FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION
(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Carl Johnson

B. Mailing Address: 911 Tumbleweed Lane

C. City: Deer Lodge State: MT Zip: 59722

Telephone: 406-846-1378

D. Contact Person: Will McDowell, Watershed Restoration Coalition

Address if different from Applicant: 1002 Hollenback Rd.

City: Deer Lodge State: MT Zip: 59722

Telephone: 406-396-7716

E. Landowner and/or Lessee Name (if other than Applicant):

Mailing Address:

City: State: Zip:

Telephone:

II. PROJECT INFORMATION*

A. Project Name: Johnson Diversion Replacement

River, stream, or lake: Racetrack Creek, Clark Fork River drainage

Location: Township T10N Range R7W Section 12

County: Powell County

B. Purpose of Project:

The purpose of this project is to replace a rustic irrigation diversion which blocks upstream fish passage in low water and entrains salmonids, with a folding diversion and fish screen. This project will benefit fluvial brown trout, mountain whitefish, westslope cutthroat and other native fish in an FWP high-priority restoration watershed.

C. Brief Project Description:

The Johnson Diversion is located in lower Racetrack Creek above the Interstate Highway 90 and just below Yellowstone Trail. Replacing this diversion, as part of a larger fish passage/in-stream flow scheme for lower Racetrack, could dramatically improve habitat access and reduce late summer mortality for salmonids throughout the lower six miles of this watershed. This diversion is located approximately two miles above the confluence of Racetrack with the Clark Fork River. Lower Racetrack Creek is one of the most productive fluvial brown trout spawning areas in the entire Upper Clark Fork drainage. Mountain whitefish and other salmonids (including bull trout through at least the 1980s) also use the Racetrack drainage.

Opening new habitat to salmonids in late summer and fall could increase trout mobility and access to groundwater-fed temperature refuges near the Interstate Highway when dewatering and temperature stress peak in July/August, reducing trout mortality during that period, and also open new areas to brown trout spawning in October/November. According to an inventory by Trout Unlimited in 2010, three irrigation fish passage barriers currently exist which restrict salmonid mobility in the lower watershed. The lowest blocking structure, the Evan Johnston diversion, will be replaced in fall 2013 with a fish ladder and folding wooden diversion.

The Carl Johnson diversion is the next barrier upstream. This dam consists of T-posts and tarps and sections of tin roof sealed with plastic sheeting and tarps. A makeshift headgate of logs and tarps controls ditch flow. In high flows. Some larger fish may be able to scale the Johnson diversion, but it would require a jump of more than two vertical feet from a shallow riffle below the diversion—smaller fish are excluded by the tarps. The Johnson diversion has also been shown to entrain brown trout. The new diversion would be a folding diversion with Denil fish ladder and a screw-type headgate, with a flat-plate fish screen and fish return. This new diversion would be folded down in late summer or early fall when the Johnson water right goes out of priority.

The next diversion upstream is the Berg Diversion. Modifying the E. Johnston, C. Johnson (this project) and Berg Diversions will open the lower six miles of Racetrack Creek to movement of salmonids throughout the year. The WRC and partners are also in conversations with J. Berg to modify his diversion, which often takes a majority of the stream's flow for fish passage. The CF Coalition, a WRC partner, has purchased a 433 ac-ft storage water right in Racetrack Lake which will be converted to in-stream flow to relieve the current dewatering crisis below the Berg diversion, where numerous trout are often trapped in isolated pools in August.

The WRC will work closely with the Natural Resource Conservation Service (NRCS) and Trout Unlimited to execute this project. Carl Johnson applied to the NRCS for EQIP funding for this project, and it was rated highly in 2012. Mr. Johnson ultimately did not sign a contract due to a need for match funding. Mr. Johnson needs some more match funding to afford the diversion upgrade, and has reapplied to NRCS this year. The Future Fisheries grant would provide the match funding to allow this project to go forward in 2014.

