

2013 FRGP Proposal Application Form

Section 1: Summary Information

1. Project type:	PD
2. Project title:	Stanshaw Creek Water Conservation Assessment
3. Applicant Name:	Mid Klamath Watershed Council
4. Person Authorized to Sign Grant Agreement:	Will Harling, Executive Director
5. Contact person:	Will Harling, Executive Director
6. Mailing Address: Check if changed from previous applications <input type="checkbox"/>	PO Box 409
7. City, State, Zip:	Orleans, CA 95556
8. Telephone #: Check if changed from previous applications <input type="checkbox"/>	(530) 627-3202
9. Fax #:	(866) 323-5561
10. Email address:	will@mkwc.org
11. Organization Type:	NonProfit Agency
12. Certified Nonprofit Organization:	Yes Nonprofit Organization Number: 20-1501256
13. New Grantee:	No
14. Licensed Professional	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If Yes provide: Name: Joey Howard License Number: 53319 Affiliation: Northwest Hydraulic Consultants Phone Number: (541) 864-0492
15. Amount Requested:	\$47,818
16. Total Project Cost:	\$90,527
17. Salmonid Species Benefited:	Coho <input checked="" type="checkbox"/> Steelhead <input checked="" type="checkbox"/> (Cutthroat <input type="checkbox"/> Chinook <input checked="" type="checkbox"/>)
18. Project Objectives:	Create physical design alternatives and projects (65% level) that address the inter-basin transfer, gauging, and efficiency of the Marble Mtn Ranch water system. Alternatives will be based on flow amount from independent pre-14 water right opinion.

19. Recovery/Restoration Plan:	Recovery Plan for So. OR/No. CA Coast Coho Salmon (NOAA Draft January 2012)
20. Task Number or Reference:	SONCC-MKR.3.1.15.1 Assess diversion impact and develop a program to increase flow during low flow periods
21. Time Frame:	6/1/2014 - 5/31/2015
22. Stream:	Irving Creek, Stanshaw Creek
23. Tributary to:	Klamath River
24. Watershed System:	04a: Klamath River from Iron Gate Hatchery to Trinity River confluence, Rock Creek
25. County(ies):	Siskiyou
26. Coastal Zone:	Yes
27. Trinity River Basin:	No

Section 2: Location Information

1. Latitude, Longitude (in decimal degrees, Geographic, NAD83):	41.47276000 : -123.50376400 - Project Area
2. Location Description:	Project is located at Marble Mountain Ranch 7.5 miles north of Somes Bar, CA, along Highway 96. Project area includes the existing water system originating on Stanshaw Creek approximately 4000 feet above the confluence with the Klamath River, south through Marble Mountain Ranch to Irving Creek where the tailwater is currently routed, and potential return locations west across Highway 96 to the Klamath River and north to Stanshaw Creek.
3. Directions:	<p>FROM YREKA Proceed north on Highway 273 for eight miles to Highway 96, then proceed southwest 63 miles on Highway 96 to Happy Camp and continue another 30 miles to Marble Mountain Ranch (MMR). MMR is on the left side of the road up a ramped driveway. Driving time is about 2.5 hours from Yreka.</p> <p>FROM REDDING Proceed west on Highway 299 for 109 miles to Willow Creek. Take Highway 96 north 47 miles to Somes Bar, then continue north 7 1/2 miles to MMR on your right. Driving time is about 3.5 hours from Redding.</p> <p>FROM EUREKA Go north on Highway 101 and proceed east on Highway 299 for 50 miles to Willow Creek. Take Highway 96 north 47 miles to Somes Bar</p>

and proceed north 7 1/2 miles to MMR on your right. Driving time is about 2 hours from Eureka.

Doug and Heidi Cole live in the large white house on the left as you enter the ranch. Their phone number at the ranch is: (530) 469-3322.

Section 3: Watershed Information:

All questions in this Section refer to the watershed named in Number 1 below.

1. Watershed name:	Stanshaw Creek
2. Watershed area:	square miles = 6.00
3. Watershed area directly affected by the proposed project:	percent = 15.00
4. Land use statement:	<p>The Cole Family, through a pre-1914 appropriative right, diverts approximately 3 cubic feet per second (cfs) from Stanshaw Creek for hydropower, irrigation, stock water, and domestic uses on their property, called Marble Mountain Ranch (MMR). MMR is a dude ranch and guide service offering horse back riding, rafting, fishing, and many other services. Tail water is returned to Irving Creek via a historic ditch system. This water diversion currently impacts rearing juvenile coho salmon in the section of Stanshaw Creek downstream of Highway 96 through decreased instream flows and potential sedimentation from ditch failure events. This water system currently transfers Stanshaw Creek water to Irving Creek. Significant chronic head cutting, erosion and sedimentation occurs at the break in slope where the MMR ditch enters the Irving Creek watershed.</p> <p>Land uses in the Stanshaw Creek watershed include a FRGP funded restoration project at the refugial pool at the mouth of Stanshaw Creek where it crosses the Klamath River floodplain. This project will be implemented in the summer of 2013, and will mechanically remove sediment to restore the size and complexity of this pool, which has been filled with sediment originating from anthropogenic sources, (including the MMR water diversion). Implementation of this proposal will protect the FRGP investment at the mouth of Stanshaw Creek.</p> <p>A small amount of plantation thinning has occurred on USFS lands in the headwaters of Stanshaw Creek, and more will likely occur in the next 10 years. The watershed is also at high risk from stand replacing fire due to successful fire suppression over the past 60 years.</p>
5. Watershed ownership:	% Private: <u>5.00</u> % State: <u>1.00</u> % Federal: <u>94.00</u> %

