right.

Water Availability

Physical Availability

There is not a gage in Cameron Creek. The nearest downstream gage is the Taylor River at Almont; with a period of record of 1986 to present (USGS ID = 09110000).

Legal Availability

There are no active diversions on Cameron Creek.

A water rights search on Colorado's Decision Support System (CDSS) did not identify any existing water rights on Cameron Creek. However, there is a privately held instream flow right for Cameron Creek. This private right appears in connection with Lottis Creek in Case No. W1987.

There are privately held instream flow rights for Lottis Creek and three of its tributaries (Cameron, Cross, and Union creeks). The private instream flow right for Cameron Creek is 12.5 cfs. The priority date for these flows is 1910 and the beneficial use is for stock water, recreation, fish culture, wildlife procreation, and heritage preservation. This use was recognized as non-exclusive and to be used in common with the State of Colorado (See Case No. W-1987). Although these private flow rights are extensive, they do not afford the same protections offered by instream flow rights held by the CWCB. Rights held by the CWCB are monitored and enforced by CWCB staff and the State can join as a party to protect potential harm to these appropriations. They are non-transferable and cannot be sold. The water rights are summarized in Attachment B.

Biological Summary

The headwaters of Cameron Creek form above treeline as a cold-water, high gradient stream. Below the confluence with Burro Gulch, the slope of the valley decreases and Cameron Creek supports a healthy riparian area with several ponds on and off-channel in a large wetland area. There are both active and abandoned beaver ponds at several locations alongside the creek. The riparian area of the creek is primarily composed of willow communities. The confluence of Cameron and Lottis creeks also supports high-quality wetlands.

Generally, Cameron Creek has gravel and cobble-sized substrate and ample woody debris. Flows from Cameron Creek support a robust riparian area that provides shade and cover for the extant fish community.

While conducting R2Cross assessments, we saw numerous macroinvertebrates and small fish (unknown species). CPW surveyed Cameron Creek in October 2022 and found numerous brown and brook trout (Attachment C).

Preliminary R2Cross Analysis

HCCA relied on the expertise of Alpine Environmental Consultants LLC to interpret output from the R2Cross model and develop a preliminary instream flow recommendation that will protect Cameron Creek's natural environment to a reasonable degree.

Two R2Cross field surveys were completed at one location on July 5 and September 17, 2021. The cross-section is in Cameron Creek approximately 0.4 miles upstream of the confluence with Lottis Creek. R2Cross data entry, analysis, and interpretation were completed following fieldwork. These data were used to create the preliminary instream flow recommendations for Cameron Creek (Table 2). The R2Cross output and field forms are attached for review (Attachment D).

A summer flow rate of 1.4 cfs and a winter flow rate of 0.85 cfs are initially recommended based on the results of the 2021 cross-section (Table 2).

Table 2. R2CROSS analysis summary and preliminary instream flow recommendations.

Cross Section (Date)	Measured Discharge (cfs)	Bankfull Top Width (ft)	Winter Flow Recommendation (2 of 3 criteria) (cfs)	Summer Flow Recommendation (3 of 3 criteria) (cfs)
Cameron Creek #1 (7-5-21)	1.96	5.7	0.75	0.87
Cameron Creek #2 (9-17-21)	0.52	5.7	0.52	1.42
Proposed ISF Rate:			**0.64 cfs**	**1.1 cfs**

Following further analysis, the preliminary instream flow rates and seasons were revised based upon water availability to create the following instream flow seasons and rates:

- **April 1 to September 30: 1.1 cfs**
- **October 1 to October 31: 0.64 cfs**
- **November 1 to March 31: 0.5 cfs***
  ***Water availability limited, R2Cross output reduced to be consistent with physical water availability.**

Photographs

Photo 1. Cameron Creek near cross-section looking downstream (7-5-2021).

Photo 2. Cameron Creek near cross-section looking upstream (9-17-2021).

Photo 3. Cameron Creek cross-section view from the river-left bank (7-5-2021).

Photo 4. Cameron Creek cross-section view from the river-right bank (9-17-2021).

Relationship to Existing State Policy

HCCA is proposing this instream flow to the CWCB in furtherance of the State of Colorado's policy "that the wildlife and their environment are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors… and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities." C.R.S. 33-1-101(1).

Attachments

A – USGS Topographic Quadrangle Map
B – Water Rights Summary
C – CPW Fish Survey
D – R2Cross Analysis

Attachment A- USGS Topographic Quadrangle Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

FAIRVIEW PEAK QUADRANGLE
COLORADO - GUNNISON COUNTY
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 13S

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, October 2017 - January 2018
Roads	U.S. Census Bureau, 2016
Roads within US Forest Service Lands	FSTopo Data with limited Forest Service updates, 2013
Names	GNIS, 1978 - 2019
Hydrography	National Hydrography Dataset, 1899 - 2019
Contours	National Elevation Dataset, 2004
Boundaries	Multiple sources; see metadata file 2019
Public Land Survey System	BLM, 2018
Wetlands	FWS National Wetlands Inventory 1983 - 2011

MN
GN
8°45'
156 MILS
0°59'
17 MILS
UTM GRID AND 2019 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
CC
Grid Zone Designation
13S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 40 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Matchless Mountain
2 Taylor Park Reservoir
3 Tincup
4 Crystal Creek
5 Cumberland Pass
6 Parlin
7 Pitkin
8 Whitepine

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
FS Primary Route
FS Passenger Route
FS High Clearance Route

Check with local Forest Service unit for current travel conditions and restrictions.

FAIRVIEW PEAK, CO
2019

MSN 7643016358837
NGA REF NO. USGSX24K14888

Attachment B- Water Rights Summary

FILED
IN THE DISTRICT COURT
WATER DISTRICT #4
OCT 1 1987
[illegible]
CLERK
By [illegible]
DEPUTY

IN THE DISTRICT COURT IN AND FOR

WATER DIVISION NO. 4

STATE OF COLORADO

Case No. W-1987

IN THE MATTER OF THE APPLICATION FOR WATER RIGHTS OF JOE VADER, E. C. COLLARD, LOUIS F. VAN TUYL, RAYMOND P. VAN TUYL, and JOAN BLUMEL, d/b/a UNION PARK POOL ASSOCIATION, IN GUNNISON COUNTY.

RULING OF REFEREE

The applicants, Joe Vader, E. C. Collard, Louis F. Van Tuyl, Raymond P. Van Tuyl and Joan Blumel, d/b/a Unison Park Pool Association, c/o their attorneys, Klingsmith and Russell, P.C., 110 East Virginia Avenue, Gunnison, Colorado 81230, request the right to use surface water for stockwater, recreation, wildlife procreation, fish culture and heritage preservation purposes, all non-consumptive in nature. Filed September 13, 1973.

IN OPPOSITION - The United States of America, c/o Kenneth J. Burke, Department of Justice, P. O. Box 1656, Denver, Colorado 80201, claiming possible impairment of Federal rights. Filed November 30, 1973.

IN APPEARANCE - The Colorado River Water Conservation District, c/o Kenneth Balcomb, P. O. Drawer 790, Glenwood Springs, Colorado 81601. Filed November 30, 1973.

GENERAL INFORMATION relative to Cases No. 1985 through 1987, and 1991 and 1992.

The applicants in the above numbered cases have applied for water rights in several streams and natural lakes in the Taylor Park area of Gunnison County. They are land owners and Government permit holders and use their lands for agricultural, livestock and recreational purposes. Their use of such lands for such purposes dates back to the early 1900's. From the standpoint of the appropriations here, each of the uses which claimants have alleged are beneficial to them. They own lands which they use for grazing purposes and, of course, the watering of livestock is essential in order to properly utilize their lands for this purpose. Their lands are highly suitable for recreational purposes. They are situate in a park which is served by improved roads leading into the park from three directions, and said park is heavily used by tourists and other people for fishing, boating, swimming, and other recreational purposes. The applicants themselves use their lands for these purposes and allow other persons to do so for profit.

It is necessary for the proper present use of their lands to be able to protect the waters in the streams and lakes claimed by them for the continued use by themselves and their clients.

The Constitution of the State of Colorado clearly provides that the waters of every natural stream not heretofore appropriated are subject to appropriation as provided by law. Art. XVI, Sec. 5.

The Supreme Court has held that this right applies to the waters of natural lakes. Denver, et al, v. Dotson, 20 Colo 304, 38 Pac. 322.

The Colorado State Legislature, in 1973, defined the term "appropriation" so as to delete the requirement of a diversion, C.R.S. 148-21-3(6). No longer is there any requirement in the determination of whether an appropriation has been made that waters have been diverted. A valid appropriation, on the

other hand, can be made by applying the waters of the State to beneficial use, in place, without an actual diversion.

The Constitution of Colorado requires that in order to appropriate waters, such waters must be applied to a beneficial use. The Legislature has never attempted to define exclusively what the term "beneficial" means. The Colorado Supreme Court has held that a "beneficial use" is a question of fact and depends upon the circumstances of each individual case. Websters New Collegiate Dictionary says, "any use which to the appropriator is profitable, good, useful, advantageous, helpful or gainful." The State Legislature, in the Statutes, has stated certain uses as beneficial; for example, 148-21-8(7) includes impoundment of water for recreational purposes, including fishery or wildlife. 148-2-3 uses are stated to include domestic use, uses for private and public bathing, bottling, commerce, irrigation, etc., and others could be found and cited.

Only in recent years has the true esthetic value of water through, near or under the land been recognized in relation to the value of the land and its uses. Land use cannot be defined without water because, without water there is no land use.

The definition of "beneficial use" contained in 148-21-3 is as follows:

> "(7) 'Beneficial use' is the use of that amount of water that is reasonable and appropriate under the reasonably efficient practices to accomplish, without waste, the purpose for which the appropriation is lawfully made and without limiting the generality of the foregoing, shall include the impoundment of water for recreational purposes, including fishery or wildlife. For the benefit and enjoyment of present and future generations, 'beneficial use' shall also include the appropriation by the State of Colorado in the manner prescribed by law of such minimum flows between specific points or levels for and on natural streams and lakes as are required to preserve the natural environment to a reasonable degree."

The question then arises whether a private individual or group of individuals, a political subdivision, or the United States of America, may have the right, along with the State of Colorado, to obtain a decree for stream flow maintenance.

It is the opinion herein that such a right is contemplated by the new law for several reasons. The first is that the deletion of the requirement of a diversion for all appropriators, rather than for the State alone, is most consonant with the allowance of stream-flow maintenance decrees for private appropriators, as well as the State of Colorado; otherwise, there is no evident reason for not continuing to require the traditional diversion and application to beneficial use for private appropriators in order to constitute a valid appropriation, as had been clearly established by law in Colorado for almost a hundred years. Secondly, the definition of "beneficial use" does not purport to limit or classify those uses which are, in fact, beneficial; thus, we are left to case law, and the cases are numerous allowing instream appropriations. Thirdly, it has been suggested in ths matter that the provisions contained in the second sentence of 148-21-3(7), which confers standing upon the State of Colorado, is an exclusive right of the State and, therefore, should be interpreted as denying the right to private citizens or any other entity. It appears, however, that the wording suggests that it is not an exclusive right in any way limiting, but, instead, enunciates a new right or standing of the State of Colorado itself to obtain such a decree. Had this not been the intent, the Legislature could very easily have drafted the section in such a manner that no question could have been left. Instead, the Legislature has deleted the diversion requirement for all appropriators. The

State of Colorado might well have made these filings or be a party to these filings, and accomplish the same intent as that of the applicants, and they filed no opposition to this case.

As to "reasonable and appropriate under reasonably efficient practices", as found in 148-21-3, the locations claimed are reasonable in that they are on or flow through, or border properties owned or leased by the claimants. The amounts of water claimed in storage is by survey and measurement and, as to stream flow, the amounts claimed in relation to use is not determinable. The intent is to claim for those stated purposes the normal flow of the streams, discounting weather conditions and fully recognizing all prior appropriations, contracts and agreements between governing agencies insofar as stream flow is a question or a right.

The applicants, as land owners and permittees, in the vicinity of the waters sought, have accomplished a valid, lawful appropriation of waters by using the same and applying them to the beneficial use as stated. These purposes are all beneficial, in that they bring a valuable asset to the appropriators and are useful, advantageous, helpful and gainful to them. None of the uses sought would in any way impair either the decreed or vested rights of any other appropriators under the Constitution and the laws of the State of Colorado. Applicants do not claim the exclusive use of said water, nor a consumptive use, and plan to use it in common with the general public and/or the State of Colorado, provided only that the public use thereof does not interfere with the applicants' appropriation and use.

It is obvious that in order to prevent adverse affect to existing rights on the river system that such a decree must and, in this case, is limited to the upper reaches of the streams concerned and located above all other appropriations or decreed rights. To do otherwise would make it extremely difficult, if not impossible, to effectively administer the overall water rights and water use situation.

FINDING OF FACT

Name and Location of Streams: LOTTIS CREEK, together with its tributaries, Cross Creek, Cameron Creek and Union Creek.