D. Length of stream or size of lake that will be treated: Racetrack Creek is 23 miles long.

E. Project Budget:

Grant Request (Dollars): **$ 12,500**

Contribution by Applicant (Dollars): $ 700 In-kind $ 800
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ 14,300. In-kind $ 6800
(attach verification - See page 2 budget template)

Total Project Cost: $ 34,300

F. Attach itemized (line item) budget – see template

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. Attach land management and maintenance plans that will ensure protection of the reclaimed area.

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:

Brown trout, mountain whitefish, westslope cutthroat trout (not pure strain), longnose sucker, slimy sculpin.

B. How will the project protect or enhance wild fish habitat?:

The project will enhance wild trout habitat by providing upstream and downstream fish passage between the lower and middle portions of Racetrack Creek drainage. It is part of an integrated fish passage, habitat and in-stream flow restoration effort on Racetrack Creek involving WRC, Clark Fork Coalition, Trout Unlimited and landowners.

C. Will the project improve fish populations and/or fishing? To what extent?:

We expect the project to reduce mortality of trout during high water temperature stress conditions in late summer, and improve access of fluvial brown trout to under-utilized spawning grounds in middle Racetrack Creek. In combination with associated passage and in-stream flow projects, the impact on populations could be substantial.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

We hope to see an increase in fluvial brown trout utilization of this reach of Racetrack Creek for spawning. This could increase brown trout populations in the Upper Clark Fork since Racetrack Creek is such an important spawning stream for fluvial browns. Limited habitat in lower Racetrack (due to barriers) has led to superimposition of redds in the past.

E. If the project requires maintenance, what is your time commitment to this project?:

The landowner, Carl Johnson, will do all needed maintenance on the project. He is familiar with the maintenance of irrigation diversion structures and headgates and flat-plate fish screens. Carl has visited other projects in the area with flat-plate fish screens.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Racetrack Creek has very good water quality and good to excellent habitat in its lower six miles. The main limitations are dewatering in mid- to late summer and elevated water temperatures. Since other projects are addressing the in-stream flow issue, this project will build on those efforts by providing fish passage to access all of the habitat features for two miles upstream (to Berg diversion) and downstream to the groundwater-fed lower portion of the creek (cold water refuge habitat).

G. What public benefits will be realized from this project?:

The public can benefit from better survival of resident brown trout and other salmonids and native fish in the lower Racetrack watershed, and from potential improved production of fluvial brown trout which are accessing a larger habitat area.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No. The water right holder, C. Johnson, irrigates from Racetrack Creek, but his property does not actually bound Racetrack Creek at any point.

J. Is this project associated with the reclamation of past mining activity?:

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Carl A. Johnson Date: 5-31-13

Sponsor (if applicable):

***Highlighted boxes will automatically expand.**

Mail To: **Montana Fish, Wildlife & Parks**
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena <u>before</u> December 1 and June 1 of each year to be considered for the subsequent funding period.*****

LOCATION MAP: LOWER RACETRACK CREEK DIVERSIONS/ Fish Passage Barriers

Montana Fish, Wildlife & Parks

P.O. Box 25
Anaconda, MT 59711
Phone: (406) 563-7435
E-mail: jlindstrom@mt.gov

May 31, 2013

Montana Fish, Wildlife & Parks
Future Fisheries Program, Attn: Mark Lere
PO Box 200701
Helena, MT 59620

RE: Support for Johnson Diversion Replacement and Fish Screen Project on Racetrack Creek

I would like to offer my support for the Johnson Diversion Replacement Project on Racetrack Creek proposed by Carl Johnson and the Clark Fork Coalition. Based on recent studies conducted by FWP in coordination with the Natural Resource Damage Program, Racetrack Creek has been identified as a high priority stream for fishery restoration. It is a major tributary to the upper Clark Fork River and the lower reaches provide important spawning and rearing habitat for brown trout and other sport and native fish species. Recent radio telemetry work has documented a number of radio tagged brown trout spawning in the lower reach of Racetrack Creek near where this project would take place. Protecting fish from entrainment as well as providing for fish passage is very important in this reach of the stream. I encourage you to support this application. Please feel free to contact me with any questions.