<p>6. Length of Anadromous Streams in Watershed:</p>	<p>miles = 0.40</p>
<p>7. Watershed Plan(s):</p>	<p>California Department of Fish and Game, 2004, Recovery Strategy for California Coho Salmon, California Department of Fish and Game, Sacramento, CA Karuk Tribe, 2006, Middle Klamath Subbasin Fisheries Resource Recovery Plan, Karuk Tribe Department of Natural Resources, Orleans, CA National Marine Fisheries Service, 2012, Public Draft Recovery Plan for Southern Oregon/Northern California Coast Coho Salmon (Oncorhynchus kisutch), National Marine Fisheries Service, Arcata, CA</p>
<p>8. Background Information</p>	<p>Stanshaw Creek has a short but significant section of coho habitat below the Highway 96 crossing. A lateral scour pool is formed just upstream of the Stanshaw Creek mouth when Klamath flood flows are deflected by evulsed alluvium and streamflow from Stanshaw Creek. This pool is subsequently filled by cold Stanshaw Creek water when flooding subsides, creating a high quality summer and winter rearing habitat for non-natal juvenile coho salmon migrating down the Klamath River corridor. Coho ecology studies by the Karuk Tribe at this site, and in Stanshaw Creek upstream to the Highway 96 culvert barrier, over the past 10 years indicate that once coho young of the year (yoy), or 0+ fry, enter this habitat, they are likely to overwinter there until outmigration early the next spring. Growth rates for coho overwintering in this pool are high, likely leading to increased survival and numbers of returning spawners.</p> <p>In 1867, Civil War veteran Samuel Stanshaw recorded at the County Recorders office that he had “taken hold for mining and for purpose of irrigation 600 [miner’s] inches of the water running in Stanshaw Creek”. This equates to approximately 15cfs, however over time use and ditch capacity has been reduced to a maximum diversion amount of 3 cfs. Use for mining has changed to primarily hydropower generation for the ranch business, which has no access to grid power. Currently, there is an inter-basin transfer via a ditch carrying 2.5 to 3.0 cfs from Stanshaw Creek south to Irving Creek. This diversion is listed in the DFG Coho Recovery Plan for the state as a high priority for restoration.</p> <p>An application by previous owners of MMR, and subsequently by the Cole’s to the State Water Resources Control Board (SWRCB) (Application #29449) for 3 cfs of Stanshaw Creek water for hydropower generation has been recently denied by SWRCB after 15 years. The Cole's have been advised by their attorney that their pre-14 water right covers their current water use. However, they are committed to</p>

addressing fisheries impacts and the efficiency of their diversion to resolve longstanding complaints by other interested parties.

Since 2002, landowners, agency, and tribal personnel have been working together to find solutions that provide for coho habitat needs without unduly impacting the MMR. All stakeholders concur that the interbasin transfer to Irving Creek must be remedied, either by returning water to Stanshaw Creek above the Highway 96 culvert, or directly to the Klamath River. Other options, such as physical modification of the intake, ditch, tailwater return, the hydropower system and consumptive uses of water and power, could likely reduce required diversion amounts and other potential impacts from the current system. This proposal addresses all of these options by attaining specialists reports to objectively describe alternatives and quantify various modifications and system improvements.

Section 4: Project Objectives

1. List Task Information:

SONCC-MKR.3.1.15.1

Assess diversion impact and develop a program to increase flow during low flow periods

Describe How Project Accomplishes List Task:

This project accomplishes the task of improving instream flows by providing necessary specialist information to inform stakeholders about the real consequences of various modifications to the MMR water system. The focus will be on improving hydropower efficiency, redesigning tail water returns to avoid an inter-basin transfer, reducing overall power consumption, and improvements to water conveyance that will reduce ditch loss, excessive maintenance and monitoring. Lack of agreement between stakeholders over this water system for the past 15 years has been due, in part, to the lack of a clear opinion or ruling on the Cole's pre-1914 right, and to lack of information on how specific solutions will affect MMR and the fisheries resource. Utilizing the forthcoming professional opinion on the amount of the Cole's pre-1914 water right by Martha Lennihan Law, this project will engineer design alternatives that remedy current issues with the MMR water system.

2. Need for the Project:

Lack of resolution and action regarding the MMR diversion from Stanshaw Creek has impacted both rearing

coho salmon in lower Stanshaw Creek, and relationships between many stakeholder groups and individuals. Doug and Heidi Cole, owners of MMR, have lived with the uncertainty of not knowing if someone would come to shut off or curtail their water system for over a decade. Downstream landowners with riparian rights have been faced with the choice of diverting the remaining flow from Stanshaw Creek for domestic and irrigation uses, or not using this water so it could maintain the refugia at the mouth of Stanshaw. Regulatory agencies are seeking remediation to these fisheries impacts outside of litigation to conserve public resources, increase public acceptance of fisheries conservation measures in the area, and protect and improve coho salmon habitat in Stanshaw Creek in a timely manner.

This project will allow for the pending assessment of and professional opinion on the amount of the Cole's pre-1914 water right by attorney Martha Lennihan, (Lennihan Law) to be used as a basis for design alternatives that address landowner, agency, and coho salmon habitat needs. This professional opinion by Lennihan Law has been made possible through matching funds from the National Fish and Wildlife Foundation, and will be completed by the Fall of 2013. Using this opinion as a basis for developing open and transparent design alternatives that take into account stakeholder needs will likely prevent potential litigation, and will facilitate implementation of the preferred design before further harm comes to critical coho habitats on lower Stanshaw Creek.

