

FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

(Please fill in the highlighted areas)

all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid

I. APPLICANT INFORMATION

- A. Applicant Name: Ladd Knotek – MFWP Fisheries Biologist
- B. Mailing Address: 3201 Spurgin Road
- C. City: Missoula State: MT Zip: 59804
- Telephone: (406) 542-5506 E-mail: lknotek@mt.gov
- D. Contact Person: Same as above
- Address if different from Applicant: _____
- City: _____ State: _____ Zip: _____
- Telephone: _____ E-mail: _____
- E. Landowner and/or Lessee Name (if other than Applicant): Missoula County Public Works (Contact: Erik Dickson, P.E.)
- Mailing Address: 6089 Training Drive
- City: Missoula State: MT Zip: 59808
- Telephone: (406) 258-3772 E-mail: edickson@missoulacounty.us

II. PROJECT INFORMATION*

- A. Project Name: Marshall Creek (E. Missoula) Fish Passage Enhancement
- River, stream, or lake: Marshall Creek
- Location: Township: 13 N Range: 18 W Section: 6 (SE1/4)
- Latitude: 46.90728 Longitude: 114.92487 *within project (decimal degrees)*
- County: Missoula
- B. Purpose of Project:
- Enhance upstream fish passage for adult and juvenile westslope cutthroat trout in an established spawning and rearing reach located directly adjacent to the middle Clark Fork River

C. Brief Project Description:

The proposed project is a collaborative effort between FWP, Trout Unlimited, and Missoula County to remove and upgrade two existing, undersized culverts on lower Marshall Creek under a paved county road. The culverts currently act as velocity barriers to upstream movement during moderate and high flow levels, when cutthroat trout migrations peak. The project sites lie within established spawning and rearing areas for fluvial and resident westslope cutthroat trout on a stream with extremely high productivity. The project addresses some of the final prioritized limiting factors in lower Marshall Creek and complements previous projects (Phases 1-5) in this reach including fish passage at the mouth, previous road crossing upgrades, riparian fencing, instream habitat improvements (LWD additions), and a fish screen on the loan irrigation diversion.

D. Length of stream or size of lake that will be treated:

~ 100 ft (2 culverts) directly affecting 2.2 miles of lower Marshall Creek

E. Project Budget:

Grant Request (Dollars): \$ **8,000**

Contribution by Applicant (Dollars): \$ **None listed** In-kind \$ **None listed**
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ **8,000** In-kind \$ **18,355**
(attach verification - See page 2 budget template)

Total Project Cost: \$ **34,355 (*Does NOT include any MFWP or Missoula County labor)**

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 fish biologist 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?:

Westslope cutthroat trout

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

Provide enhanced upstream fish passage for adult and juvenile cutthroat trout. Current culverts are considerably undersized and represent a constraint to upstream movements, particularly given the timing of spawning migrations for cutthroat trout at high flows in spring.

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

Project is intended to contribute to enhanced trout reproduction and recruitment in lower Marshall Creek, which flows directly into the Clark Fork River in East Missoula. Project locations lie within documented spawning and rearing areas in this stream reach.

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

Enhanced trout recruitment would occur in a heavily used reach of the Clark Fork River just upstream of the greater Missoula area.

E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

Project sites are already maintained and will continue to be maintained by Missoula County Public Works Dept. (project partner and funding source) as part of normal operations.

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

Installation of vastly undersized culverts (30'x42" squash culverts) 20-30 years ago in sections with 6.5-7.5 ft average bankfull cross-sections. Proposed new culverts are appropriately sized for this stream and will provide unobstructed fish passage through reduction in water velocity and retention of substrate within culverts.

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

Enhanced recruitment to Clark Fork River fishery and enhanced population mobility and viability for adult and juvenile cutthroat trout in lower Marshall Creek.

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

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: William J. Hobbs Date: 11-28-2016

Sponsor (if applicable):

Attachments:

- I. Project Background and Narrative
- II. Project Budget
- III. Letters of Support from Project Partners
- IV. Map of Project Location
- V. Photos of Project Site and Previous Projects on Lower Marshall Creek
- VI. Land Management & Maintenance Plans

I. Project Background and Narrative

Marshall Creek is a third order tributary to the Clark Fork River located just upstream of the City of Missoula and just downstream of the Blackfoot River-Upper Clark Fork confluence. This stream is an important source of natural cutthroat trout recruitment that is located immediately upstream of a major human population center and large angling constituency.