Sincerely,

Jason Lindstrom
Upper Clark Fork Fisheries Biologist
Montana Fish, Wildlife & Parks

Casey Hackathorn
Upper Clark Fork Project Manager

May 31, 2013

To: Mark Lere
MFWP
Habitat Protection Bureau
Box 200701
Helena, MT 59620-0701

RE: Letter of Support for Johnson Diversion Replacement Project

Trout Unlimited supports the project objectives of improving fish passage and reducing ditch entrainment on lower Racetrack Creek. Replacing the irrigation diversion identified in this project is an important step toward providing year-round fish passage on Racetrack Creek. Racetrack Creek is a key tributary in the Upper Clark Fork watershed that has significant potential for increasing recruitment of both native and non-native sport fish to the Upper Clark Fork River.

Thank you for your consideration.

Sincerely,

Casey Hackathorn

111 N. Higgins Ave, Suite 500 – Missoula, MT 59802
T: (406) 541-1194 | C: (406) 546-5680 | chackathorn@tu.org | www.tu.org

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS
(Revised 5/31/2013)

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION *	COST/UNIT	TOTAL COST	CONTRIBUTIONS		
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES	IN-KIND CASH
Personnel							
Survey	1	days	$400.00	$ 400.00		400.00	
Design	5	days	$400.00	$ 2,000.00		2,000.00	
Engineering	3	days	$400.00	$ 1,200.00		1,200.00	
Permitting	2	days	$400.00	$ 800.00		800.00	
Oversight	4	days	$400.00	$ 1,600.00		1,600.00	
Labor	5	days	$160.00	$ 800.00		800.00	
				$ -			
Travel							
Mileage				$ -			
Per diem				$ -			
Construction Materials							
Wood diversion dam	1	unit	$12,000.00	$ 12,000.00	6,000.00		6,000.00
Headgate and fish ladder	1	unit	$6,000.00	$ 6,000.00	2,500.00		3,500.00
18" Screw gate	1	unit	$2,000.00	$ 2,000.00	-		2,000.00
Fish screen	1	unit	$7,500.00	$ 7,500.00	4,000.00		3,500.00
				$ -			
				$ -			
				$ -			
				$ -			
				$ -			
				$ -			
Equipment							
				$ -			
				$ -			
				$ -			
				$ -			
				$ -			
				$ -			
				$ -			
Mobilization							
				$ -			
				$ -			
				$ -			
				$ -			
				$ -			
			TOTALS	$ 34,300.00	$ 12,500.00	$ 6,800.00	$ 15,000.00

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS
(Revised 5/31/2013)

*Units = feet, hours, inches, lump sum, etc.

MATCHING CONTRIBUTIONS

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL
NRCS EQIP	$ 3,600.00	$ 14,300.00	$ 17,900.00
WRC	$ 2,400.00	$ -	$ 2,400.00
Carl Johnson, applicant	$ 800.00	$ 700.00	$ 1,500.00
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
TOTAL:	$ 6,800.00	$ 15,000.00	$ 21,800.00

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS
(Revised 5/31/2013)

TOTAL	
$ 400.00	NRCS
$ 2,000.00	NRCS
$ 1,200.00	NRCS
$ 800.00	WRC
$ 1,600.00	WRC
$ 800.00	Johnson
$ -	
$ -	
$ -	
$ 12,000.00	EQIP
$ 6,000.00	EQIP
$ 2,000.00	700 Johnson 1300 EQIP
$ 7,500.00	EQIP
$ -	
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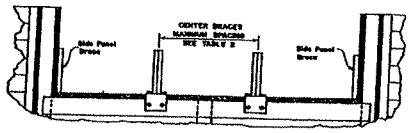
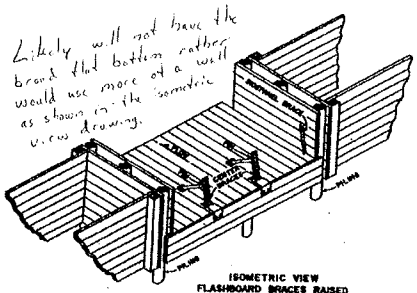
$ 34,300.00	

Carl Johnson Racetrack Diversion Conceptual Design

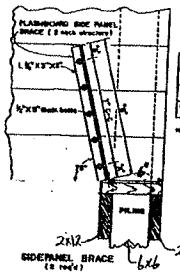


UPSTREAM ELEVATION
FLASHBOARD BRACES RAISED



Likely will not have the board that bottom rather would use more of a wall as shown in the isometric view drawing.