3. Limiting Factors to Salmonids Remediated By Proposed Project:	<input checked="" type="checkbox"/>	Water quantity	(lack of flow, diversions, runoff)
	<input checked="" type="checkbox"/>	Water quality	(temperature, chemistry, turbidity)
	<input checked="" type="checkbox"/>	Riparian dysfunction	(lack of shade, excessive nutrients, roughness, elements)
	<input checked="" type="checkbox"/>	Excessive sediment yield	(pool and gravel quality)
	<input checked="" type="checkbox"/>	Spawning requirements	(gravel, resting areas-pools)
	<input checked="" type="checkbox"/>	Rearing requirements	(velocity, lack of shelter, pools)
	<input type="checkbox"/>	Estuary / lagoon issues	(closure during migration periods)
	<input checked="" type="checkbox"/>	Fish passage	(emigration and immigration)
	<input type="checkbox"/>	N/A	

4. Limiting Factor Remediation:

Water quantity

No matter what the final flow the pre-1914 water right analysis determines the Cole's legal diversion amount is, this project will design physical solutions to return diverted water to Stanshaw Creek. Increased water quantity in the anadromous section of Stanshaw Creek will greatly improve habitat connectivity, especially during summer base flows.

Water quality

Increased flows in lower Stanshaw Creek resulting from implementation of design alternatives will increase water quality by improving instream flows and eliminating chronic erosion associated with the current MMR water system. These improvements will, in turn, lower temperatures to suitable levels for coho salmon and decrease turbidity in Irving Creek and Stanshaw Creek.

Riparian dysfunction

Variable flows and overtopping events associated with the MMR diversion and ditch have caused degradation of riparian habitats in Stanshaw Creek through gully erosion, dewatering of the stream channel at critical periods, and excessive sediment transport leading to stream instability. Project designs will mitigate ditch overtopping and stream dewatering.

Excessive sediment yield

Channel instability associated with hand construction of the instream diversion in Stanshaw Creek, overtopping of the MMR ditch during storm events and resultant gully erosion, and chronic head cutting at the MMR ditch outflow into Irving Creek cause excessive sediment yield into both of these drainages. Design alternatives developed through this project will propose physical solutions to these chronic sedimentation issues.

Spawning requirements

Channel instability and impaired water quality decrease the amount and quality of coho and steelhead spawning habitat in lower Stanshaw Creek. This project will describe physical solutions to improve channel

stability and water quality.

Rearing requirements

Critical coho juvenile rearing habitat on lower Stanshaw Creek will be protected and improved by increasing instream flows, decreasing excessive sedimentation, and maintaining fish passage through physical improvements to the MMR water system detailed by this project.

Fish passage

This project will describe specific physical improvements to the MMR water system that will include returning diverted tailwater to Stanshaw Creek, thus improving connectivity throughout the summer. Currently, Stanshaw Creek disconnects from the Klamath River during low water years.

Section 5: Project Description

1. Detailed Project Description Including All Tasks to Be Performed:

1. Detailed project description including all tasks to be performed:

This project will fund the collection of information defining several alternative proposed physical improvements to the MMR water system and associated hydropower system. Proposed physical improvements will be described as alternatives to be analyzed by qualified, independent physical and electrical engineers. Alternatives will be developed in coordination with MMR owners Doug and Heidi Cole, DFG staff, MKWC, and other stakeholders. Proposed alternatives will be consistent with the pre-1914 water right flow amount determined by an independent, qualified water rights attorney, and will be consistent with existing laws and regulations. The Cole's, by agreeing to participate in this effort, are not agreeing the MMR system is causing the impacts to the fishery, water quality, refugia etc, asserted in this application, and specifically reserve the right to contest such assertions.

Specific tasks for this project include:

Task 1. Review of Completed Water Rights Assessment

Stakeholders will review the pre-1914 water rights assesement conducted by Lennihan Law, and discuss how this affects potential design alternatives. This information will assist the engineer in developing physical solutions that bring Marble Mountain Ranch into compliance with inter-basin transfer regulations and, hopefully, resolve current disputes over water use.

Task 2. Survey and Site Assessment

This task will include field survey, survey data processing, and base map production. The project team will survey the general alignment of the water distribution network. The survey will begin at the water diversion on Stanshaw Creek. Surveys will also be conducted to identify potential alignments and locations for alternative micro-hydro power plants. The surveys will be used to develop a base map that shows the schematic layout of the existing network. Elevations and distances collected by the survey will be used in subsequent tasks for hydraulic and energy production calculations as well as for developing quantities for cost estimates.

Task 3. Energy Audit

A qualified, licensed energy analyst will conduct facility investigations to profile the facility's historical energy end-uses, surveying the site for renewable energy possibilities, and developing a report to communicate the following information:

- 1) An analysis of the facility's current energy using systems, and estimates of its historical energy end-use distribution (how much to lights, heat, processes, etc).
- 2) A site-specific survey for traditional and alternative energy source availability, with cursory analyses performed to quantify financial feasibility.
- 3) Details of the most cost-effective Energy Efficiency Measures (EEMs) available to reduce facility energy usage. EEM analyses to evaluate energy and cost savings, estimated project costs, and expected facility energy impacts.

Facility utility data, operation schedules, and maintenance information are expected to be provided by the time of our site visits. We anticipate building and calibrating a basic eQuest computer model for the facility to help establish current energy end-uses and to model the effects of proposed EEMs.

Task 4. Water Efficiency Study and Concept Alternatives

This task will study existing water use and identify methods to reduce consumption, identify water diversion conveyance improvements that protect aquatic organisms and reduce transmission losses. The project team will develop concept alternatives of that identify operation methods and infrastructure that reduce diversion flows.

The project team will document water availability, existing use, and demand for irrigation, fire protection, domestic consumption, and power generation. The water use and demand will be assessed on a seasonal basis. Information from the energy audit will be used to identify potential reductions to power needs. System modifications and upgrades will be assessed to identify means to reduce stream diversion, particularly during critical periods. Alternative power generation facilities will be evaluated to identify improvements to water use.

The existing water diversion and conveyance system will be reviewed and assessed to identify options to protecting aquatic organisms and reducing sediment ingestion at the point of diversion, minimizing transmission losses through the canal, and reducing maintenance needs in the canal. The conveyance system

will also be evaluated to maximize static head and minimize losses to improve hydroelectric power generation output. Options will be developed and summarized in a water efficiency study and concept report.