Marshall Creek is essentially divided into a lower reach that is directly connected to the Clark Fork River (fluvial fish) and an upper reach that is physically isolated and supports only genetically pure, stream-resident westslope cutthroat trout (WCT). Lower reaches lie entirely within private property adjacent to a public road easement, while the upper drainage is surrounded by public lands (USFS). Consequently, the U.S. Forest Service has undertaken and led a number of watershed enhancement activities in the headwaters, while FWP has facilitated a number of cooperative projects with private landowners and Missoula County in lower reaches over the past decade. The proposed project is a continuation of enhancement work in the lower watershed.

Westslope cutthroat trout are the predominant trout species present in lower Marshall Creek and have been the only species detected in upper reaches. Upstream of the project area (above mile 2.2), WCT are genetically pure due to isolation provided by an instream reservoir and >10 ft high barrier. Within the project reach, WCT have high genetic purity (~95%), but have exhibited low levels of hybridization with rainbow trout since at least the 1990s. Although Marshall Creek is a relatively small stream that has been impacted by development and road construction, this tributary has surprisingly high juvenile trout densities in lower reaches. MFWP electrofishing estimates have measured up to 230 WCT (Age 1+ and older) per 100 m in sections with enhanced instream habitat.

The proposed project simply involves replacing two undersized culverts (42" x 30") on the County road that limit upstream movement for trout in lower Marshall Creek by acting as velocity barriers (see photos in Attachment V). The purpose is to provide unobstructed access to established spawning areas for fluvial adults from the Clark Fork River during high water periods, as well as improved fish passage for juveniles moving within the reach. Proposed replacement culverts are sized to accommodate 100 yr flood events and exceed bankfull width (81" x 59" squash culverts proposed). Culverts will be counter-sunk and installed on grade with oversized material inside to provide roughened substrate and mitigation for higher flow velocity during flood events (see Attachment V, Photo 4). Alternative crossing designs, such as bridges or pipe arches, were ruled out for these sites due to extremely high cost on this over-widened, paved county road. The project complements numerous recent enhancement activities in this reach that occurred over the past decade, including riparian fencing, fish screening, instream habitat improvement, and fish passage projects at the mouth and other road crossing sites (see attached photos at end of application).

The proposed project is a partnership among Missoula County Public Works, Westslope Trout Unlimited and MFWP. As with past fish passage projects involving Missoula County, project partners raise funds for the appropriate sized structures (culverts/bridges) and Missoula County crews complete implementation using accepted project specifications and strict permitting guidelines. These cooperative projects are undertaken at important sites for fish passage where no near-term infrastructure replacement is planned (typically expediting replacement by 20-30 yrs or more). Missoula County also completes normal structure replacements and upgrades at numerous other sites, incorporating appropriate hydrologic and fish passage specifications, under their normal road construction and structure replacement schedules.



November 14, 2016

Ladd Knotek
Montana Fish, Wildlife & Parks
3201 Spurgin Road
Missoula, MT 59804

Re: Marshall Creek culverts

Dear Mr. Knotek:

This letter is to confirm Missoula County's desire to participate in a cooperative project to replace the two culverts carrying Marshall Creek under Marshall Canyon Road. Despite their age and progressing section loss due to rust, both culverts are structurally adequate and that alone would preclude them from being replaced on our maintenance schedule for quite some time. However, with hydraulic capacity concerns and the safety hazard created by the upper culvert (too short, leaving steep fill slopes and no shoulders adjacent to the driving surface), there is a moderate sense of urgency for replacing the existing culverts.

If the culverts could be provided to us by another agency, that would eliminate the bulk of the financial impact and would allow us to schedule the work when the culverts are available. As it stands now, with the need to increase size for hydraulic capacity and also add length to provide adequate shoulders, we will still need to spend as much as the culverts cost (or more) for the materials and labor necessary to elevate the road.