The mouth of Lottis Creek at its confluence with the Taylor River is situate in the SW¼NE¼ of Section 2, Township 15 South, Range 83 West of the Sixth Principal Meridian, from whence the Northeast Corner of said Section bears North 45° East 2,750 feet. The principal tributaries to Lottis Creek to which claim is made herein join Lottis Creek at the following points:

(a) Cross Creek - Confluence with Lottis Creek is in the NE¼NE¼NE¼ of Section 8, Township 15 South, Range 82 West, 6th P.M., from whence the Northeast Corner of said Section bears North 52°30' East 660 feet.

(b) Cameron Creek - Confluence with Lottis Creek is in the SE¼NW¼SW¼ of Section 15, Township 15 South, Range 82 West, 6th P.M., from whence the summit of Cross Mountain bears South 65° 36' West 14,190 feet.

(c) Union Creek - Confluence with Lottis Creek is in the NE¼NE¼NW¼ of Section 8, Township 15 South, Range 82 West, 6th P.M., from whence the Northeast Corner of said Section bears North 89° 30' East 3,035 feet.

Source of Water: Lottis Creek is fed by snow melt and runoff from its principal tributaries, South Lottis Creek, Cross Creek, Cameron Creek and Union Creek, which drain the Union Park portion of Gunnison County and all tributaries of the Taylor River, which is a tributary to the Gunnison River, all in Gunnison County and in old Water District No. 59.

Date of Initiation of Appropriation: August 1, 1910

Date Water First Applied to Beneficial Use: August 1, 1910

How Appropriation was Initiated: By appropriating water and applying the same to beneficial use.

Amount of Water Claimed: Absolute, Lottis Creek, 60.0 c.f.s.; total from tributaries:

(a) Cross Creek 5.0 c.f.s;

(b) Cameron Creek, 12.5 c.f.s.;

(c) Lottis Creek above Cameron Creek, 10.0 c.f.s.; and

(d) Union Creek, 12.5 c.f.s.:

and the claimants claim the following amounts of water in Lottis Creek at the following locations:

Above the confluence of Cameron Creek	10.0 c.f.s.
Below the confluence of Cameron Creek	22.5 c.f.s.
Below the confluence of Cross Creek	27.5 c.f.s.
Below the confluence of Union Creek	40.0 c.f.s.
Below the confluence of South Lottis Creek	60.0 c.f.s.

Use or Proposed Use of Water: Stockwater, recreation, fish culture, wildlife procreation and heritage preservation.

Applicants do not claim the exclusive use of said water, nor a consumptive use, and plan to use it in common with the general public and/or the State of Colorado, provided only that the public use thereof does not interfere with the applicants' appropriation and use.

It is obvious that in order to prevent adverse affect to existing rights on the river system that such a decree must and, in this case, is limited to the upper reaches of the streams concerned and located above all other appropriations or decreed rights. To do otherwise would make it extremely difficult, if not impossible, to effectively administer the overall water rights and water use situation.

R U L I N G

IT IS THE RULING OF THE REFEREE that LOTTIS CREEK, together with its tributaries, Cross Creek, Cameron Creek and Union Creek, is APPROVED AND GRANTED an ABSOLUTE DECREE for the use and benefit of the parties lawfully entitled thereto, for an amount of water not to exceed 60.0 c.f.s. for stockwater, recreation, fish culture, wildlife procreation and heritage preservation, with an appropriation date of August 1, 1910.

AND FURTHER, that the same shall, within that total, be entitled to the quantities at each confluence with its tributaries, as outlined in the findings above.

Applicants' rights are subject to all such rights of the United States of America in the subject sources, including reserved rights, as are now or will hereafter be determined by law.

Within one year from the date on which the decree herein becomes final, applicants shall apply for the special use permits or rights-of-way, as the case may be, which are required by law for the use of public recources, and shall abide by the conditions set forth therein.

DATED 10-15-74

E. L. WILSON

WATER REFEREE - DIVISION 4

No protest was filed in this matter. The foregoing ruling is confirmed and approved, and is made the Judgment and Decree of this court.

Dated: 11-8-74

Water Judge

IN THE DISTRICT COURT IN AND FOR

WATER DIVISION NO. 4

STATE OF COLORADO

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(a) Cross Creek - Confluence with Lottis Creek is in the NE¼NE¼NE¼ of Section 8, Township 15 South, Range 82 West, 6th P.M., from whence the Northeast Corner of said Section bears North 52°30' East 660 feet.

(b) Cameron Creek - Confluence with Lottis Creek is in the SE¼NW¼SW¼ of Section 15, Township 15 South, Range 82 West, 6th P.M., from whence the summit of Cross Mountain bears South 65° 36' West 14,190 feet.

(c) Union Creek - Confluence with Lottis Creek is in the NE¼NE¼NW¼ of Section 8, Township 15 South, Range 82 West, 6th P.M., from whence the Northeast Corner of said Section bears North 89° 30' East 3,035 feet.

Source of Water: Lottis Creek is fed by snow melt and runoff from its principal tributaries, South Lottis Creek, Cross Creek, Cameron Creek and Union Creek, which drain the Union Park portion of Gunnison County and all tributaries of the Taylor River, which is a tributary to the Gunnison River, all in Gunnison County and in old Water District No. 59.

Date of Initiation of Appropriation: August 1, 1910

Date Water First Applied to Beneficial Use: August 1, 1910

How Appropriation was Initiated: By appropriating water and applying the same to beneficial use.

Amount of Water Claimed: Absolute, Lottis Creek, 60.0 c.f.s.; total from tributaries:

(a) Cross Creek 5.0 c.f.s;

(b) Cameron Creek, 12.5 c.f.s.;

(c) Lottis Creek above Cameron Creek, 10.0 c.f.s.; and

(d) Union Creek, 12.5 c.f.s.:

and the claimants claim the following amounts of water in Lottis Creek at the following locations:

Above the confluence of Cameron Creek	10.0 c.f.s.
Below the confluence of Cameron Creek	22.5 c.f.s.
Below the confluence of Cross Creek	27.5 c.f.s.
Below the confluence of Union Creek	40.0 c.f.s.
Below the confluence of South Lottis Creek	60.0 c.f.s.

Use or Proposed Use of Water: Stockwater, recreation, fish culture, wildlife procreation and heritage preservation.

Applicants do not claim the exclusive use of said water, nor a consumptive use, and plan to use it in common with the general public and/or the State of Colorado, provided only that the public use thereof does not interfere with the applicants' appropriation and use.

It is obvious that in order to prevent adverse affect to existing rights on the river system that such a decree must and, in this case, is limited to the upper reaches of the streams concerned and located above all other appropriations or decreed rights. To do otherwise would make it extremely difficult, if not impossible, to effectively administer the overall water rights and water use situation.

R U L I N G

IT IS THE RULING OF THE REFEREE that LOTTIS CREEK, together with its tributaries, Cross Creek, Cameron Creek and Union Creek, is APPROVED AND GRANTED an ABSOLUTE DECREE for the use and benefit of the parties lawfully entitled thereto, for an amount of water not to exceed 60.0 c.f.s. for stockwater, recreation, fish culture, wildlife procreation and heritage preservation, with an appropriation date of August 1, 1910.

AND FURTHER, that the same shall, within that total, be entitled to the quantities at each confluence with its tributaries, as outlined in the findings above.

Applicants' rights are subject to all such rights of the United States of America in the subject sources, including reserved rights, as are now or will hereafter be determined by law.

Within one year from the date on which the decree herein becomes final, applicants shall apply for the special use permits or rights-of-way, as the case may be, which are required by law for the use of public recources, and shall abide by the conditions set forth therein.

DATED 10-15-74

E. L. WILSON

WATER REFEREE - DIVISION 4

No protest was filed in this matter. The foregoing ruling is confirmed and approved, and is made the Judgment and Decree of this court.

Dated: 11-8-74

Water Judge

Attachment C- CPW Fish Survey

Combined Summaries
cutoffs applied

Water **44828** **Cameron Creek** Date **10/12/2022**

Station **GU4307** **7 M above confluence with Lottis Creek**

Drainage **Gunnison River** UtmX **364681** UtmY **4288787** Elevation

Length **399 ft** Width **4.74 ft** Area **0.04 acre**

Surveyors **Brauch, Charlebois, Neal**

Gear **1 BPEF** Effort Metric **PASS** Protocol **TWO-PASS REMOVAL**

Proportional Stocking Density and Catch/Unit Effort

Species	Total Catch	Min Cut inch	Max Cut inch	Total used	Proportional Stock Density (%)	Percent Stock Size	Percent Quality Size	Percent Preferred Size	Percent Memorable Size	Percent Trophy Size	Max Length inches
BROOK TROUT	2			2	0.00	100.00					8.27
BROWN TROUT	71	1.97		69	0.00	100.00					9.72

Mean, Minimum and Maximum Length and Weight

Species	Total Catch	Min cut inch	Max cut inch	Total Used	Length (inches) Mean	Length (inches) Minimum	Length (inches) Maximum	Weight (lb) Mean	Weight (lb) Minimum	Weight (lb) Maximum
BROOK TROUT	2			2	7.46	6.65	8.27	0.17	0.11	0.23
BROWN TROUT	71	1.97		69	5.75	3.23	9.72	0.08	0.01	0.35

Relative Abundance and Catch/Unit Effort

Species	Total Catch	Min.Cut inch	Max.Cut inch	Total used	Weight Lbs	Percent Number	Percent Weight	Catch per Unit Effort Number/Effort	Catch per Unit Effort Lbs/Effort
BROOK TROUT	2			2	0.34	2.82	5.76		
BROWN TROUT	71	1.97		69	5.59	97.18	94.24		

Abundance and Biomass

Species	Total Catch	Min.Cut inch	Max.Cut inch	Total Used	Population estimate	Biomass Lbs	Percent Number	Percent Weight	Density estimates Lb/Acre	Density estimates Fish/Acre	Density estimates Fish/Mile
BROOK TROUT	2			2	2	0.34	2.82	5.76	7.87	46.06	26.47

Combined Summaries
cutoffs applied

Water **44828** **Cameron Creek** Date **10/12/2022**

Station **GU4307** **7 M above confluence with Lottis Creek**

BROWN TROUT	71	1.97	69	69	5.59	97.18	94.24	128.69	1,597.03	917.57

Notes: Stream gradient flattens near top of reach, approaching upper open meadow.

Attachment D- R2Cross Analysis

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Cameron Creek upstream of USFS Road Crossing.					CROSS-SECTION NO.: 1
CROSS-SECTION LOCATION: UTM 13 S 0365348 4289223					
DATE: 7/5/21	OBSERVERS: Bembenek, Nania				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: Lotis / Cameron		WATER DIVISION 4		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

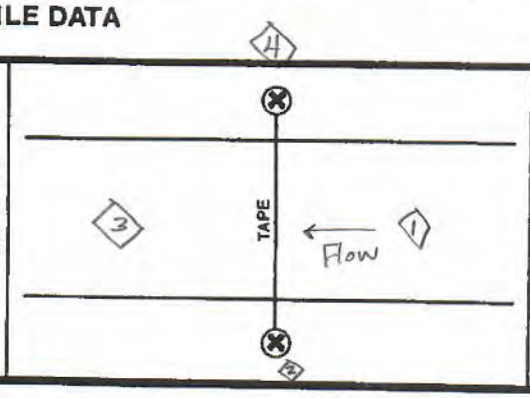
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: AEC Hach FH950				
METER NUMBER: NA	DATE RATED: NA	CALIB/SPIN NA sec	TAPE WEIGHT NA lbs/foot	TAPE TENSION NA lbs	
CHANNEL BED MATERIAL SIZE RANGE: Sand to cobble.		PHOTOGRAPHS TAKEN YES/NO	NUMBER OF PHOTOGRAPHS: ~4 see map		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
Tape @ Stake LB	~~0.0~~ 2.1	0.65
Tape @ Stake RB	~~0.0~~ 11.4	1.3
1 WS @ Tape LB/RB	0.0	2.60 / 2.55
2 WS Upstream	11.0	2.20
3 WS Downstream	7.0	2.60
SLOPE	0.022	

SKETCH



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

Saw many macroinvertebrates. Left rebar in place. Rebar has short pink flagging.
Sediment size varies more widely than expected potentially due to complex, dynamic channel form that changes frequently due to beavers.
Cattle graze in riparian area. Photos on JN's phone, includes macros.