Task 5. Review of Design Alternatives and Development of Preferred Alternative

Stakeholders will be consulted on the selection of the preferred physical improvement design alternative, and this alternative will be developed to the 65% design level to ready this project for subsequent implementation grant submission.

2. Time Frame:

June 1, 2014 - May 31, 2015

3. Deliverables:

Project Deliverables:

- Energy Audit Report
- Water Efficiency Study and Concept Report
- Alternatives Analysis of Proposed Physical Modifications
- Final Report
- GIS/GPS data transfer to FRGP via CD

Quantifiable Expected Results:

- Sufficient information/analysis and stakeholder consensus to allow for submission of grant proposals to fund final design and implementation of the selected alternative.

4. CDFW Protocols to Be Used in Project Development and Implementation (check applicable box):

CDFW California Salmonid Stream Habitat Restoration Manual

Manual part number: Fish Screen Criteria

CDFW Fish Bulleting 180: California Coastal Salmonid Population Monitoring: Strategy, Design, and Methods

5. Other Protocols:

6. Expected Quantitative Results (Project Summary):

Area encompassed by planning/assessment (acres)	400
Watershed plans/assessments completed (number)	0
Restoration projects proposed (number)	0

Section 6: Qualifications and Experience of Applicant and Professionals:

1. Applicant's Qualifications and Experience:

Since 2001, the Mid Klamath Watershed Council (MKWC) has been actively planning, coordinating and implementing restoration projects in the Mid Klamath subbasin. Focusing on projects that directly benefit our anadromous fisheries resource, MKWC implements practical, hands-on restoration projects while educating participants on restoration techniques and stewardship principles. MKWC is involved in a variety of projects related to river restoration and watershed education. These activities provide a way for community members to become involved with their watershed through direct participation. Projects are funded by state, federal, and private grants and donations. MKWC and its partners have been working with landowners along anadromous tributaries in the Mid-Klamath for many years, establishing working relationships that have led to implementation of enhancement and restoration projects on these tributaries.

2. Previous Projects Funded By FRGP:

In 2009 and 2010, FRGP funded MKWC's Klamath Youth Stewardship Project. The project involved students in salmonid restoration through implementation with local resource specialists. This project was completed.

In 2010, FRGP funded MKWC's Mid Klamath Tributary Water Diverter Outreach and Screening Project. This project involved outreach to numerous landowners to improve water diversions that may harm fish. This project was cancelled. The Middle Klamath Fish Passage Improvement Project was also funded in this grant cycle. This project was completed.

In 2011/2012, FRGP funded MKWC's Klamath Community Stewardship Project, the Middle Klamath Watershed Restoration Implementation Planning Project, and the Stanshaw Creek Coho Habitat Enhancement Project. These projects are ongoing.

In 2012/2013, FRGP funded MKWC's Klamath Community Stewardship Project (PI 263), and the Mid Klamath River LiDAR Project (PL 274). These projects have not yet started.

Joey Howard and NHC have provided planning and engineering services under FRGP grants for Grenada Irrigation District Dam Removal and Fish Passage Construction, Bogus Creek Fish Passage Improvement Project, and Scott River Fishery Habitat Improvement Project. These projects were completed.

3. Professionals Qualifications and Experience:

Will Harling, Executive Director, Mid Klamath Watershed Council (MKWC)

B.S., Environmental Biology, Humboldt State University, 1999

Will helped to form MKWC in 2001, after working for the USFS and other governmental and nongovernmental agencies since 1993 in the field of natural resources. He currently facilitates the Mid Klamath Restoration Partnership, which collaboratively identifies and prioritizes fisheries restoration projects in the Middle Klamath subbasin. Will has managed dozens of fisheries and watershed restoration projects in the area and has a close working relationship with local, state, tribal and federal agencies, and residents throughout the subbasin.

Northwest Hydraulic Consultants (NHC)

NHC is a specialist in water resources engineering with an especially strong history of work on rivers.

Since our founding in 1972, hydrology, hydraulics, fluvial geomorphology, and sediment transport in

ivers has been central to our business and to the technical interests of our professional staff.

NHC performs hydraulic design and analysis services primarily in the areas of conceptual and detailed design. We offer a hybrid approach which integrates the application of several powerful design tools: conventional methods, physical hydraulic modeling, and numerical hydraulic modeling. We have successfully applied this approach for several decades, with applications that include the hydraulic design and analysis of: fish passage systems, hydroelectric facilities, water and wastewater treatment systems, pump stations, surge protection systems, flow- and pressure-control systems and structures, pipelines and flow conveyance systems, intakes and outlets structures, river training works and bridges, and sediment and debris management facilities.

Joey Howard, P.E. – 16 Years with NHC

Principal Engineer –Hydraulic and Fisheries Engineering

Mr. Howard is a licensed civil engineer in Oregon and California with nearly 20 years of engineering practice in disciplines related to fisheries and river engineering, erosion control and riparian restoration design, stream monitoring, and construction observation. His academic training includes a Bachelor's of Science in civil engineering from the University of California at Irvine with an emphasis in hydraulics and a Master's of Science in environmental and civil engineering from the University of California at Davis (UCD). At UCD, he investigated fine sediment intrusion into salmonid spawning gravels. Mr. Howard is well versed in both the design and implementation of river engineering projects. He has been the engineer of record in charge of preparing construction plans, specifications, and engineer's estimates for numerous river engineering, fish passage, and restoration projects.

Sharpe Energy Solutions

Sharpe Energy Solutions (SES) is an Oregon business offering commercial, industrial, and institutional technical energy audits & feasibility studies, systems commissioning, energy resource management, computer modeling and other engineering services. They are Level III Oregon State SB1149 Auditors for schools and other buildings; Level II Allied Technical Assistant Contractors (ATACs) for the Energy Trust of Oregon; and fully licensed and bonded CBB general contractors.