I think this cooperative project would be a benefit for both of our agencies and is a very fair split in cost. I hope the application is successful and if there is any additional information or support that we can provide, please let me know.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Erik K. Dickson'.

Erik K. Dickson, P.E.
County Engineer



November 21, 2016

Dear Future Fisheries Panel Members and Review Team:

As President of the WestSlope Chapter of Trout Unlimited and our over 850 members, it gives me great pleasure to confirm that our chapter will contribute \$30,000 for the planned enhancement work on streams in the Missoula area, including projects on Mill Creek, LaValle Creek, and Marshall Creek. We believe these projects are vital to improving spawning sites and juvenile fish survival and will lead to healthier and more abundant fish in the Clark Fork drainage. Importantly, these projects will also contribute to improving conditions for native west slope cutthroat, a species in particular that needs help to recover and thrive.

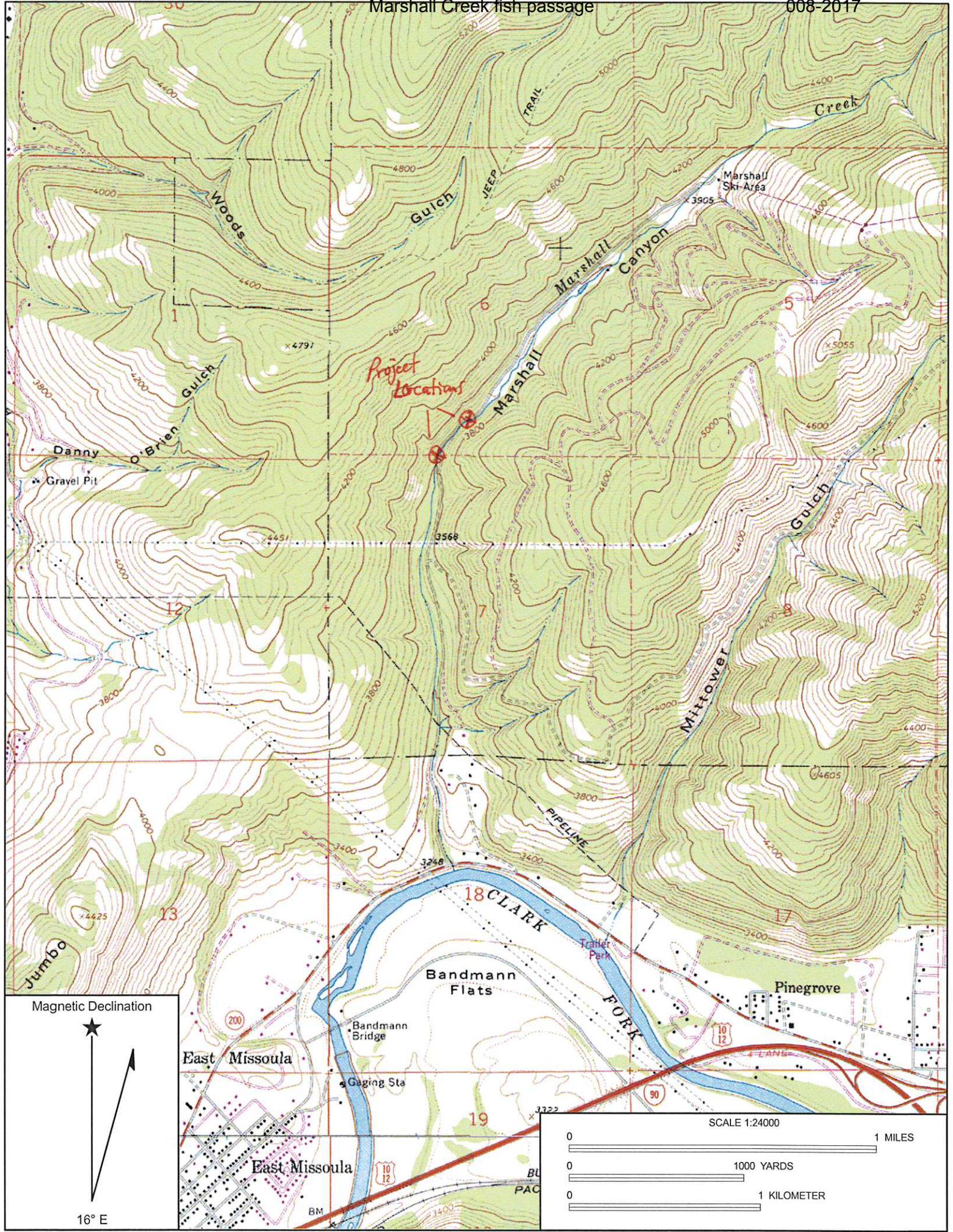
The WestSlope Chapter of Trout Unlimited supports these projects and hopes you will strongly consider requests for matching funds that will facilitate implementation. This is important work and part of our chapter's on-going financial support of critical stream enhancement in the Missoula area. We look forward to helping with future projects as well.