FORM #ISF FD 1-85

Slope ☑

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cameron Creek	CROSS-SECTION NO.: 1	DATE: 7/5/21	SHEET 1 OF 1
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: NA ft	TIME: 12:45

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): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
(S)	2.1		0.65								
	2.5		0.65								
	3.0		0.70								
	3.5		0.65								
	4.0		0.95								
	4.1		1.20								
BF	4.3		1.35								
W	4.5		2.60	0				0			
	4.7		2.85	0.25				2.11			
	4.9		3.10	0.50				2.53			
	5.1		3.15	0.55				2.83			
	5.3		3.15	0.55				3.04			
	5.5		3.0	0.50				2.64			
	5.7		2.95	0.35				1.86			
	5.9		2.95	0.35				1.17			
	6.1		3.0	0.40				1.04			
rock	6.3		2.95	0.35				0.84			
	6.5		2.95	0.35				0.40			
	6.7		2.90	0.30				0.56			
	6.9		2.85	0.25				1.38			
	7.1		2.80	0.20				1.27			
	7.3		2.80	0.20				0.62			
	7.5		2.90	0.30				0.56			
	7.7		2.90	0.30				0.58			
	7.9		2.85	0.25				0.50			
	8.1		2.85	0.25				0.49			
	8.3		2.75	0.15				0.40			
	8.5		2.70	0.10				0.25			
W	8.7		2.60	0				& too shallow to measure			
	8.9		2.60	0							
	9.3		2.60	0							
	9.7		2.55	0							
	9.9		2.55	0							
BF	10.0		1.35								
	10.5		1.25								
	11.0		1.40								
(S)	11.4		1.30								
TOTALS											

End of Measurement	Time 12:55 pm	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

filename: 75 Cam C

Cameron Creek
7/5/21
Nania

Riffle Pebble Count Actual Measurements ~~(mm)~~ (cm)

1	fines	26	fines	51	Ø.3	76	2.8				
2	47.5(E)	27	3.7	52	Ø.4	77	3.Ø				
3	26	28	4.6	53	Ø.2	78	1.2				
4	fines	29	2.8	54	Ø.2	79	6.3				
5	fines	30	3.3	55	fines	80	5.4	101	Ø.4		
6	2.8	31	1.3	56	21.5	81	2.7	102			
7	7.8	32	Ø.9	57	34.5(E)	82	1.3	103			
8	3.4	33	1.1	58	27	83	8.4	104			
9	2.8	34	2.3	59	fines	84	6.3	105			
10	3.1	35	1.9	60	fines	85	3.Ø	106			
11	5.3	36	3.3	61	fines	86	3.4	107			
12	2.4	37	3.2	62	29	87	3.2	108			
13	1.6	38	3.8	63	21	88	4.3	109			
14	6.1	39	1.5	64	7.4	89	3.6	110			
15	2.2	40	1.8	65	3.1	90	1.9	111			
16	3.1	41	1.6	66	3.2	91	4.Ø	112			
17	1.3	42	2.9	67	2.7	92	6.3	113			
18	4.2	43	3.Ø	68	1.8	93	1.8	114			
19	2.9	44	1.1	69	1.1	94	1.4	115			
20	4.9	45	Ø.4	70	3.2	95	1.3				
21	2.7	46	Ø.4	71	2.9	96	1.Ø				
22	3.2	47	1.2	72	4.7	97	Ø.4				
23	3.1	48	Ø.6	73	3.6	98	1.Ø				
24	7.9	49	1.3	74	5.4	99	Ø.9				
25	3.9	50	Ø.4	75	1.1	100	1.8				

****Please be sure to measure at least 100 pebbles (10 in 10 transects or 5 in 20 transects- depending on stream size, for accurate distributional representation.****

EMBEDDEDNESS:

If intermediate particle axis is less than 32 mm chose the nearest cobble for embeddedness.
If no cobble >32 mm is present without taking a step, record 100% embedded.

	Random pebble for **Percent Embeddedness** (one per transect)									
5	7	10	9	3	8	5	2	1	7	#
										D(e)/ D(t)

D(e) = embedded depth; D(t) = total depth

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Cameron Creek upstream of USFS Road Crossing					CROSS-SECTION NO.: 2
CROSS-SECTION LOCATION: Same					
DATE: 9/17/21	OBSERVERS: Ashley Bembeneki, Julie Nania				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: Taylor Fork of the Gunnison		WATER DIVISION 4		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

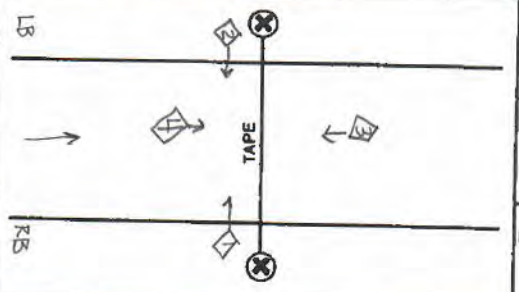
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: AEC HACH FH950				
METER NUMBER: NA	DATE RATED: NA	CALIB/SPIN NA sec	TAPE WEIGHT NA lbs/foot	TAPE TENSION NA lbs	
CHANNEL BED MATERIAL SIZE RANGE: Gravel to small boulder	PHOTOGRAPHS TAKEN YES/NO	NUMBER OF PHOTOGRAPHS: 4, JN's cell phone			

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
Tape @ Stake LB	0.0	0.7
Tape @ Stake RB	~~0.0~~ 9.4	1.25
WS @ Tape LB/RB	0.0	2.75'/2.75'
2 WS Upstream	13.0'	2.65'
3 WS Downstream	5.0'	3.00'
SLOPE	0.35/18.0 = 0.0194	

SKETCH



LEGEND: Stake ⊗, Station ①, Photo ◇1→, 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:

COMMENTS

- Flow file name 917CAM02
- Returned to original cross-section for a repeat measurement.
- Saw several macroinvertebrates.
- Flow of 0.81 cfs. Station spacing at minimum of 0.2'.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cameron Creek	CROSS-SECTION NO. 2	DATE 9/17/21	SHEET 2 OF 2
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME 12:30 pm

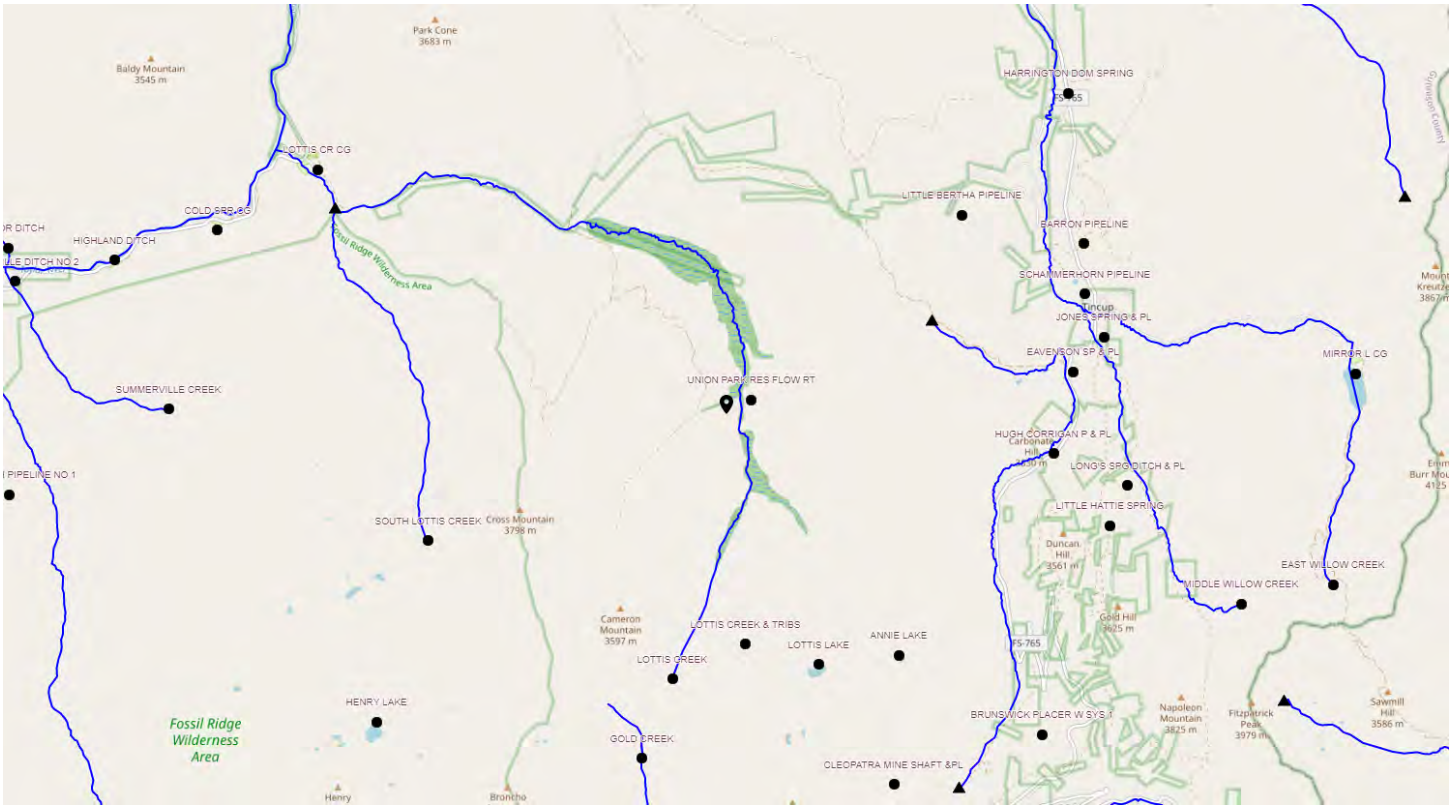
Features	Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Velocity Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
LBS		0		0.7	–							
		.5		0.7	–							
		1		0.75	–							
		1.5		0.60	–							
		2		1.00	–							
BF		2.2		1.80	–							
W		2.6		2.75	–			0				
		2.8		2.90	.15			1.04				
		3.0		3.05	.30			0.94				
		3.2		3.05	.30			0.93				
		3.4		3.05	.30			1.49				
		3.6		3.00	.25			1.57				
		3.8		2.90	.15			1.28				
		4.0		2.90	.15			1.06				
		4.2		2.90	.15			1.30				
		4.4		2.90	.15			1.44				
ROCK		4.6		2.70	0 Rock out water			0				
		4.8		2.90	.15			0.40				
		5.0		2.90	.15			0.57				
		5.2		2.80	.05			0.91				
		5.4		2.80	.05			0.79				
		5.6		2.80	.05			0.86				
		5.8		2.80	.05			0.58				
(W) ROCK		6.0		2.75	0			0				
Too shallow		6.6		2.75	0							
to measure		7.0		2.55		*6.0 to 6.6						
		7.5		2.55								
		7.8		2.50								
R = BF		7.9		1.80								
		8.0		1.45								
		8.5		1.35								
		9.0		1.35								
R(S)		9.4		1.25								
TOTALS												

End of Measurement	Time 1:05 pm	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

R2Cross RESULTS

Stream Name: Cameron Creek
Stream Locations: Cameron Creek upstream of road crossing
Fieldwork Date: 07/05/2021
Cross-section: 1
Observers: J. Nania, A. Bembenek
Coordinate System: UTM Zone 13
X (easting): 365348
Y (northing): 4289223
Date Processed: 08/19/2022
Slope: 0.022
Discharge: R2Cross data file: 1.96 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: 7-5-21 Cameron Creek R2CrossData.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 5.7

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	0.66
Percent Wetted Perimeter (%)	50.0	0.75
Mean Velocity (ft/s)	1.0	0.87

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	1.35	5.7	1.44	1.8	8.2	8.29	100.0	0.99	0.04	6.15	50.42
	1.35	5.7	1.44	1.8	8.2	8.29	100.0	0.99	0.04	6.15	50.42
	1.4	5.69	1.39	1.75	7.92	8.19	98.78	0.97	0.04	6.02	47.67
	1.45	5.68	1.35	1.7	7.64	8.09	97.57	0.94	0.04	5.89	44.96
	1.5	5.66	1.3	1.65	7.35	7.99	96.35	0.92	0.04	5.75	42.3
	1.55	5.65	1.25	1.6	7.07	7.89	95.14	0.9	0.04	5.61	39.69
	1.6	5.64	1.2	1.55	6.79	7.79	93.92	0.87	0.04	5.47	37.13
	1.65	5.63	1.16	1.5	6.51	7.68	92.7	0.85	0.04	5.32	34.62
	1.7	5.61	1.11	1.45	6.22	7.58	91.49	0.82	0.04	5.17	32.16
	1.75	5.6	1.06	1.4	5.94	7.48	90.27	0.79	0.04	5.01	29.76
	1.8	5.59	1.01	1.35	5.66	7.38	89.06	0.77	0.04	4.84	27.42
	1.85	5.58	0.97	1.3	5.39	7.28	87.84	0.74	0.04	4.67	25.14
	1.9	5.57	0.92	1.25	5.11	7.18	86.62	0.71	0.04	4.49	22.93
	1.95	5.55	0.87	1.2	4.83	7.08	85.41	0.68	0.04	4.31	20.79
	2.0	5.54	0.82	1.15	4.55	6.98	84.19	0.65	0.04	4.11	18.72
	2.05	5.53	0.77	1.1	4.27	6.88	82.97	0.62	0.04	3.91	16.72
	2.1	5.52	0.72	1.05	4.0	6.78	81.76	0.59	0.04	3.7	14.8
	2.15	5.51	0.68	1.0	3.72	6.68	80.54	0.56	0.04	3.48	12.97
	2.2	5.49	0.63	0.95	3.45	6.58	79.33	0.52	0.04	3.26	11.23
	2.25	5.48	0.58	0.9	3.17	6.48	78.11	0.49	0.05	3.02	9.58
	2.3	5.47	0.53	0.85	2.9	6.37	76.89	0.45	0.05	2.77	8.04
	2.35	5.46	0.48	0.8	2.63	6.27	75.68	0.42	0.05	2.52	6.61
	2.4	5.44	0.43	0.75	2.35	6.17	74.46	0.38	0.05	2.25	5.3
	2.45	5.43	0.38	0.7	2.08	6.07	73.25	0.34	0.05	1.98	4.11
	2.5	5.42	0.33	0.65	1.81	5.97	72.03	0.3	0.06	1.69	3.06