Jeffery Sharpe, PE

Mr. Sharpe is a licensed professional Civil and Mechanical engineer (PE) in more than 30 States and Provinces, has a wealth of Mechanical and Structural design experience, is a model-law engineer with the NCEES, and is a BPI certified Building Energy Analyst. He is currently contracted as an Oregon State SB1149 Auditor for schools and other buildings; a Level 2 Allied Technical Assistant Contractor (ATAC) for the Energy Trust of Oregon; a regional DSM auditor and consultant for PacifiCorp; and a fully licensed and bonded CBB general contractor

4. Examples of Similar Work:

PG&E Bear River and Yuba Canal Analyses

Northwest Hydraulic Consultants conducted hydraulic analyses to assess hydraulic performance of 25 miles of conveyance canals that divert flows from the Bear and Yuba Rivers. These canals convey diversion flows for hydroelectric generation and water supply facilities. Analyses included assessment of hydraulic losses through the system and impacts of proposed canal lining projects and a flume replacement project. In 2011,

pre- and post-project hydraulic analyses were conducted for 12 canal lining sites. Models were calibrated before and after the lining projects. Hydraulic analyses were conducted using engineering equations and HEC-RAS.

Twitchell Island - Carbon Sequestration Managed Wetland

Northwest Hydraulic Consultants developed irrigation water demand, pump sizing, and pipe network water delivery design for a 400 acre managed wetland restoration project located in the Sacramento San Joaquin Delta near Rio Vista, CA. The water delivery system is designed to satisfy demand for peak consumptive use, and provides reduced delivery for off peak needs through variable speed pumps. Looped, low pressure pipe network designs were optimized using EPANET to confirm proper irrigation delivery flow rates and pressures under the prescribed range of water delivery needs. Variable delivery design was paramount for the project to minimize pumping of drain water from the managed wetland system. A feasibility level engineer's cost estimate was provided to assist in developing the project implementation grant request.

Scott and Shasta Valley Fish Screen and Passage Projects

NHC has designed and constructed several fish screen and passage projects for water diversions in the Scott and Shasta Valleys. These projects include fish screen and roughened channel design and construction oversight at the Montague Water Conservation Districts diversion on the Little Shasta River, fish screen design and construction support at the Denny Ditch Diversion on the Scott River, fish screen design on two diversions on the East Fork Scott River, fish screen and passage design at the Grenada Irrigation diversion on the Shasta River, intake design and fish passage design at the Edson Foulke intake on the Upper Shasta River, and fish screen and passage design of the Hart and Musgrave diversions on the Little Shasta River.

Spokane River Protection Water Budget and Instream Flow Assessment

Avista Utilities Corporation (Avista) owns and operates five hydroelectric facilities on the Spokane River, Washington. Collectively, these facilities are referred to as the Spokane River Hydroelectric Project. Avista is in the process of developing new license conditions for the Project under the Alternative Licensing Procedure (ALP). NHC was retained by Avista and the Project Relicensing team to develop a detailed water budget and conduct an operations assessment for the Project. NHC developed the water budget from approximately 90 years of hydrologic and meteorological data and used this information as

input to an operations model of the Project. The model was used to simulate conditions under current and historic (unregulated) conditions. NHC also conducted an instream flow study to identify key fish species and life stages and assess the impacts of different flows on habitat conditions. Using the information from the instream flow assessment and other studies undertaken as part of the relicensing (e.g. economics, aesthetics, whitewater rafting, water quality, etc.), NHC applied the operations model to evaluate alternative operations scenarios and develop flow recommendations for the Project.

Mount Ashland Ski Resort Energy Audit and Net-0 feasibility study Sharpe Energy Solutions performed a Technical Analysis Study (TAS) for the entire Mount Ashland Ski Resort facility; including the lodge and rental shop buildings, HVAC systems, ski-run lighting, and lift motors. The project included modeling, analyses, preliminary designs and procurement of contractor bids. This TAS was conducted under contract with ETO, and has already stimulated EEM construction. Also conducted a Preliminary Feasibility Study for the resort

investigating possible avenues for its becoming a Net-0 energy consuming/producing facility.

Energy Audits of selected Siskiyou County facilities to procure ARRA funding through the California Energy Commission (CEC) Sharpe Energy Solutions conducted energy audits for critical Siskiyou County facilities. These facilities include Siskiyou County’s Library, Jail, City Hall, and KNF buildings; Yreka Community Theatre; City of Montague’s WWTP, City Hall, City Shop and Community Center; City of Doris’s Water Supply Pump Motor, City Hall, and Fire Hall; City of Mount Shasta City Hall, Police/Fire Station, Public Works, WWTP Motors; City of Fort Jones Fire Hall, Water Supply Pump Motor, and Community Center; City of Dunsmuir City Shop and Park & Rec. Buildings, WWTP Pump Motors. These preliminary energy audits included site visits, preliminary eQuest modeling and system designs, and procuring of EEM construction estimates. The audits were performed under a contract from Pacific Power as subcontractor to RHT, and are currently being used to procure stimulus dollars from the CEC.

Section 7: Landowners Access, Permits

1. Landowners Granting Access for Project: (Attach provisional access agreement[s]) Douglas Cole, owner of Marble Mountain Ranch (MMR)	
2. Permits:	N/A
3. Lead CEQA agency:	Project does not require CEQA as it is strictly design. CEQA will be addressed in the implementation of the preferred design through future projects.
4. Gallons of Fuel Used to Complete the Project:	Gasoline: 250 Diesel: 0
5. Mitigation:	Yes Project planning will provide information that will be used to complete CEQA requirements for future implementation grants.
6. Listed Species Consultations:	N/A