ISOMETRIC VIEW
FLASHBOARD BRACES RAISED
TYPICAL INSTALLATION ON WOOD STRUCTURE
SHOWN-MAY BE USED ON CONCRETE STRUCTURES

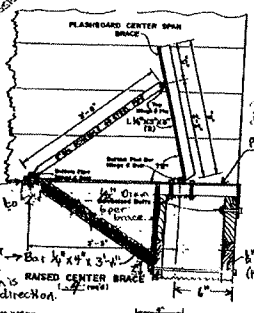


SIDEPANEL BRACE

TABLE 1 DIMENSIONS (lb.)

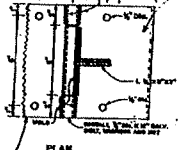
"A"	8	4	3
96 "B"	48	24	48
"C"	1	10	22
Wt. Bolts 1"-2"	4	8	7

USE FOR DIMENSIONS

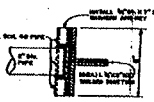


Detail of center span brace using "weld" type diversion rather than box type. Plate 1/4"x10"x1'-8"

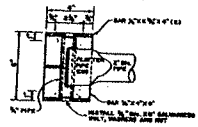
RAISED CENTER BRACE



PLAN

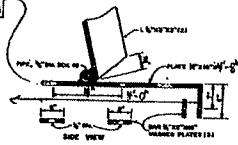


PLAN

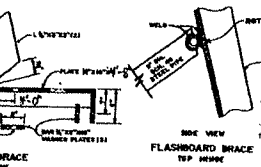


PLAN

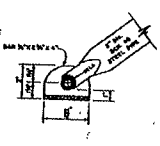
NOTES:
Use 1/4"x1/4"x1/4" Pure when installing in concrete anchor bolts



FLASHBOARD BRACE
BOTTOM HINGE

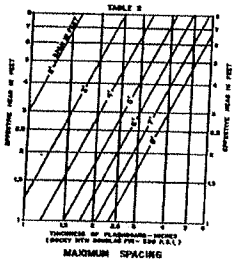


FLASHBOARD BRACE
TOP HINGE



PIPE BRACE
BOTTOM HINGE

BRACE DETAILS



MATERIAL LIST

ITEM	SIZE	LENGTH	No./BRACE	No./STRUCT.	TOTAL
		SIDEPANEL BRACE			
ANGLE IRON	2"x2"x1/4"	8'	1	5	
BOLTS	1/2" Dia.	2"	2	10	
NUTS	1/2" Dia.		2	10	
WASHERS	1/2"x1"x1/8"		2	20	
		FLASHBOARD BRACE			
ANGLE IRON	2"x2"x1/4"	8'	1	10	
ANGLE IRON	2"x2"x1/4"	4'	1	10	
BOLTS	1/2" Dia.	2"	6	30	
BOLTS	1/2" Dia.	2"	1	5	
BOLTS	1/2" Dia.	4"	1	5	
BOLTS	1/2" Dia.	2"	3	15	
NUTS	1/2" Dia.			75	
PIN	1/2" Dia.	4"	1	5	
1/2" PIPE	1/2" Dia. Welded	10'	1	10	
1/2" PIPE	1/2" Dia. SCH. 40 Pipe	10'	1	10	
PLATE	1/4"x10"x1'-8"		1	5	
BAR	1/4"x4"x3'-11"		1	5	
BAR	2"x2"x1/4"		1	5	
1/4" BAR	2"x2"x1/4"		3	15	
	2"x2"x1/4"		2	10	
1/4" C.A.D. x CUT AS SHOWN	Bar 1/4"x4"x3'-11"		1	5	
1/4" NEW TABLE 1	Plate 1/4"x10"x2'-8"		1	5	

NOTES:
1. All structural steel and metal surfaces shall be protected according to MT-113 Construction Specification.
2. Collapsible brace may be used with either concrete or pressure treated wood structures.
3. All three this sheet not to scale.