	2.55	5.21	0.3	0.6	1.54	5.67	68.4	0.27	0.06	1.47	2.26
Waterline	2.6	4.2	0.31	0.55	1.29	4.62	55.69	0.28	0.06	1.52	1.96
	2.65	4.06	0.27	0.5	1.08	4.44	53.57	0.24	0.07	1.27	1.38
	2.7	3.92	0.23	0.45	0.88	4.26	51.45	0.21	0.08	1.02	0.9
	2.75	3.68	0.19	0.4	0.69	3.99	48.19	0.17	0.09	0.8	0.56
	2.8	3.34	0.15	0.35	0.51	3.62	43.65	0.14	0.1	0.6	0.31
	2.85	2.7	0.13	0.3	0.36	2.92	35.28	0.12	0.11	0.49	0.17
	2.9	1.96	0.12	0.25	0.24	2.14	25.78	0.11	0.12	0.42	0.1
	2.95	1.32	0.11	0.2	0.14	1.47	17.69	0.1	0.13	0.35	0.05
	3.0	0.81	0.11	0.15	0.09	0.91	10.94	0.1	0.13	0.36	0.03
	3.05	0.71	0.07	0.1	0.05	0.76	9.16	0.07	0.18	0.21	0.01
	3.1	0.6	0.03	0.05	0.02	0.61	7.39	0.03	0.32	0.07	0.0
	3.13	0.32	0.01	0.02	0.0	0.32	3.9	0.01	0.74	0.02	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	1.96	(cfs)
Calculated Flow (Qc) =	1.96	(cfs)
(Qm-Qc)/Qm * 100 =	0.01%	
Measured Waterline (WLm) =	2.6	(ft)
Calculated Waterline (WLc) =	2.6	(ft)
(WLm-WLc)/WLm * 100 =	-0.00%	
Max Measured Depth (Dm) =	0.55	(ft)
Max Calculated Depth (Dc) =	0.55	(ft)
(Dm-Dc)/Dm * 100 =	0.00%	
Mean Velocity =	1.52	(ft/s)
Manning's n =	0.062	
0.4 * Qm =	0.79	(cfs)
2.5 * Qm =	4.91	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2.1	0.65		
	2.5	0.65		
	3	0.7		
	3.5	0.65		
	4	0.95		
	4.1	1.2		
Bankfull	4.3	1.35		
Waterline	4.5	2.6	0	0
	4.7	2.85	0.25	2.11
	4.9	3.1	0.5	2.53
	5.1	3.15	0.55	2.83
	5.3	3.15	0.55	3.04
	5.5	3.1	0.5	2.64
	5.7	2.95	0.35	1.86
	5.9	2.95	0.35	1.17
	6.1	3	0.4	1.04
	6.3	2.95	0.35	0.84
	6.5	2.95	0.35	0.4
	6.7	2.9	0.3	0.56
	6.9	2.85	0.25	1.38
	7.1	2.8	0.2	1.27
	7.3	2.8	0.2	0.62
	7.5	2.9	0.3	0.56
	7.7	2.9	0.3	0.58
	7.9	2.85	0.25	0.5
	8.1	2.85	0.25	0.49
	8.3	2.75	0.15	0.4
	8.5	2.7	0.1	0.25
Waterline	8.7	2.6	0	0
	8.9	2.6		

	9.3	2.6
	9.7	2.55
	9.9	2.55
Bankfull	10	1.35
	10.5	1.25
	11	1.4
	11.4	1.3

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.32	0.25	0.05	0.11	5.37
0.32	0.5	0.1	0.25	12.89
0.21	0.55	0.11	0.31	15.86
0.2	0.55	0.11	0.33	17.03
0.21	0.5	0.1	0.26	13.45
0.25	0.35	0.07	0.13	6.63
0.2	0.35	0.07	0.08	4.17
0.21	0.4	0.08	0.08	4.24
0.21	0.35	0.07	0.06	3
0.2	0.35	0.07	0.03	1.43
0.21	0.3	0.06	0.03	1.71
0.21	0.25	0.05	0.07	3.51
0.21	0.2	0.04	0.05	2.59
0.2	0.2	0.04	0.02	1.26
0.22	0.3	0.06	0.03	1.71
0.2	0.3	0.06	0.03	1.77
0.21	0.25	0.05	0.03	1.27
0.2	0.25	0.05	0.02	1.25
0.22	0.15	0.03	0.01	0.61
0.21	0.1	0.02	0	0.25
0.22	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

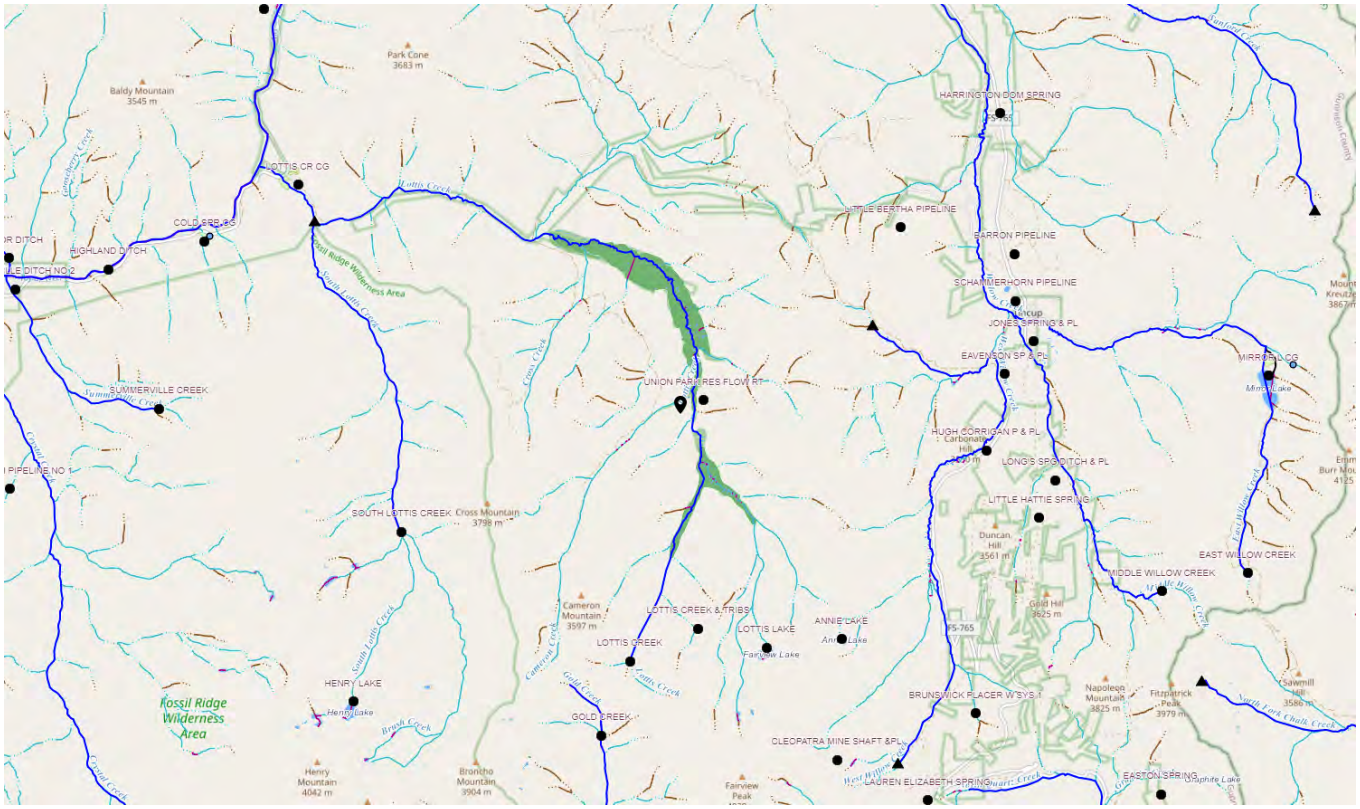
DISCLAIMER

"The Colorado Water Conservation Board makes no representations about the use of the software contained in the R2Cross platform for any purpose besides that for which it was designed. To the maximum extent permitted by applicable law, all information, modeling results, and software are provided “as is” without warranty or condition of any kind, including all implied warranties or conditions of merchantability, or fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this program for a specific application. In no event shall the Colorado Water Conservation Board or any state agency, official or employee be liable for any direct, indirect, punitive, incidental, special, consequential damages or any damages whatsoever including, without limitation, damages for loss of use, data, profits, or savings arising from the implementation, reliance on, or use of or inability to use the R2Cross platform.

R2Cross RESULTS

Stream Name: Cameron Creek
Stream Locations: Cameron Creek upstream of road crossing
Fieldwork Date: 09/17/2021
Cross-section: 1
Observers: J. Nania, A. Bembenek
Coordinate System: UTM Zone 13
X (easting): 365348
Y (northing): 4289223
Date Processed: 08/19/2022
Slope: 0.0194
Discharge: R2Cross data file: 0.52 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: 9-17-21 Cameron Creek R2CrossData.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 5.7

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	1.42
Percent Wetted Perimeter (%)	50.0	0.35
Mean Velocity (ft/s)	1.0	0.52

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	1.8	5.7	0.95	1.25	5.43	7.31	100.0	0.74	0.03	6.15	33.35
	1.85	5.67	0.91	1.2	5.15	7.21	98.62	0.71	0.03	5.97	30.77
	1.9	5.64	0.86	1.15	4.87	7.11	97.19	0.69	0.03	5.78	28.15
	1.95	5.62	0.82	1.1	4.59	7.0	95.76	0.66	0.03	5.58	25.62
	2.0	5.59	0.77	1.05	4.31	6.9	94.33	0.62	0.03	5.37	23.16
	2.05	5.56	0.72	1.0	4.03	6.79	92.89	0.59	0.03	5.16	20.79
	2.1	5.53	0.68	0.95	3.75	6.69	91.46	0.56	0.03	4.93	18.51
	2.15	5.5	0.63	0.9	3.48	6.59	90.03	0.53	0.03	4.69	16.32
	2.2	5.48	0.58	0.85	3.2	6.48	88.6	0.49	0.03	4.44	14.22
	2.25	5.45	0.54	0.8	2.93	6.38	87.17	0.46	0.03	4.17	12.23
	2.3	5.42	0.49	0.75	2.66	6.27	85.73	0.42	0.03	3.89	10.35
	2.35	5.39	0.44	0.7	2.39	6.17	84.3	0.39	0.03	3.59	8.58
	2.4	5.36	0.4	0.65	2.12	6.06	82.87	0.35	0.03	3.27	6.93
	2.45	5.33	0.35	0.6	1.85	5.96	81.44	0.31	0.03	2.92	5.41
	2.5	5.31	0.3	0.55	1.59	5.85	80.0	0.27	0.03	2.55	4.05
	2.55	5.0	0.27	0.5	1.33	5.5	75.24	0.24	0.04	2.26	3.0
	2.6	4.37	0.25	0.45	1.11	4.83	66.03	0.23	0.04	2.14	2.37
	2.65	4.25	0.21	0.4	0.89	4.66	63.76	0.19	0.04	1.75	1.56
	2.7	4.13	0.17	0.35	0.68	4.5	61.49	0.15	0.04	1.33	0.91
Waterline	2.75	3.91	0.12	0.3	0.48	4.2	57.36	0.11	0.05	0.94	0.45
	2.8	2.95	0.11	0.25	0.32	3.17	43.33	0.1	0.06	0.8	0.26
	2.85	2.08	0.1	0.2	0.21	2.23	30.48	0.09	0.06	0.73	0.15
	2.9	1.81	0.06	0.15	0.11	1.89	25.88	0.06	0.08	0.39	0.04
	2.95	0.84	0.08	0.1	0.07	0.89	12.2	0.07	0.07	0.52	0.03
	3.0	0.67	0.04	0.05	0.03	0.7	9.53	0.04	0.11	0.22	0.01

	3.04	0.48	0.01	0.02	0.01	0.49	6.66	0.01	0.27	0.04	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	0.52	(cfs)
Calculated Flow (Qc) =	0.48	(cfs)
(Qm-Qc)/Qm * 100 =	7.62%	
Measured Waterline (WLm) =	2.75	(ft)
Calculated Waterline (WLc) =	2.75	(ft)
(WLm-WLc)/WLm * 100 =	0.07%	
Max Measured Depth (Dm) =	0.3	(ft)
Max Calculated Depth (Dc) =	0.3	(ft)
(Dm-Dc)/Dm * 100 =	-0.64%	
Mean Velocity =	1.01	(ft/s)
Manning's n =	0.048	
0.4 * Qm =	0.21	(cfs)
2.5 * Qm =	1.31	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	0.7		
	0.5	0.7		
	1	0.75		
	1.5	0.6		
	2	1		
Bankfull	2.2	1.8		
Waterline	2.6	2.75	0	0
	2.8	2.9	0.15	1.04
	3	3.05	0.3	0.94
	3.2	3.05	0.3	0.93
	3.4	3.05	0.3	1.49
	3.6	3	0.25	1.57
	3.8	2.9	0.15	1.28
	4	2.9	0.15	1.06
	4.2	2.9	0.15	1.3
	4.4	2.9	0.15	1.44
	4.6	2.7	0	0
	4.8	2.9	0.15	0.4
	5	2.9	0.15	0.57
	5.2	2.8	0.05	0.91
	5.4	2.8	0.05	0.79
	5.6	2.8	0.05	0.86
	5.8	2.8	0.05	0.58
Waterline	6	2.75	0	0
	6.6	2.75		
	7	2.55		
	7.5	2.55		
	7.8	2.5		
Bankfull	7.9	1.8		
	8	1.45		