Section 8: Project Budget

1. Detailed Project Budget (Excel spreadsheets can be used)

DETAILED PROJECT BUDGET									
PROJECT NAME: 2013169, Stanshaw Creek Water Conservation Assessment									
Level of staff / Unit description	Hours or Units of Amount Requested	Hours or Units of Applicant Cost Share	Hours or units of Partner Cost Share	Hourly Rate or Unit Price (\$)	Staff Benefits (%)	Amount Requested	Applicant Amt. of Cost Share	Partner Amt. of Cost Share	Total Project Cost
A. PERSONNEL SERVICES									
<u>Level of Staff</u>									
Program Director	160	20	30	\$28	30.00	\$4,480	\$560	\$840	\$5,880
GIS Analyst	12			\$20	30.00	\$240	\$0	\$0	\$240
Office Assistant	16			\$14	30.00	\$224	\$0	\$0	\$224
Associate Director	0	0	8	\$28	30.00	\$0	\$0	\$224	\$224
Subtotal						\$4,944	\$560	\$1,064	\$6,568
Staff Benefits						\$1,483	\$168	\$319	\$1,970
TOTAL PERSONNEL SERVICES						\$6,427	\$728	\$1,383	\$8,538
B. SUBCONTRACTOR EXPENSES									
Level of staff / Unit description (indicate units of measure)	Hrs/units for Amount Requested	Hrs/units of Applicant Cost Share	Hrs/units of Partner Cost Share	Hourly rate / Unit cost (\$)		Amount Requested	Applicant Amt. of Cost Share	Partner Amt. of Cost Share	Total Project Cost
Water Rights Attorney (Martha Lennihan)	0		75	\$390		\$0	\$0	\$29,250	\$29,250
Surveying (Sr. Eng Joey Howard)	12		36	\$175		\$2,100	\$0	\$6,300	\$8,400
Energy Audit (P. Engr - Sharpe Energy)	67			\$150		\$10,050	\$0	\$0	\$10,050
Water Efficiency	76			\$175		\$13,300	\$0	\$0	\$13,300

Engineering (Sr. Engr Joey Howard)								
Water Efficiency Engineering (Jr. Engr - Joey Howard)	96			\$105	\$10,080	\$0	\$0	\$10,080
Water Efficiency Engineering (Drafter - Joey Howard)	32			\$125	\$4,000	\$0	\$0	\$4,000
Karuk Senior Fish Biologist (Toz Soto)			40	\$56	\$0	\$0	\$2,240	\$2,240
Landowner (Doug Cole)			80	\$30	\$0	\$0	\$2,400	\$2,400
TOTAL SUBCONTRACTOR EXPENSES					\$39,530	\$0	\$40,190	\$79,720
C. OPERATING EXPENSES: Other								
Item Description (indicate units of measure)	Units for Amount Requested	Units of Applicant Cost Share	Units of Partner Cost Share	Unit Cost (\$)	Amount Requested	Applicant Amt. of Cost Share	Partner Amt. of Cost Share	Total Project Cost
Printing (bulk)	1		0	\$120	\$120	\$0	\$0	\$120
Travel	1,200		120	\$0.55	\$660	\$0	\$66	\$726
TOTAL OPERATING EXPENSES: Other					\$780	\$0	\$66	\$846
D. OPERATING EXPENSES: Electronic and Purchased Equipment								
Item Description (indicate units of measure)	Units for Amount Requested	Units of Applicant Cost Share	Units of Partner Cost Share	Unit Cost (\$)	Amount Requested	Applicant Amt. of Cost Share	Partner Amt. of Cost Share	Total Project Cost
TOTAL OPERATING EXPENSES: Electronic and Purchased Equipment					\$0	\$0	\$0	\$0
E. SUBTOTALS & ADMIN								
Subtotal A + C (Personnel + Operating Expenses: Other)					\$7,207	\$728	\$1,449	\$9,384
Requested Administrative Overhead (max. 20%) @ 15.00					\$1,081			\$1,081
Applicant Administrative Overhead @ 15.00						\$109		\$109
Partner Administrative Overhead @ 16.00							\$232	\$232

Subtotal for Subcontractors	\$39,530	\$0	\$40,190	\$79,720
Subtotal for Operator Expenses: Electronic and Purchased Equipment	\$0	\$0	\$0	\$0
E. GRAND TOTAL	\$47,818	\$837	\$41,871	\$90,527

2. Budget Justification:

Costs for professionals qualified to complete necessary tasks for this project have been reviewed and accepted by DFG staff due to the complexity of water rights issues and potential physical improvement designs.

3. Administrative Overhead:

Administrative overhead is 15%. Subcontractor partner hourly rates include all partner administrative costs. Subcontractors verified administrative costs are 15% or lower.

5. Summary Project Costs

Funding Source	Cash	In-kind (if applicable)	Status S,P,U (secured, pending, unknown)	Source Type	Cost Share Used As Match	Expected Award Date	Total
Fisheries Restoration Grant Program	\$47,818						\$47,818
MKWC	\$0	\$837	Secured	Applicant	<input type="checkbox"/>	By August 15, 2013	\$837
National Fish and Wildlife Coho Enhancement Fund (PacificCorp)	\$37,232	\$0	Secured	Other	<input type="checkbox"/>	By August 15, 2013	\$37,232
Karuk Tribe	\$0	\$2,240	Secured	Other	<input type="checkbox"/>	By August 15, 2013	\$2,240

Landowner (Doug Cole)	\$0	\$2,400	Secured	Other	<input type="checkbox"/>	By August 15, 2013	\$2,400
Total	\$85,050	\$5,477					\$90,527

5. Is Any of the Cost Share Being Used As Match for Other (non-FRGP) Funding for the project?

6. In-kind Detail:

Source of In-kind contribution	Total volunteer hours	Value of volunteer labor (\$)	How Value of Volunteer Labor Determined	Non-volunteer donated labor value (\$)	Non-labor contribution description	Non-labor contribution value (\$)
MKWC	20.00	\$728	20hrs x \$28/hr x 30% benefits x 15% admin.	\$0		\$0
National Fish and Wildlife Coho Enhancement Fund (PacificCorp)	0.0	\$0		\$0		\$0
Karuk Tribe	0.00	\$0	40hrs X \$54/hr (benefits included)	\$2,240		\$0
Landowner (Doug Cole)	40.00	\$2,400	80 hrs x \$30/hr: Est. value of landowner's time based on cost of replacement labor running MMR	\$0		\$0