NOTE: 2 SIDE PANEL BRACES AND 5 COLLAPSIBLE BRACES ARE NEEDED.
BRACES TO BE SPACED @ SAME SPACING AS POSTS ON STRUCTURE

(REVISED 6-84)

Other suitable flashboard brace designs may be used, so long as they are collapsible.

JOB CLASS _____

COLLAPSIBLE FLASHBOARD BRACE
COOPERATOR _____
SCD POWELL COUNTY, MONTANA

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed CJS, LWB, MGB 1980
Checked MGB 1980
Traced VRL 6-83

Approved by _____
Title _____
Date _____

[redacted] MT-SD-348.001

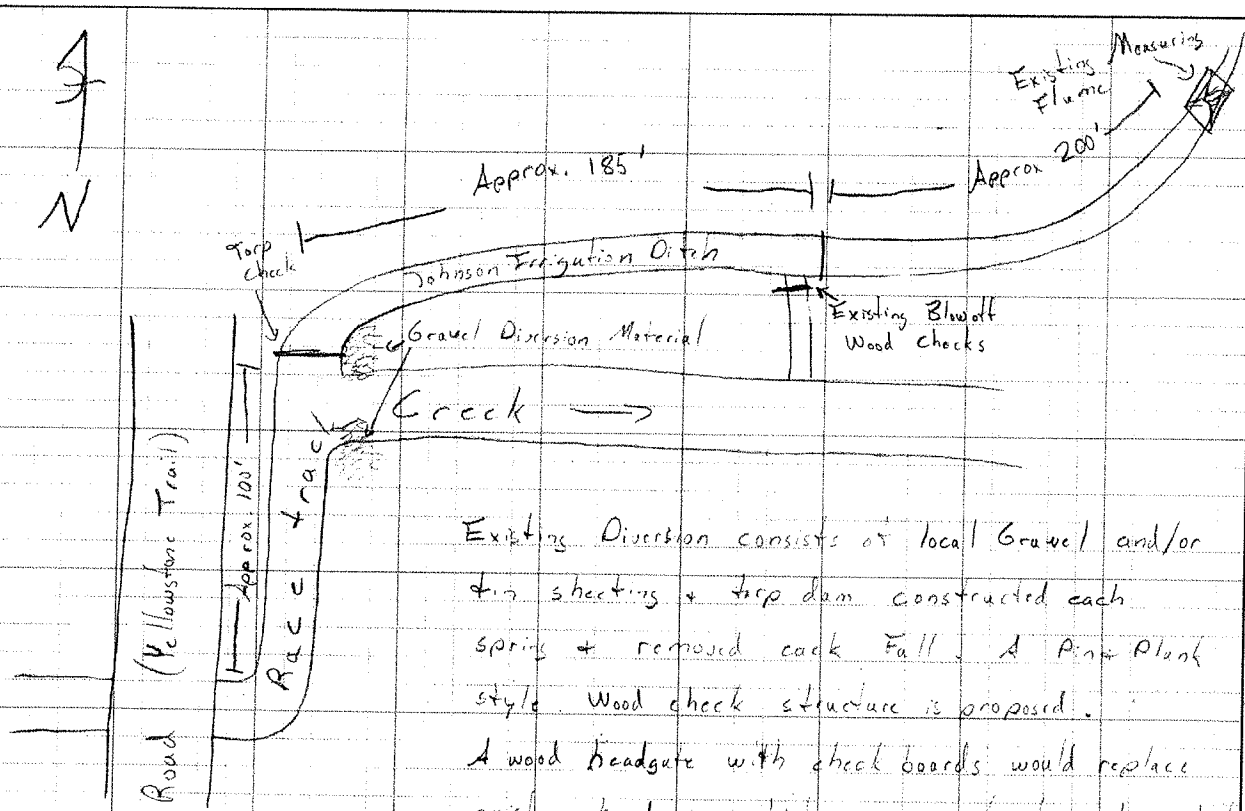
+GPO 1985-593952

Computation Sheet

NRCS-ENG-523A Rev. 6-2002

U.S. Department of Agriculture
Natural Resources Conservation Service

State	Project	
MT	Carl Johnson Diversion	
By: MRB	Date: 5-13	Checked by:
Subject: Plan view sketch		Date:
		Job No.
		Sheet 1 of 1

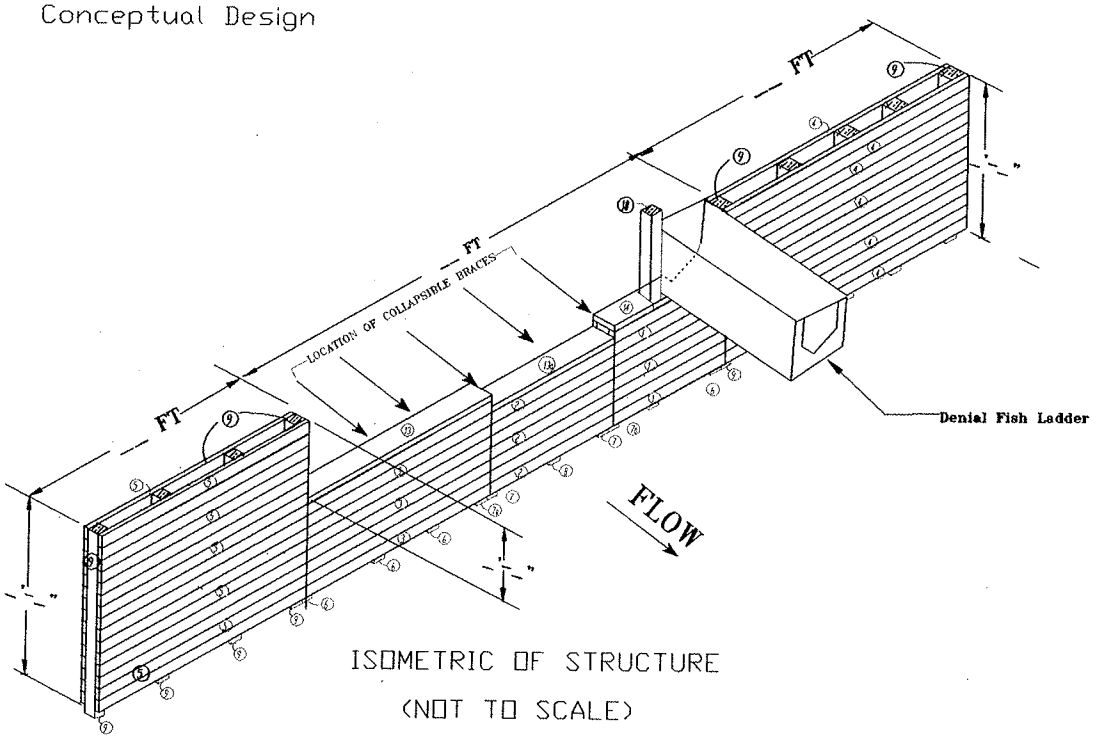


Existing Diversion consists of local Gravel and/or tin sheeting + tarp dam constructed each spring + removed each Fall. A Pine Plank style Wood check structure is proposed.

A wood headgate with check boards would replace existing headgate which now consists of a tarp check

A Watson Horizontal flat plate fish screening device would be installed to replace the existing Blowoff screen openings will be 3/32" for fry

Carl Johnson Racetrack Diversion
Conceptual Design



ISOMETRIC OF STRUCTURE
(NOT TO SCALE)

DIVERSION STRUCTURE DETAILS

POWELL COUNTY MONTANA

U.S. DEPARTMENT OF AGRICULTURE - NATURAL RESOURCES CONSERVATION SERVICE