If you need further information please don't hesitate to contact me at 406 327-9990 or mark@makdirect.net

Thank you,

A handwritten signature in black ink, appearing to be "Mark Kuipers".

Mark Kuipers, President
WestSlope Chapter of Trout Unlimited
PO Box 7165
Missoula, MT 59807
406 327-9990



Magnetic Declination

16° E

SCALE 1:24000

0 1 MILES

0 1000 YARDS

0 1 KILOMETER

V. Photos of Marshall Creek Project Sites



Lower culvert site – proposed replacement



Upper culvert site – proposed replacement



Reference stream photo just upstream of lower culvert location
(illustrating natural bankfull stream dimensions)

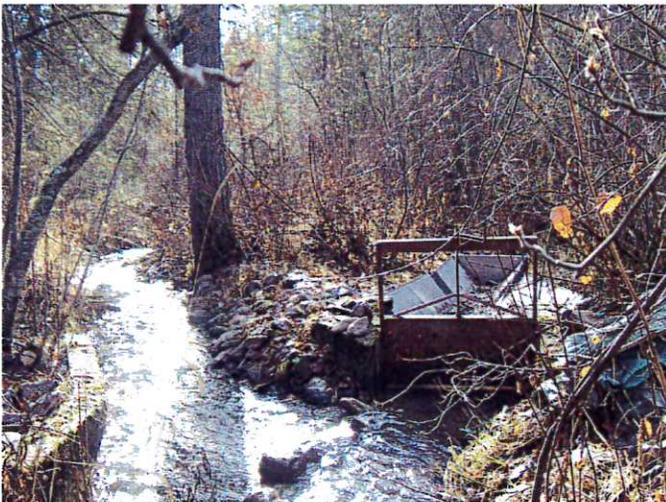


Typical squash culvert installation when completed

Photos of Past Project Components on Marshall Creek



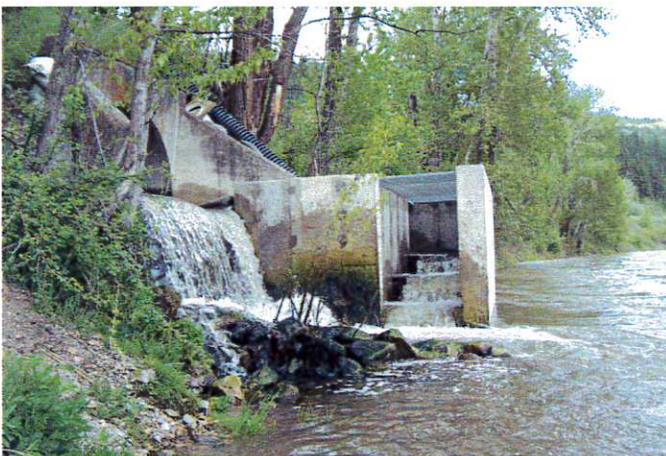
Enhanced stream complexity - Installation of LWD



Diversion head gate and fish screen



Riparian fencing to exclude livestock



Fish ladder at Clark Fork River confluence



Removal & replacement of undersized culverts at other sites

VI. Land Management & Maintenance Plans

Both stream crossing sites would be constructed by Missoula County Public Works and included within their normal infrastructure maintenance program for active county roads. Once installed, MFWP staff will inspect the crossings periodically to ensure stability, intended function and substrate retention inside the culverts.