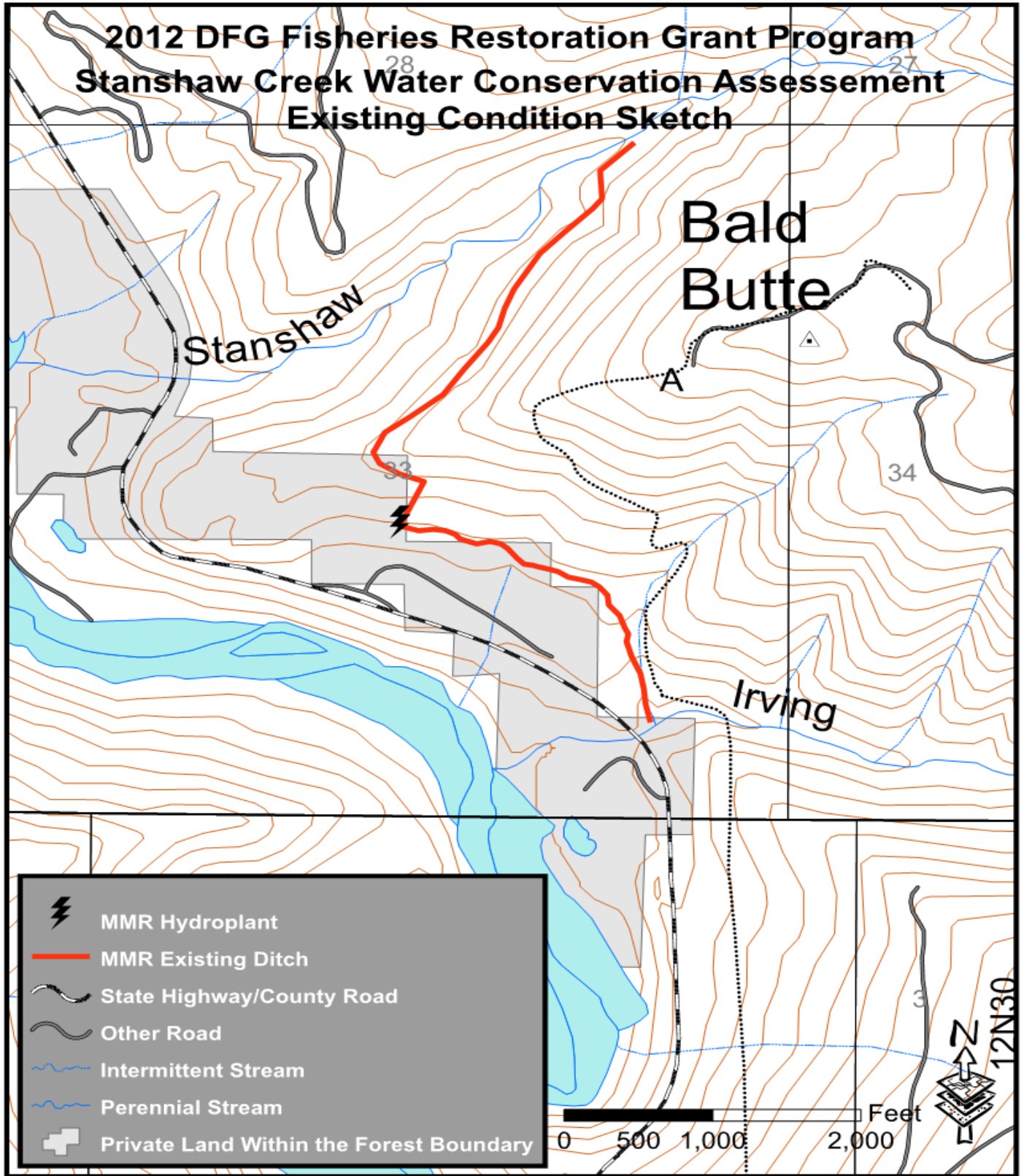
7. Estimated Project Cost by Task

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Type of Work	Amount Requested	Cost Share	Total
Fish Screens	\$0	\$0	\$0
Fish Passage	\$0	\$0	\$0
Instream Flow	\$0	\$0	\$0
Instream Habitat	\$0	\$0	\$0
Riparian Habitat	\$0	\$0	\$0
Upland Habitat	\$0	\$0	\$0
Wetland Habitat	\$0	\$0	\$0
Estuarine Habitat	\$0	\$0	\$0
Planning / Assessment / Design	\$47,818	\$42,709	\$90,527
Outreach / Education / Training	\$0	\$0	\$0
Monitoring	\$0	\$0	\$0
Salmon Enhancement / Rearing	\$0	\$0	\$0
Acquisition	\$0	\$0	\$0
Total	\$47,818	\$42,709	\$90,527

Section 9: Supplemental or Specialized Information

Existing Condition Sketch



Photographs

Attachment #3: Photographs
Stanshaw Creek Water Conservation Assessment



Figure 1. Marble Mountain Ranch (MMR) Hydroplant



Figure 2. Outflow from MMR Hydroplant



Figure 3. Domestic water treatment facility



Figure 4. Recent MMR ditch repair site.



Figure 5. Repaired section of MMR ditch.



Figure 6. Failed Sediment Trap



Figure 7. MMR ditch overflow just below Point of Diversion (POD).