8.5	1.35	
9	1.35	
9.4	1.25	

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.25	0.15	0.03	0.03	5.95
0.25	0.3	0.06	0.06	10.76
0.2	0.3	0.06	0.06	10.64
0.2	0.3	0.06	0.09	17.05
0.21	0.25	0.05	0.08	14.98
0.22	0.15	0.03	0.04	7.33
0.2	0.15	0.03	0.03	6.07
0.2	0.15	0.03	0.04	7.44
0.2	0.15	0.03	0.04	8.24
0.28	0	0	0	0
0.28	0.15	0.03	0.01	2.29
0.2	0.15	0.03	0.02	3.26
0.22	0.05	0.01	0.01	1.74
0.2	0.05	0.01	0.01	1.51
0.2	0.05	0.01	0.01	1.64
0.2	0.05	0.01	0.01	1.11
0.21	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

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COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Cameron Creek upstream of USFS Road Crossing.					CROSS-SECTION NO.: 1
CROSS-SECTION LOCATION: UTM 13 S 0365348 4289223					
DATE: 7/5/21	OBSERVERS: Bembenek, Nania				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: Lotis / Cameron		WATER DIVISION 4		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

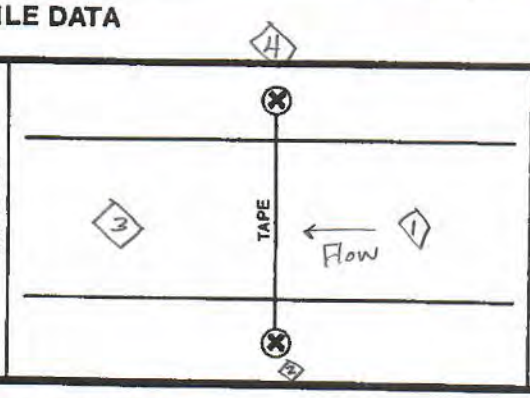
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: AEC Hach FH950				
METER NUMBER: NA	DATE RATED: NA	CALIB/SPIN NA sec	TAPE WEIGHT NA lbs/foot	TAPE TENSION NA lbs	
CHANNEL BED MATERIAL SIZE RANGE: Sand to cobble.		PHOTOGRAPHS TAKEN YES/NO	NUMBER OF PHOTOGRAPHS: ~4 see map		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
Tape @ Stake LB	~~0.0~~ 2.1	0.65
Tape @ Stake RB	~~0.0~~ 11.4	1.3
1 WS @ Tape LB/RB	0.0	2.60 / 2.55
2 WS Upstream	11.0	2.20
3 WS Downstream	7.0	2.60
SLOPE	0.022	

SKETCH



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

Saw many macroinvertebrates. Left rebar in place. Rebar has short pink flagging.
Sediment size varies more widely than expected potentially due to complex, dynamic channel form that changes frequently due to beavers.
Cattle graze in riparian area. Photos on JN's phone, includes macros.

FORM #ISF FD 1-85

Slope ☑

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cameron Creek	CROSS-SECTION NO.: 1	DATE: 7/5/21	SHEET 1 OF 1
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: NA ft	TIME: 12:45

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): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
(S)	2.1		0.65								
	2.5		0.65								
	3.0		0.70								
	3.5		0.65								
	4.0		0.95								
	4.1		1.20								
BF	4.3		1.35								
W	4.5		2.60	0				0			
	4.7		2.85	0.25				2.11			
	4.9		3.10	0.50				2.53			
	5.1		3.15	0.55				2.83			
	5.3		3.15	0.55				3.04			
	5.5		3.0	0.50				2.64			
	5.7		2.95	0.35				1.86			
	5.9		2.95	0.35				1.17			
	6.1		3.0	0.40				1.04			
rock	6.3		2.95	0.35				0.84			
	6.5		2.95	0.35				0.40			
	6.7		2.90	0.30				0.56			
	6.9		2.85	0.25				1.38			
	7.1		2.80	0.20				1.27			
	7.3		2.80	0.20				0.62			
	7.5		2.90	0.30				0.56			
	7.7		2.90	0.30				0.58			
	7.9		2.85	0.25				0.50			
	8.1		2.85	0.25				0.49			
	8.3		2.75	0.15				0.40			
	8.5		2.70	0.10				0.25			
W	8.7		2.60	0				& too shallow to measure			
	8.9		2.60	0							
	9.3		2.60	0							
	9.7		2.55	0							
	9.9		2.55	0							
BF	10.0		1.35								
	10.5		1.25								
	11.0		1.40								
(S)	11.4		1.30								
TOTALS											

End of Measurement	Time 12:55 pm	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

filename: 75 Cam C

Cameron Creek
7/5/21
Nania

Riffle Pebble Count Actual Measurements ~~(mm)~~ (cm)

1	fines	26	fines	51	Ø.3	76	2.8				
2	47.5(E)	27	3.7	52	Ø.4	77	3.Ø				
3	26	28	4.6	53	Ø.2	78	1.2				
4	fines	29	2.8	54	Ø.2	79	6.3				
5	fines	30	3.3	55	fines	80	5.4	101	Ø.4		
6	2.8	31	1.3	56	21.5	81	2.7	102			
7	7.8	32	Ø.9	57	34.5(E)	82	1.3	103			
8	3.4	33	1.1	58	27	83	8.4	104			
9	2.8	34	2.3	59	fines	84	6.3	105			
10	3.1	35	1.9	60	fines	85	3.Ø	106			
11	5.3	36	3.3	61	fines	86	3.4	107			
12	2.4	37	3.2	62	29	87	3.2	108			
13	1.6	38	3.8	63	21	88	4.3	109			
14	6.1	39	1.5	64	7.4	89	3.6	110			
15	2.2	40	1.8	65	3.1	90	1.9	111			
16	3.1	41	1.6	66	3.2	91	4.Ø	112			
17	1.3	42	2.9	67	2.7	92	6.3	113			
18	4.2	43	3.Ø	68	1.8	93	1.8	114			
19	2.9	44	1.1	69	1.1	94	1.4	115			
20	4.9	45	Ø.4	70	3.2	95	1.3				
21	2.7	46	Ø.4	71	2.9	96	1.Ø				
22	3.2	47	1.2	72	4.7	97	Ø.4				
23	3.1	48	Ø.6	73	3.6	98	1.Ø				
24	7.9	49	1.3	74	5.4	99	Ø.9				
25	3.9	50	Ø.4	75	1.1	100	1.8				

****Please be sure to measure at least 100 pebbles (10 in 10 transects or 5 in 20 transects- depending on stream size, for accurate distributional representation.****

EMBEDDEDNESS:

If intermediate particle axis is less than 32 mm chose the nearest cobble for embeddedness.
If no cobble >32 mm is present without taking a step, record 100% embedded.

	Random pebble for **Percent Embeddedness** (one per transect)									
5	7	10	9	3	8	5	2	1	7	#
										D(e)/ D(t)

D(e) = embedded depth; D(t) = total depth

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Cameron Creek upstream of USFS Road Crossing					CROSS-SECTION NO.: 2
CROSS-SECTION LOCATION: Same					
DATE: 9/17/21	OBSERVERS: Ashley Bembeneki, Julie Nania				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: Taylor Fork of the Gunnison		WATER DIVISION 4		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

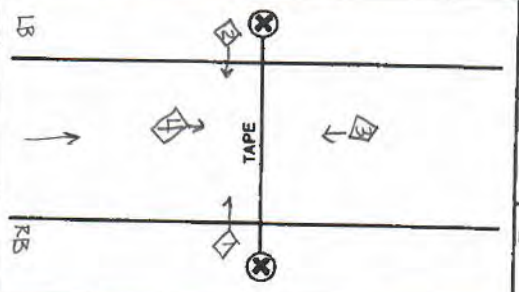
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: AEC HACH FH950				
METER NUMBER: NA	DATE RATED: NA	CALIB/SPIN NA sec	TAPE WEIGHT NA lbs/foot	TAPE TENSION NA lbs	
CHANNEL BED MATERIAL SIZE RANGE: Gravel to small boulder	PHOTOGRAPHS TAKEN YES/NO	NUMBER OF PHOTOGRAPHS: 4, JN's cell phone			

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
Tape @ Stake LB	0.0	0.7
Tape @ Stake RB	~~0.0~~ 9.4	1.25
WS @ Tape LB/RB	0.0	2.75'/2.75'
2 WS Upstream	13.0'	2.65'
3 WS Downstream	5.0'	3.00'
SLOPE	0.35/18.0 = 0.0194	

SKETCH



LEGEND: Stake ⊗, Station ①, Photo ◇1→, 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:

COMMENTS

- Flow file name 917CAM02
- Returned to original cross-section for a repeat measurement.
- Saw several macroinvertebrates.
- Flow of 0.81 cfs. Station spacing at minimum of 0.2'.

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cameron Creek	CROSS-SECTION NO. 2	DATE 9/17/21	SHEET 2 OF 2
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME 12:30 pm

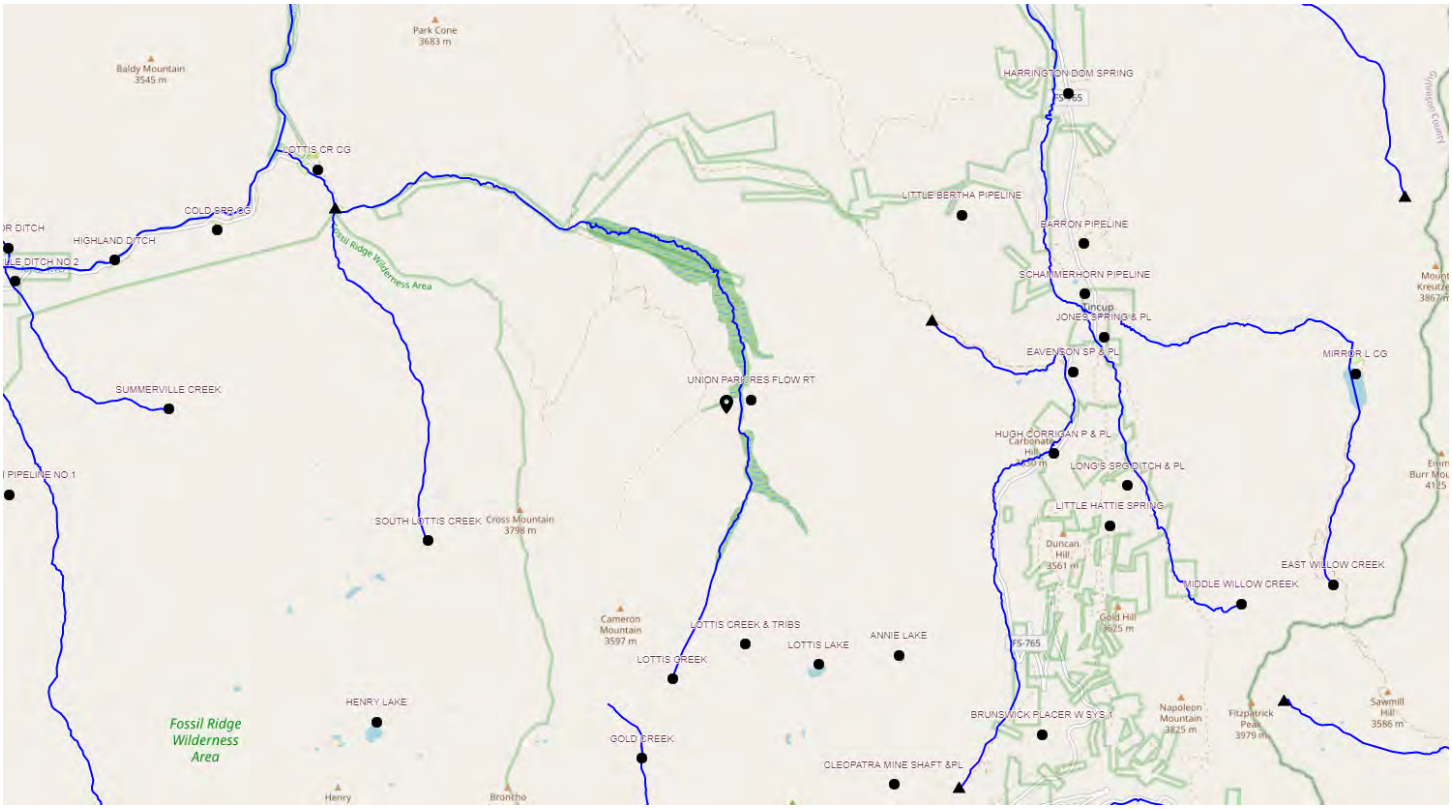
Features	Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Velocity Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
LBS		0		0.7	–							
		.5		0.7	–							
		1		0.75	–							
		1.5		0.60	–							
		2		1.00	–							
BF		2.2		1.80	–							
W		2.6		2.75	–			0				
		2.8		2.90	.15			1.04				
		3.0		3.05	.30			0.94				
		3.2		3.05	.30			0.93				
		3.4		3.05	.30			1.49				
		3.6		3.00	.25			1.57				
		3.8		2.90	.15			1.28				
		4.0		2.90	.15			1.06				
		4.2		2.90	.15			1.30				
		4.4		2.90	.15			1.44				
ROCK		4.6		2.70	0 Rock out water			0				
		4.8		2.90	.15			0.40				
		5.0		2.90	.15			0.57				
		5.2		2.80	.05			0.91				
		5.4		2.80	.05			0.79				
		5.6		2.80	.05			0.86				
		5.8		2.80	.05			0.58				
(W) ROCK		6.0		2.75	0			0				
Too shallow		6.6		2.75	0							
to measure		7.0		2.55		*6.0 to 6.6						
		7.5		2.55								
		7.8		2.50								
R = BF		7.9		1.80								
		8.0		1.45								
		8.5		1.35								
		9.0		1.35								
R(S)		9.4		1.25								
TOTALS												