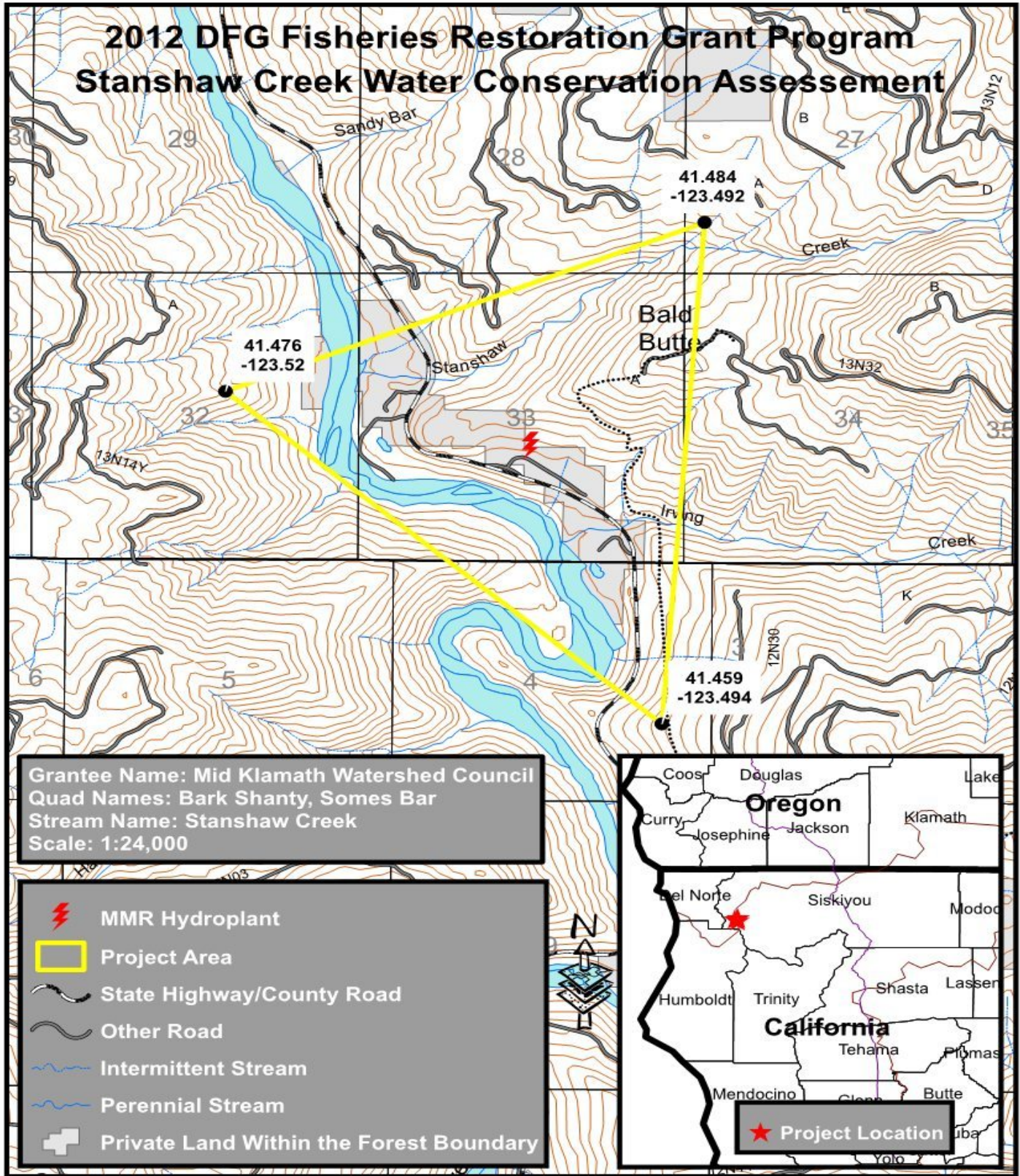


Figure 8. MMR ditch POD.



Figure 9. Gully headcut (approx. 15 feet deep) where MMR ditch leaves MMR into Irving Creek drainage.

Project Location Topographic Map



Provisional Landowner Access Agreement

Mid Klamath Watershed Council
38150 Highway 96
Box 409
Orleans, California 95556-0282

Access/Entry Agreement

Stanshaw Creek Water Conservation Assessment

I. PURPOSE

The following agreement details requirements of both the landowner and the Mid Klamath Watershed Council regarding the Stanshaw Creek Water Conservation Assessment. Property is located at Marble Mountain Ranch 7.5 miles north of Somes Bar, CA, along Highway 96.

I, Doug Cole, hereinafter called "Landowner", am aware that a water conservation assessment grant application has been submitted to the California Department of Fish and Game (DFG) for funding. The project has been explained to me by the Mid Klamath Watershed Council. I support the goals of the project. If the project is selected for funding, the Landowner will enter into a ten year landowner agreement that will be project specific.

II. ACCESS PERMISSION

Landowner hereby grants Mid Klamath Watershed Council, DFG, and project consultants permission to enter onto real property owned by the Landowner to perform pre-project evaluation. Access shall be limited to those portions of Landowner's real property where actual restoration work is proposed to be performed and those additional portions of real property that must be traversed to gain access to the work site. The applicant will contact the Landowner at least 72 hours prior to any visit. At no time will DFG representatives access the property without the applicant unless expressly given permission by the Landowner.

III. DURATION OF NOTICE

The term of this agreement shall commence upon signing of this Agreement and terminate on 12/31/14.

IV. LIABILITIES

Reasonable precautions will be exercised by Mid Klamath Watershed Council to avoid damage to persons and property. Mid Klamath Watershed Council agrees to indemnify and hold harmless the Landowner and agrees to pay for reasonable damages proximately caused by reason of the uses authorized by this agreement, except those caused by the gross negligence or intentional conduct of the Landowner.

Landowner Signature

Doug Cole

Date 3/28/2012

Landowner Address

92520 Hwy 96, Somes Bar, CA
95568

Landowner Phone Number

530.469.3322

1'd

Applicant Signature
Mid Klamath Watershed Council

March 28, 2012
Date

p.2

Watershed (or County) Map