End of Measurement	Time 1:05 pm	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

R2Cross RESULTS

Stream Name: Cameron Creek
Stream Locations: Cameron Creek upstream of road crossing
Fieldwork Date: 07/05/2021
Cross-section: 1
Observers: J. Nania, A. Bembenek
Coordinate System: UTM Zone 13
X (easting): 365348
Y (northing): 4289223
Date Processed: 08/19/2022
Slope: 0.022
Discharge: R2Cross data file: 1.96 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: 7-5-21 Cameron Creek R2CrossData.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 5.7

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	0.66
Percent Wetted Perimeter (%)	50.0	0.75
Mean Velocity (ft/s)	1.0	0.87

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	1.35	5.7	1.44	1.8	8.2	8.29	100.0	0.99	0.04	6.15	50.42
	1.35	5.7	1.44	1.8	8.2	8.29	100.0	0.99	0.04	6.15	50.42
	1.4	5.69	1.39	1.75	7.92	8.19	98.78	0.97	0.04	6.02	47.67
	1.45	5.68	1.35	1.7	7.64	8.09	97.57	0.94	0.04	5.89	44.96
	1.5	5.66	1.3	1.65	7.35	7.99	96.35	0.92	0.04	5.75	42.3
	1.55	5.65	1.25	1.6	7.07	7.89	95.14	0.9	0.04	5.61	39.69
	1.6	5.64	1.2	1.55	6.79	7.79	93.92	0.87	0.04	5.47	37.13
	1.65	5.63	1.16	1.5	6.51	7.68	92.7	0.85	0.04	5.32	34.62
	1.7	5.61	1.11	1.45	6.22	7.58	91.49	0.82	0.04	5.17	32.16
	1.75	5.6	1.06	1.4	5.94	7.48	90.27	0.79	0.04	5.01	29.76
	1.8	5.59	1.01	1.35	5.66	7.38	89.06	0.77	0.04	4.84	27.42
	1.85	5.58	0.97	1.3	5.39	7.28	87.84	0.74	0.04	4.67	25.14
	1.9	5.57	0.92	1.25	5.11	7.18	86.62	0.71	0.04	4.49	22.93
	1.95	5.55	0.87	1.2	4.83	7.08	85.41	0.68	0.04	4.31	20.79
	2.0	5.54	0.82	1.15	4.55	6.98	84.19	0.65	0.04	4.11	18.72
	2.05	5.53	0.77	1.1	4.27	6.88	82.97	0.62	0.04	3.91	16.72
	2.1	5.52	0.72	1.05	4.0	6.78	81.76	0.59	0.04	3.7	14.8
	2.15	5.51	0.68	1.0	3.72	6.68	80.54	0.56	0.04	3.48	12.97
	2.2	5.49	0.63	0.95	3.45	6.58	79.33	0.52	0.04	3.26	11.23
	2.25	5.48	0.58	0.9	3.17	6.48	78.11	0.49	0.05	3.02	9.58
	2.3	5.47	0.53	0.85	2.9	6.37	76.89	0.45	0.05	2.77	8.04
	2.35	5.46	0.48	0.8	2.63	6.27	75.68	0.42	0.05	2.52	6.61
	2.4	5.44	0.43	0.75	2.35	6.17	74.46	0.38	0.05	2.25	5.3
	2.45	5.43	0.38	0.7	2.08	6.07	73.25	0.34	0.05	1.98	4.11
	2.5	5.42	0.33	0.65	1.81	5.97	72.03	0.3	0.06	1.69	3.06

	2.55	5.21	0.3	0.6	1.54	5.67	68.4	0.27	0.06	1.47	2.26
Waterline	2.6	4.2	0.31	0.55	1.29	4.62	55.69	0.28	0.06	1.52	1.96
	2.65	4.06	0.27	0.5	1.08	4.44	53.57	0.24	0.07	1.27	1.38
	2.7	3.92	0.23	0.45	0.88	4.26	51.45	0.21	0.08	1.02	0.9
	2.75	3.68	0.19	0.4	0.69	3.99	48.19	0.17	0.09	0.8	0.56
	2.8	3.34	0.15	0.35	0.51	3.62	43.65	0.14	0.1	0.6	0.31
	2.85	2.7	0.13	0.3	0.36	2.92	35.28	0.12	0.11	0.49	0.17
	2.9	1.96	0.12	0.25	0.24	2.14	25.78	0.11	0.12	0.42	0.1
	2.95	1.32	0.11	0.2	0.14	1.47	17.69	0.1	0.13	0.35	0.05
	3.0	0.81	0.11	0.15	0.09	0.91	10.94	0.1	0.13	0.36	0.03
	3.05	0.71	0.07	0.1	0.05	0.76	9.16	0.07	0.18	0.21	0.01
	3.1	0.6	0.03	0.05	0.02	0.61	7.39	0.03	0.32	0.07	0.0
	3.13	0.32	0.01	0.02	0.0	0.32	3.9	0.01	0.74	0.02	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	1.96	(cfs)
Calculated Flow (Qc) =	1.96	(cfs)
(Qm-Qc)/Qm * 100 =	0.01%	
Measured Waterline (WLm) =	2.6	(ft)
Calculated Waterline (WLc) =	2.6	(ft)
(WLm-WLc)/WLm * 100 =	-0.00%	
Max Measured Depth (Dm) =	0.55	(ft)
Max Calculated Depth (Dc) =	0.55	(ft)
(Dm-Dc)/Dm * 100 =	0.00%	
Mean Velocity =	1.52	(ft/s)
Manning's n =	0.062	
0.4 * Qm =	0.79	(cfs)
2.5 * Qm =	4.91	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2.1	0.65		
	2.5	0.65		
	3	0.7		
	3.5	0.65		
	4	0.95		
	4.1	1.2		
Bankfull	4.3	1.35		
Waterline	4.5	2.6	0	0
	4.7	2.85	0.25	2.11
	4.9	3.1	0.5	2.53
	5.1	3.15	0.55	2.83
	5.3	3.15	0.55	3.04
	5.5	3.1	0.5	2.64
	5.7	2.95	0.35	1.86
	5.9	2.95	0.35	1.17
	6.1	3	0.4	1.04
	6.3	2.95	0.35	0.84
	6.5	2.95	0.35	0.4
	6.7	2.9	0.3	0.56
	6.9	2.85	0.25	1.38
	7.1	2.8	0.2	1.27
	7.3	2.8	0.2	0.62
	7.5	2.9	0.3	0.56
	7.7	2.9	0.3	0.58
	7.9	2.85	0.25	0.5
	8.1	2.85	0.25	0.49
	8.3	2.75	0.15	0.4
	8.5	2.7	0.1	0.25
Waterline	8.7	2.6	0	0
	8.9	2.6		

	9.3	2.6
	9.7	2.55
	9.9	2.55
Bankfull	10	1.35
	10.5	1.25
	11	1.4
	11.4	1.3

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.32	0.25	0.05	0.11	5.37
0.32	0.5	0.1	0.25	12.89
0.21	0.55	0.11	0.31	15.86
0.2	0.55	0.11	0.33	17.03
0.21	0.5	0.1	0.26	13.45
0.25	0.35	0.07	0.13	6.63
0.2	0.35	0.07	0.08	4.17
0.21	0.4	0.08	0.08	4.24
0.21	0.35	0.07	0.06	3
0.2	0.35	0.07	0.03	1.43
0.21	0.3	0.06	0.03	1.71
0.21	0.25	0.05	0.07	3.51
0.21	0.2	0.04	0.05	2.59
0.2	0.2	0.04	0.02	1.26
0.22	0.3	0.06	0.03	1.71
0.2	0.3	0.06	0.03	1.77
0.21	0.25	0.05	0.03	1.27
0.2	0.25	0.05	0.02	1.25
0.22	0.15	0.03	0.01	0.61
0.21	0.1	0.02	0	0.25
0.22	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

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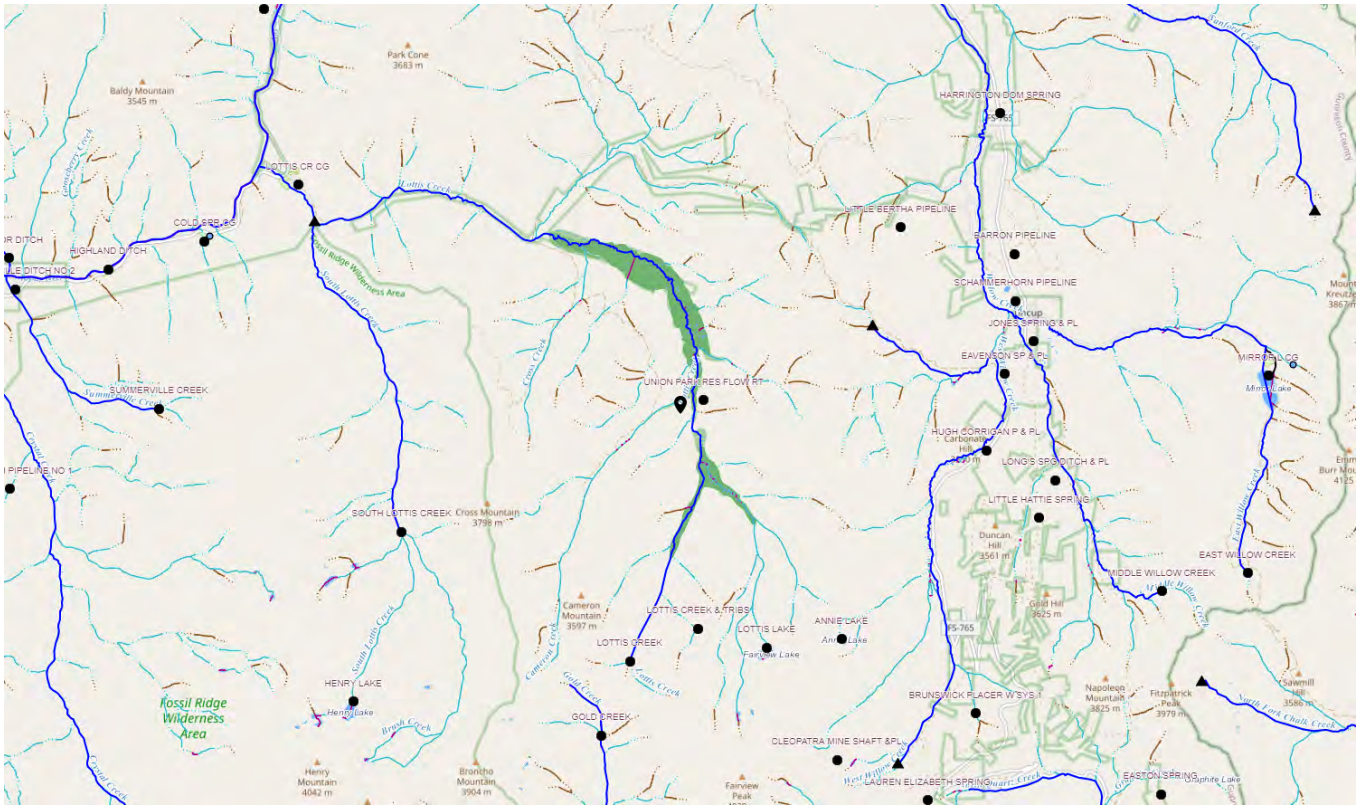
R2Cross RESULTS

Stream Name: Cameron Creek
Stream Locations: Cameron Creek upstream of road crossing
Fieldwork Date: 09/17/2021
Cross-section: 1
Observers: J. Nania, A. Bembenek
Coordinate System: UTM Zone 13
X (easting): 365348
Y (northing): 4289223
Date Processed: 08/19/2022
Slope: 0.0194
Discharge: R2Cross data file: 0.52 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: 9-17-21 Cameron Creek R2CrossData.xlsx
R2Cross version: 2.0.0

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 5.7

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	1.42
Percent Wetted Perimeter (%)	50.0	0.35
Mean Velocity (ft/s)	1.0	0.52

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	1.8	5.7	0.95	1.25	5.43	7.31	100.0	0.74	0.03	6.15	33.35
	1.85	5.67	0.91	1.2	5.15	7.21	98.62	0.71	0.03	5.97	30.77
	1.9	5.64	0.86	1.15	4.87	7.11	97.19	0.69	0.03	5.78	28.15
	1.95	5.62	0.82	1.1	4.59	7.0	95.76	0.66	0.03	5.58	25.62
	2.0	5.59	0.77	1.05	4.31	6.9	94.33	0.62	0.03	5.37	23.16
	2.05	5.56	0.72	1.0	4.03	6.79	92.89	0.59	0.03	5.16	20.79
	2.1	5.53	0.68	0.95	3.75	6.69	91.46	0.56	0.03	4.93	18.51
	2.15	5.5	0.63	0.9	3.48	6.59	90.03	0.53	0.03	4.69	16.32
	2.2	5.48	0.58	0.85	3.2	6.48	88.6	0.49	0.03	4.44	14.22
	2.25	5.45	0.54	0.8	2.93	6.38	87.17	0.46	0.03	4.17	12.23
	2.3	5.42	0.49	0.75	2.66	6.27	85.73	0.42	0.03	3.89	10.35
	2.35	5.39	0.44	0.7	2.39	6.17	84.3	0.39	0.03	3.59	8.58
	2.4	5.36	0.4	0.65	2.12	6.06	82.87	0.35	0.03	3.27	6.93
	2.45	5.33	0.35	0.6	1.85	5.96	81.44	0.31	0.03	2.92	5.41
	2.5	5.31	0.3	0.55	1.59	5.85	80.0	0.27	0.03	2.55	4.05
	2.55	5.0	0.27	0.5	1.33	5.5	75.24	0.24	0.04	2.26	3.0
	2.6	4.37	0.25	0.45	1.11	4.83	66.03	0.23	0.04	2.14	2.37
	2.65	4.25	0.21	0.4	0.89	4.66	63.76	0.19	0.04	1.75	1.56
	2.7	4.13	0.17	0.35	0.68	4.5	61.49	0.15	0.04	1.33	0.91
Waterline	2.75	3.91	0.12	0.3	0.48	4.2	57.36	0.11	0.05	0.94	0.45
	2.8	2.95	0.11	0.25	0.32	3.17	43.33	0.1	0.06	0.8	0.26
	2.85	2.08	0.1	0.2	0.21	2.23	30.48	0.09	0.06	0.73	0.15
	2.9	1.81	0.06	0.15	0.11	1.89	25.88	0.06	0.08	0.39	0.04
	2.95	0.84	0.08	0.1	0.07	0.89	12.2	0.07	0.07	0.52	0.03
	3.0	0.67	0.04	0.05	0.03	0.7	9.53	0.04	0.11	0.22	0.01

	3.04	0.48	0.01	0.02	0.01	0.49	6.66	0.01	0.27	0.04	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	0.52	(cfs)
Calculated Flow (Qc) =	0.48	(cfs)
(Qm-Qc)/Qm * 100 =	7.62%	
Measured Waterline (WLm) =	2.75	(ft)
Calculated Waterline (WLc) =	2.75	(ft)
(WLm-WLc)/WLm * 100 =	0.07%	
Max Measured Depth (Dm) =	0.3	(ft)
Max Calculated Depth (Dc) =	0.3	(ft)
(Dm-Dc)/Dm * 100 =	-0.64%	
Mean Velocity =	1.01	(ft/s)
Manning's n =	0.048	
0.4 * Qm =	0.21	(cfs)
2.5 * Qm =	1.31	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	0.7		
	0.5	0.7		
	1	0.75		
	1.5	0.6		
	2	1		
Bankfull	2.2	1.8		
Waterline	2.6	2.75	0	0
	2.8	2.9	0.15	1.04
	3	3.05	0.3	0.94
	3.2	3.05	0.3	0.93
	3.4	3.05	0.3	1.49
	3.6	3	0.25	1.57
	3.8	2.9	0.15	1.28
	4	2.9	0.15	1.06
	4.2	2.9	0.15	1.3
	4.4	2.9	0.15	1.44
	4.6	2.7	0	0
	4.8	2.9	0.15	0.4
	5	2.9	0.15	0.57
	5.2	2.8	0.05	0.91
	5.4	2.8	0.05	0.79
	5.6	2.8	0.05	0.86
	5.8	2.8	0.05	0.58
Waterline	6	2.75	0	0
	6.6	2.75		
	7	2.55		
	7.5	2.55		
	7.8	2.5		
Bankfull	7.9	1.8		
	8	1.45		

8.5	1.35	
9	1.35	
9.4	1.25	

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.25	0.15	0.03	0.03	5.95
0.25	0.3	0.06	0.06	10.76
0.2	0.3	0.06	0.06	10.64
0.2	0.3	0.06	0.09	17.05
0.21	0.25	0.05	0.08	14.98
0.22	0.15	0.03	0.04	7.33
0.2	0.15	0.03	0.03	6.07
0.2	0.15	0.03	0.04	7.44
0.2	0.15	0.03	0.04	8.24
0.28	0	0	0	0
0.28	0.15	0.03	0.01	2.29
0.2	0.15	0.03	0.02	3.26
0.22	0.05	0.01	0.01	1.74
0.2	0.05	0.01	0.01	1.51
0.2	0.05	0.01	0.01	1.64
0.2	0.05	0.01	0.01	1.11
0.21	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

"The Colorado Water Conservation Board makes no representations about the use of the software contained in the R2Cross platform for any purpose besides that for which it was designed. To the maximum extent permitted by applicable law, all information, modeling results, and software are provided “as is” without warranty or condition of any kind, including all implied warranties or conditions of merchantability, or fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this program for a specific application. In no event shall the Colorado Water Conservation Board or any state agency, official or employee be liable for any direct, indirect, punitive, incidental, special, consequential damages or any damages whatsoever including, without limitation, damages for loss of use, data, profits, or savings arising from the implementation, reliance on, or use of or inability to use the R2Cross platform.

Combined Summaries
cutoffs applied

Water **44828** **Cameron Creek** Date **10/12/2022**

Station **GU4307** **7 M above confluence with Lottis Creek**

Drainage **Gunnison River** UtmX **364681** UtmY **4288787** Elevation

Length **399 ft** Width **4.74 ft** Area **0.04 acre**

Surveyors **Brauch, Charlebois, Neal**

Gear **1 BPEF** Effort Metric **PASS** Protocol **TWO-PASS REMOVAL**

Proportional Stocking Density and Catch/Unit Effort

Species	Total Catch	Min Cut inch	Max Cut inch	Total used	Proportional Stock Density (%)	Percent Stock Size	Percent Quality Size	Percent Preferred Size	Percent Memorable Size	Percent Trophy Size	Max Length inches
BROOK TROUT	2			2	0.00	100.00					8.27
BROWN TROUT	71	1.97		69	0.00	100.00					9.72

Mean, Minimum and Maximum Length and Weight

Species	Total Catch	Min cut inch	Max cut inch	Total Used	Length (inches) Mean	Length (inches) Minimum	Length (inches) Maximum	Weight (lb) Mean	Weight (lb) Minimum	Weight (lb) Maximum
BROOK TROUT	2			2	7.46	6.65	8.27	0.17	0.11	0.23
BROWN TROUT	71	1.97		69	5.75	3.23	9.72	0.08	0.01	0.35

Relative Abundance and Catch/Unit Effort

Species	Total Catch	Min.Cut inch	Max.Cut inch	Total used	Weight Lbs	Percent Number	Percent Weight	Catch per Unit Effort Number/Effort	Catch per Unit Effort Lbs/Effort
BROOK TROUT	2			2	0.34	2.82	5.76		
BROWN TROUT	71	1.97		69	5.59	97.18	94.24		

Abundance and Biomass

Species	Total Catch	Min.Cut inch	Max.Cut inch	Total Used	Population estimate	Biomass Lbs	Percent Number	Percent Weight	Density estimates Lb/Acre	Density estimates Fish/Acre	Density estimates Fish/Mile
BROOK TROUT	2			2	2	0.34	2.82	5.76	7.87	46.06	26.47

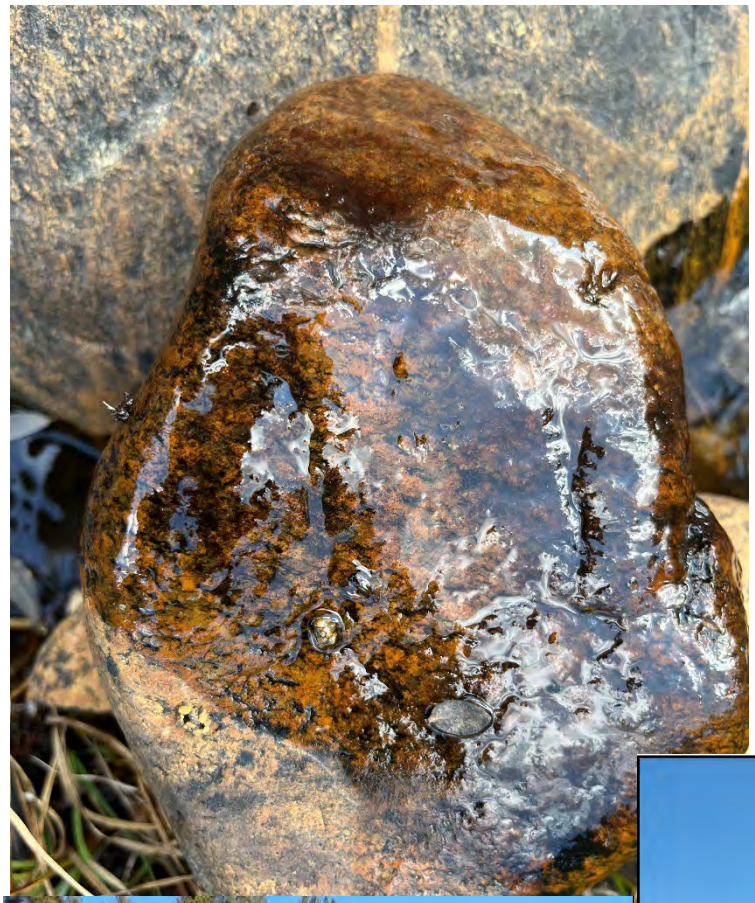
Combined Summaries
cutoffs applied

Water **44828** **Cameron Creek** Date **10/12/2022**

Station **GU4307** **7 M above confluence with Lottis Creek**

BROWN TROUT	71	1.97	69	69	5.59	97.18	94.24	128.69	1,597.03	917.57

Notes: Stream gradient flattens near top of reach, approaching upper open meadow.



Discharge Measurment Field Visit Data Report *(Filters: Name begins with Cameron ;)*

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Rating	Station ID
4	Cameron Creek		23/4/A-003	09/12/2022	UTMx: 365380 UTMy: 4289286	Cameron Creek	0.74	1	fair	

Discharge Measurement Summary

Site name	Cameron creek
Site number	1
Operator(s)	Ms rv
File name	Cameron creek_20220912-164041.ft
Comment	Probe facing wrong direction

Start time	9/12/2022 3:55 PM
End time	9/12/2022 4:39 PM
Start location latitude	38.742
Start location longitude	-106.549
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.30
Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
21 *[21]*	40	0.7386 *[-0.7386]*

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
4.000 *[4.000]*	1.4830 *[1.4830]*	4.428 *[4.428]*

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
42 *[42]*	0.371 *[0.371]*	0.4980 *[-0.4980]*

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
50.068 *[50.068]*	0.500 *[0.500]*	-0.9635 *[-0.9635]*

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	6.8%
Velocity	5.3%	3.5%
Width	0.1%	0.1%
Method	2.0%	
# Stations	0.0%	
Overall	**5.8%**	**7.7%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

Summary overview

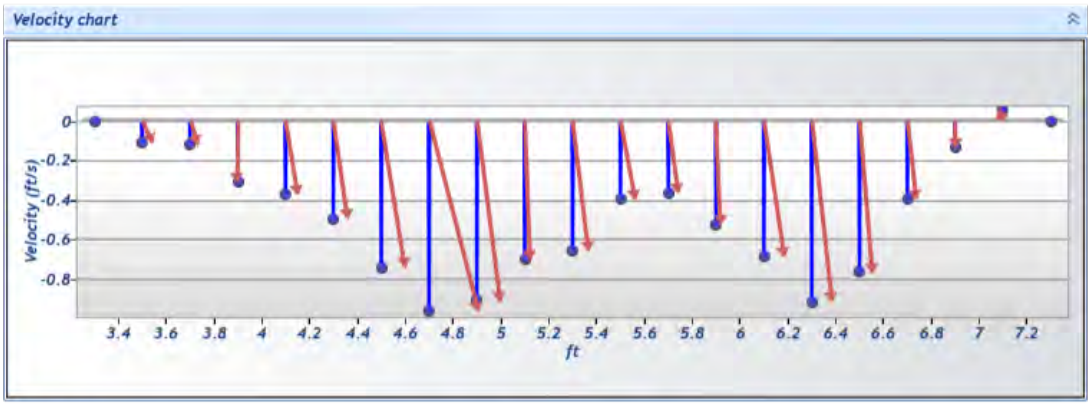
19 measurements were edited
Quality control warnings

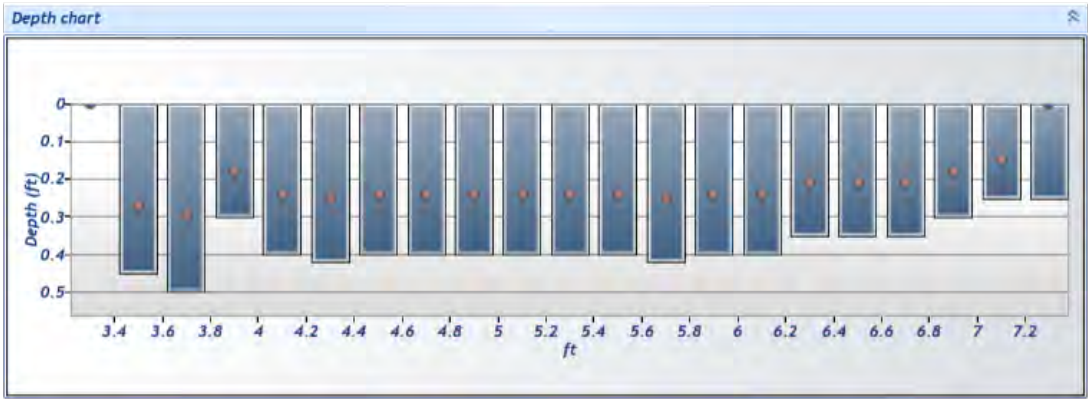
**The data in brackets [] are the original data before editing*

Discharge Measurement Summary

Site name	Cameron creek
Site number	1
Operator(s)	Ms rv
File name	Cameron creek_20220912-164041.ft
Comment	Probe facing wrong direction

Station Warning Settings	
Station discharge OK	Station discharge < 5.00%
Station discharge caution	5.00% >= Station discharge < 10.00%
Station discharge warning	Station discharge >= 10.00%





Discharge Measurement Summary

Site name	Cameron creek
Site number	1
Operator(s)	Ms rv
File name	Cameron creek_20220912-164041.ft
Comment	Probe facing wrong direction

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	3:55 PM	3.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.1099	0.0000	0.0000	0.00	✓
1	4:03 PM	3.500	Enter Velocity	0.450		0.270	80	-0.1099	1.0000	-0.1099	0.0900	-0.0099	1.46	✓
2	4:05 PM	3.700	Enter Velocity	0.500		0.300	80	-0.1206	1.0000	-0.1206	0.1000	-0.0121	1.83	✓
3	4:07 PM	3.900	Enter Velocity	0.300		0.180	80	-0.3065	1.0000	-0.3065	0.0600	-0.0184	2.90	✓
4	4:09 PM	4.100	Enter Velocity	0.400		0.240	80	-0.3725	1.0000	-0.3725	0.0800	-0.0298	4.04	✓
5	4:11 PM	4.300	Enter Velocity	0.420		0.252	80	-0.4945	1.0000	-0.4945	0.0840	-0.0415	6.94	✓
6	4:13 PM	4.500	Enter Velocity	0.400		0.240	80	-0.7416	1.0000	-0.7416	0.0800	-0.0593	11.51	✓
7	4:14 PM	4.700	Enter Velocity	0.400		0.240	80	-0.9635	1.0000	-0.9635	0.0800	-0.0771	19.44	✓
8	4:19 PM	4.900	Enter Velocity	0.400		0.240	80	-0.9123	1.0000	-0.9123	0.0800	-0.0730	30.11	✓
9	4:21 PM	5.100	Enter Velocity	0.400		0.240	80	-0.7014	1.0000	-0.7014	0.0800	-0.0561	58.20	✓
10	4:22 PM	5.300	Enter Velocity	0.400		0.240	80	-0.6584	1.0000	-0.6584	0.0800	-0.0527	-333.21	✓
11	4:24 PM	5.500	Enter Velocity	0.400		0.240	80	-0.3970	1.0000	-0.3970	0.0800	-0.0318	-26.21	✓
12	4:25 PM	5.700	Enter Velocity	0.420		0.252	80	-0.3626	1.0000	-0.3626	0.0840	-0.0305	-4.50	✓
13	4:27 PM	5.900	Enter Velocity	0.400		0.240	80	-0.5236	1.0000	-0.5236	0.0800	-0.0419	-22.68	✓
14	4:28 PM	6.100	Enter Velocity	0.400		0.240	80	-0.6864	1.0000	-0.6864	0.0800	-0.0549	-20.46	✓
15	4:30 PM	6.300	Enter Velocity	0.350		0.210	80	-0.9152	1.0000	-0.9152	0.0700	-0.0641	-16.94	✓
16	4:32 PM	6.500	Enter Velocity	0.350		0.210	80	-0.7690	1.0000	-0.7690	0.0700	-0.0538	-10.63	✓
17	4:33 PM	6.700	Enter Velocity	0.350		0.210	80	-0.3980	1.0000	-0.3980	0.0700	-0.0279	-4.54	✓
18	4:35 PM	6.900	Enter Velocity	0.300		0.180	80	-0.1327	1.0000	-0.1327	0.0600	-0.0080	-1.30	✓
19	4:37 PM	7.100	Enter Velocity	0.250		0.150	80	0.0539	1.0000	0.0539	0.0500	0.0027	0.43	✓
20	4:39 PM	7.300	None	0.250	0.0000	0.000	0	0.0000	1.0000	-0.0538	0.0250	-0.0013	-0.18	✓

Discharge Measurement Summary

Site name	Cameron creek
Site number	1
Operator(s)	Ms rv
File name	Cameron creek_20220912-164041.ft
Comment	Probe facing wrong direction

Quality Control Settings	
Maximum depth change	50.00%
Maximum spacing change	100.00%
SNR threshold	10 dB
Standard error threshold	0.0328 ft/s
Spike threshold	10.00%
Maximum velocity angle	20.0 deg
Maximum tilt angle	5.0 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	4:03 PM	3.500	Enter Velocity	0.450		0.270	Velocity Angle > QC
2	4:05 PM	3.700	Enter Velocity	0.500		0.300	Velocity Angle > QC
3	4:07 PM	3.900	Enter Velocity	0.300		0.180	Velocity Angle > QC
4	4:09 PM	4.100	Enter Velocity	0.400		0.240	Velocity Angle > QC
5	4:11 PM	4.300	Enter Velocity	0.420		0.252	Velocity Angle > QC
6	4:13 PM	4.500	Enter Velocity	0.400		0.240	Velocity Angle > QC,High Stn % Discharge
7	4:14 PM	4.700	Enter Velocity	0.400		0.240	Velocity Angle > QC,High Stn % Discharge
8	4:19 PM	4.900	Enter Velocity	0.400		0.240	Velocity Angle > QC,High Stn % Discharge
9	4:21 PM	5.100	Enter Velocity	0.400		0.240	Standard Error > QC,Velocity Angle > QC,High Stn % Discharge
10	4:22 PM	5.300	Enter Velocity	0.400		0.240	Velocity Angle > QC
11	4:24 PM	5.500	Enter Velocity	0.400		0.240	Velocity Angle > QC
12	4:25 PM	5.700	Enter Velocity	0.420		0.252	Velocity Angle > QC
13	4:27 PM	5.900	Enter Velocity	0.400		0.240	Velocity Angle > QC
14	4:28 PM	6.100	Enter Velocity	0.400		0.240	Velocity Angle > QC
15	4:30 PM	6.300	Enter Velocity	0.350		0.210	Velocity Angle > QC
16	4:32 PM	6.500	Enter Velocity	0.350		0.210	Velocity Angle > QC
17	4:33 PM	6.700	Enter Velocity	0.350		0.210	Velocity Angle > QC
18	4:35 PM	6.900	Enter Velocity	0.300		0.180	Velocity Angle > QC

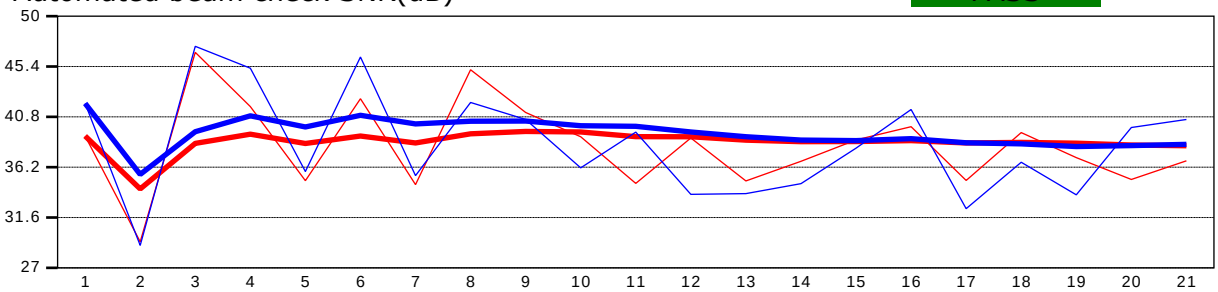
Discharge Measurement Summary

Site name	Cameron creek
Site number	1
Operator(s)	Ms rv
File name	Cameron creek_20220912-164041.ft
Comment	Probe facing wrong direction

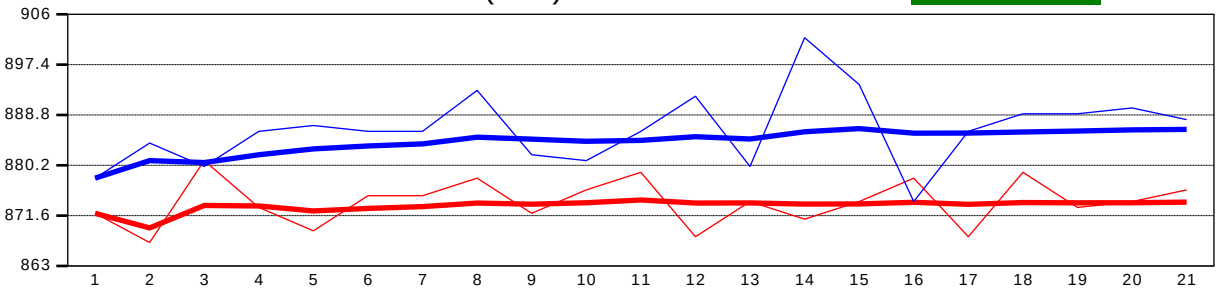
Beam 1	
Beam 2	

Automated beam check Start time 9/12/2022 3:55:23 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

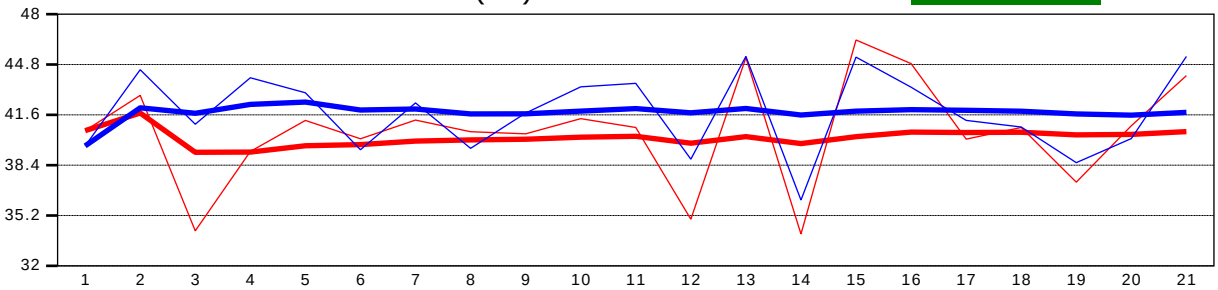
Discharge Measurement Summary

Site name	Cameron creek
Site number	1
Operator(s)	Ms rv
File name	Cameron creek_20220912-164041.ft
Comment	Probe facing wrong direction

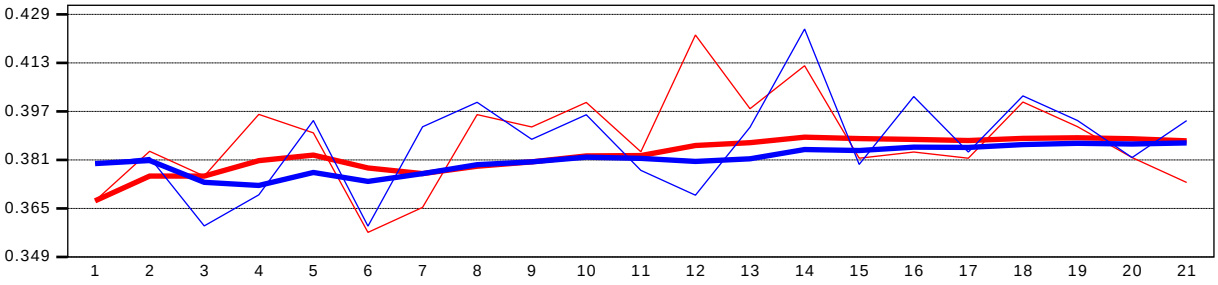
Beam 1	
Beam 2	

Automated beam check Start time 9/12/2022 3:55:23 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings