Mendocino County Fish & Game Project Proposal Summary Sheet
(This must be the first page of the submitted proposal)

1. Contractor: Round Valley Indian Tribes

2. Type of Contractor: Federally Recognized Tribe

3. Taxpayer/Organizational ID/EID Number: 941477254

4. Street Mailing Address: 77826 Covelo Rd.

5. City, State, Zip Code: Covelo, CA 95428

6. Contact Person: Warren Mitchell

7. Telephone Number: 707.489.2176

8. Email address: RVITNRDBio1@yahoo.com

9. Website address(es): RVIT.org

10. Project Title: Mill Creek Stream Bank Stabilization & Riparian Corridor Development Project

11. Fish and Game Code Section 13103 Category: (a) & (e).

12. Amount Requested ($): 20,814.00

13. Objectives: Develop approximately one mile of Willow Walls and Willow Weirs along Mill Creek for Bank Stabilization and sediment deposition purposes. Plant approximately 500 trees along Mill Creek Banks in association with Willow plantings. Planted Willows and riparian vegetation will also serve as a barrier to reduce the amount of trash and debris entering the stream system as well as performing a myriad of essential riparian corridor functions such as shading, hydraulic control, nutrient supply and uptake.

14. Specie(s) Benefited: Steelhead, Chinook and Coho Salmon + Foothill Yellow-legged frogs and Northwestern Pond Turtles + native, non-listed species.

15. Work Schedule: April - December 2017

16. Site Location (include reference to nearest city, town, and/or prominent landmark:
This Project is located along Mill Creek in the northwestern corner of Round Valley near the town of Covelo. (Map also provided within the proposal.)

17. Site Location – GPS Coordinates: 39.818062 / -123.267434

18. **We would also like to be considered for funding** from the Ft. Bragg-based Salmon Restoration Association http://www.salmonrestoration.com/ (*for salmon habitat enhancement/restoration, salmon conservation, or salmon education projects*). X YES _____ No.

Please also fill out the following, if applicable:

19. Stream: Mill Creek

20. Tributary to: Middle Fork Eel River

21. Major Drainage System: Eel River

The deadline for receiving proposals is 5:00pm, December 31, 2016.

Proposals must be submitted by email as a PDF, .DOC, .DOCX, .TXT, or ZIP file to the Commission at: mendofishgamecommission@gmail.com. **Applicants must also mail or hand-deliver eight double-sided copies** to the Commission c/o County Planning & Building Services.

Grant applicants are encouraged to attend the Tuesday, January 17, 2017 meeting of the Commission, location to be announced, beginning 5:00pm, to make a brief (5 minute) presentation regarding their proposal.

Applicants without personal computers or internet access to the Commission website can request assistance from County branch libraries in Ukiah, Ft. Bragg, Willits, Coast Community (Pt. Arena), and Round Valley (Covelo) to download and print the application materials. *Note: County library personnel can also assist with scanning and emailing completed proposals.*

For additional information, please call Fish and Game Commission at (707) 234-6094, or email the Commission at mendofishgamecommission@gmail.com.

The

Round Valley Indian Tribes
Tribal Environmental Protection Agency

Presents its

"Mill Creek Streambank Stabilization & Riparian Corridor Development Project"

to the

Mendocino County Fish & Game Commission

Through its

Fish and Game 2016/2017 Grant Cycle

Table of Contents

Applicant Abstract

Tribe:	Round Valley Indian Tribes (RVIT)
Tribal Agency:	Tribal Environmental Protection Agency (TEPA)
Mailing Address:	77826 Covelo Road, Covelo, CA 95428
Telephone / Fax:	(707) 983-8204 (Ph.) / (707) 983-8435 (Fax)
Primary Contact:	Warren Mitchell
e-Mail Address:	RVITBio1@yahoo.com
Project Title:	Mill Creek Streambank Stabilization & Riparian Corridor Project
Requested $:	$ 20,814
Tribal Cost Share $:	$ 56,633
Eligible Applicant:	Yes

Project Abstract

The Round Valley Indian Reservation (RVIR) consists of approximately 36,000 acres located within the California Coastal Range of northern California (See Figure 1). The Mill Creek watershed contains ~ 6,950 acres and serves as the primary aquifer recharge system for Round Valley and its residents. Mill Creek is ***also*** an important Class I stream system which supports native runs of Federal and State Listed (T & E) species of Steelhead, Chinook and occasionally Coho salmon. The Tribes EPA Program is proposing to plant nearly a mile of willow walls and weirs along the active channel just above bank full width in addition to several hundred trees for riparian corridor development along the banks of Mill Creek. These efforts will work together to: stabilize stream banks, capture and reduce sediment input, intercept trash/debris, improve nutrient uptake and improve natural stream flow and function within the active channel by enhancing the myriad of roles that a functional riparian corridor plays in supporting a healthy stream ecosystem.

INTRODUCTION

The Round Valley Indian Tribes (RVIT) are a federally recognized confederation of seven tribes (the Yuki, Pit River, Nomlacki, Concow, Pomo, Little Lake, and Wailacki) whose Reservation is located in Mendocino County in north western California (Figure 1). The Reservation is situated within the headwaters of three forks (North Fork, Middle Fork and Main Stem) of the Eel River system with elevations ranging from 1,400 feet at the Valley floor to over 4,000 feet in the mountains to the east. Vegetative composition throughout the Reservation is a mosaic of hardwood/conifer mixed forests with oak / grassland savannahs scattered through the hillsides. Historic Reservation boundaries once encompassed ~102,000 acres. Today, RVIT retains ownership of ~ 36,000 acres making it one of the largest reservations in California, but ownership is a checkerboard of private Indian families, Tribal, Allotment, and Fee lands held in trust by the Bureau of Indian Affairs. Private landowners, Ranches & Timber Companies comprise most of the remaining 66,000 acres of within historic boundaries.

If funded, the proposed project will support an ongoing collaborative effort between the Tribes Natural Resources Department (NRD) and the Tribes EPA Program (TEPA) to protect, preserve and enhance the environmental resources associated with Mill Creek. In 2000, the Tribes NRD initiated its efforts to restore Mill Creek back to a single (50' wide) channel, riparian corridor lined stream system ***from*** the braided, (700' wide) multi-channel system which had virtually no riparian vegetation that it once was (See Appendix A, Pictures 1 - 6). Restoration efforts utilized a variety of site specific Bioengineering techniques to address a number of issues identified per a comprehensive Stream Habitat Typing Inventory of Mill Creed survey using the Calif. Dept of Fish & Wildlife / Rosgen's Stream Habitat Typing Methodologies, McNeil Gravel sample data and cooperative input and funding by several State and Federal Resource Agencies.

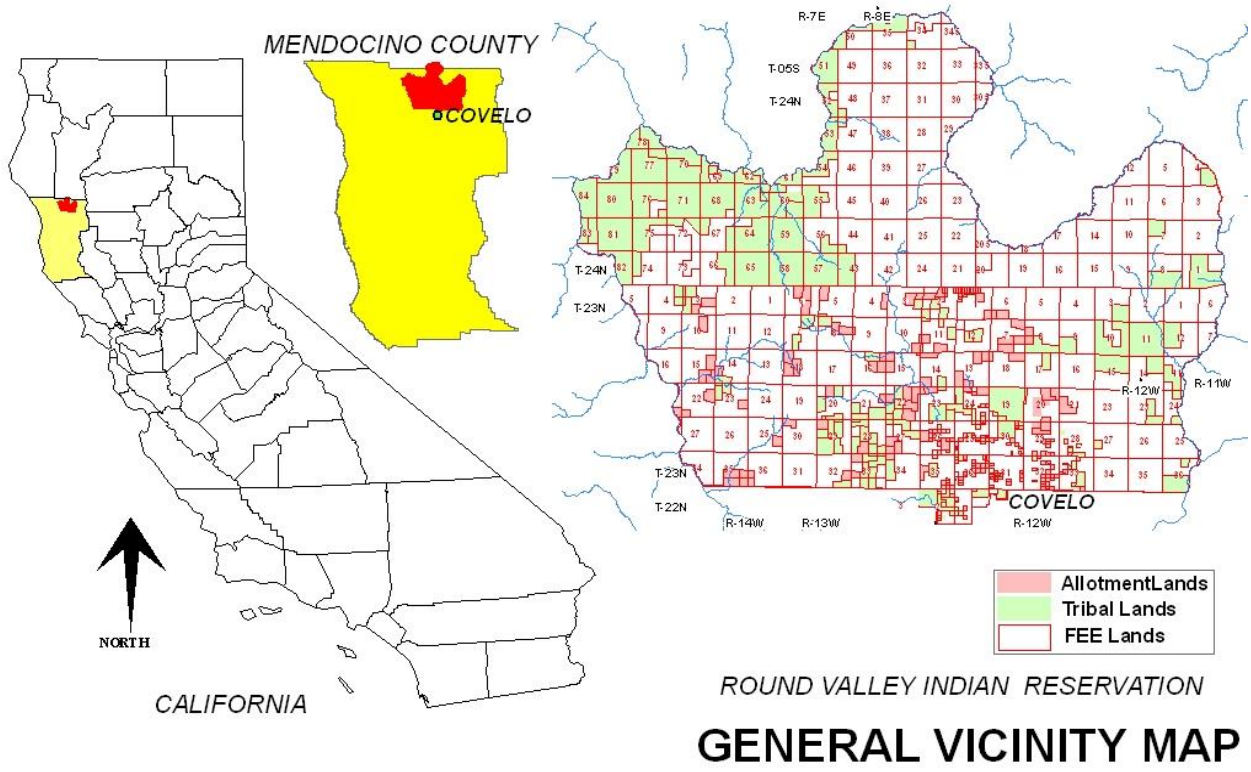


Figure 1. Location of Round Valley Indian Reservation.

With nearly seventeen years of experience working on the Mill Creek Restoration Project, the Tribe is well aware of what works and what does not regarding the development of the riparian component along Mill Creek. However, the huge size of the Project area (See Figure 2) and the slow growing nature of trees and vegetation, combined with poor soil conditions, hot summers and several years of drought conditions which have been further exacerbated by the national financial downturn in 2007 which decimated both State and Federal funding opportunities … the Tribes primary funding sources for implementing this project. These factors have all combined to make the restoration of the vegetative component more time consuming than the original efforts to realign and restore the streams hydrological function! The Tribe has all the equipment, personnel and resources needed to complete the proposed project, we simply need the financial resources to implement it.

Figure 2. Aerial photo of the entire Mill Creek Project Area – 2014. Note the visible riparian vegetation along Mill Creek West and North of Medicine Hill (center) and the remaining need for vegetation for riparian development South and East of Medicine Hill

Project Goals & Objectives.

The implementation of the proposed Mill Creek Stream Bank & Riparian Corridor Development Project (Project) will directly address and reduce the amount of sedimentation entering the creek at several site specific locations identified along the banks of Mill Creek for Willow Wall /Weir development (See Appendix A, Pictures 7 – 12). In conjunction with the Willow development activities, several hundred trees will be planted (and watered) adjacent to the active channel to help this developing riparian corridor to fulfill the myriad of roles that a functional riparian corridor plays in any healthy stream ecosystem.

The site specific locations for willow walls and willow weirs, have already been identified and planned by the Project Biologist that has been involved with the Mill Creek Restoration effort since its inception in 1999. Much of the EPA crew that will be involved with implementing the proposed activities have also been doing this type of work for many seasons and will be contribute toward achieving the goals set forth in this proposal.

Two specific activities are identified in this year's proposal, each requires its own timing and technique for effective implementation, each of these are described in greater detail in the Tribes Mill Creek Riparian Corridor Development Plan. NRD just completed and TEPA is in process of implementing Mill Creek Riparian Corridor development activities, therefore all Permits and land owner agreements are in place and activities sponsored by the County Fish & Game Commission are shovel ready and good to go!

PROJECT COMPONENTS

Willow Walls and Weirs:

These will be planted within the active channel between the bankful and upper bank delineation. Timing is crucial in order to take advantage of the receding water table level. As such, Willow walls and weirs must be planted in close association with where surface waters go subterranean. Heavy equipment will always access the project work site from the dry downstream end (~ 30 ' from the receding waters' edge) to ensure that heavy equipment does not come in contact with the active stream flow at any time, … but close enough to access the subsurface water table for plant use. A backhoe (or small excavator) will be used to dig a narrow trench approximately 18" wide x 6' deep (See Appendix A – picture 12). Freshly cut willow limbs ~ 7 - 8 feet in length are placed in the trench, (typically 3 – 4' deep with water) and then backfilled and compacted. This allows the planted limbs to start sprouting roots almost immediately and are often capable of following the receding water table, thus minimizing the amount of supportive watering needed to carry them through the approaching hot summer months.

Riparian Corridor Development:

This activity will take place during the late fall and early winter to take advantage of the natural watering made available by the winter rains and be planted above bankfull and into the floodplain. Riparian vegetation propagated in the Tribes Greenhouse during the winter months will be planted above bankfull and into the floodplain, according to site plans developed by the Project Biologist, during the early spring. Subsequent to planting, a drip line watering system called a "Cell" will be set up to water the recently planted vegetation in preparation for the long hot summer months where watering will be essential. Each "Cell" is typically able to support (water) hundreds of trees simultaneously by hooking up the waterline system directly to a Water truck and then pumping water directly to the planted vegetation. This system has proven to be very effective.

The Mill Creek Riparian Corridor Development Plan document, developed by NRD, identified dozens of locations for riparian vegetation Cells to be established, their priority has been determined by the Project Biologist, this proposal is developed in conjunction with this document. Vegetation will come from both the NRD's Greenhouse (See Picture 13) where local vegetation has been collected / propagated over the winter months, or will be freshly collected from local Willow NS/or Cottonwood sources. The intensive use of riparian vegetation within and adjacent to the active channel within the reach where there is virtually no vegetation (except for what NRD planted has planted in conjunction with Restoration efforts) will provide the most effective location with Tribal lands to implement these proposed activities to address NPS impairments within the Mill Creek system.

Given that riparian vegetation plays a myriad of crucial roles (stream bank protection, channel stabilization, nutrient provision and uptake, sediment capture, water table stabilization, and reducing flow/scour rates, etc…) in a streams ecosystem, the Projects location at the base of the foothills where Mill Creek enters the valley floor makes this Project beneficial for stream related resources located downstream. The reduction of fine sediments entering the stream system and subsequently capturing and facilitating the deposition of suspended sediments from the water column will improve water quality and improve potential for spawning success by salmon and steelhead. The proposed Project location is perfectly suited for the type of project activities being proposed and for the myriad of ecosystem impairments that it is capable of addressing.

Water Quality Benefits:

The activities described in this proposal will directly address a variety of impairments that pose a direct threat to the water resources within Mill Creek and its watershed for not only a variety of Fish & Wildlife species that depend on this stream system, but the residents of the Valley as well. Not only will the proposed activities result in a direct reduction in the amount of erosional sediment from entering the stream, but it will also aid in filtering (blocking) larger pieces of trash and debris from entering the stream system. Riparian vegetation buffer also has the potential and ability to filter and uptake various nutrients and /or chemical nonpoint source (NPS) impairments through the process of "phyto-remediation". The amount of NPS impairments that will be "reduced or eliminated" is difficult to gauge because of the variability in stream flow levels on a seasonal basis. Nonetheless, the beneficial effects that a functional riparian corridor plays in improving nearly all water quality parameters, chemical and biological, is well documented.

In a similar manner, the presence of a functional riparian corridor produces many beneficial improvements in water quality parameters such as lowering water temperatures as a result of shade provided by the surrounding trees and vegetation. This shading and reduced water temperature also helps slow the evaporation process. As such, we have noticed that surface water remains flowing longer into the summer months and water flow returns earlier in the fall. Mill Creek retains surface flow year round both upstream and downstream of the project area. It is expected that upon completion and maturation of the riparian corridor effort, that the established vegetation will begin to provide enough shading and root wicking action to affect and improve surface flow retention time into the summer months through the area that was once a barren floodplain before restoration activities, and before that, a flowing stream system. The fact that the riparian corridor will continue to develop and increase its root and foliage density naturally with the passage of each will also have a tremendous impact on the stream systems ability to resist the extreme weather conditions resulting from climate change potential impacts of more frequent or intense storms on water flow, erosion and runoff.

Environmental Outputs & Tracking

The very nature of the proposed components of this project categorically addresses and improve each of the factors listed above as a byproduct of a healthy, functional riparian corridor. A functional riparian corridor provides a myriad of biological and ecological benefits including, but not limited: water quality improvements, diversity of aquatic habitats, stream shading, flood attenuation, bank stabilization, woody debris recruitment, ground water exchange and a variety of other beneficial processes that combine the physical process of pollutant filtering and removal which all culminate in improved water quality conditions.

Improved water quality benefits the ground water quality, the primary source for residential water supplies. Similarly, improved water quality also benefits a myriad of wildlife that depends on the aquatic resources including the culturally important salmon and steelhead species, the humans that still maintain cultural subsistence fishing and the wildlife (eagles to otters) that also rely on a healthy aquatic ecosystem for their livelihood.

Environmental results (outputs) of this proposed activity will be measured (literally) by:

- Number of feet of Willow weirs planted
- Number of feet Willow walls / stream bank protected
- Length of stream bank protected by re-directed flow and
- Number of trees and shrubs planted and
- Percentage of surviving vegetation expressed as a function of time (monitored by NRD).
- Improved habitat for successful spawning and rearing of salmon and steelhead
- Increased awareness of Ecological concerns within the Valley.
- Increase TEPA's capabilities for implementing riparian corridor development activities
- Continue improving community awareness by involving the local schools for tree planting activities. (See Pictures

Past Performance.

If this proposal is funded, subsequent work will pick up where TEPA's successful EPA 319 Competitive Grant left off, thus adding on to the successfulness of completing the vegetative component of the Mill Creek Restoration Project! As mentioned earlier, the Tribe has been working on the Mill Creek Project for some time now with a wide variety of Resource Agencies including, but not limited to: National Marine Fisheries Service, U.S. Fish & Wildlife Service, California Department of Fish and Wildlife, Bureau of Reclamation, Bureau of Indian Affairs, Natural Resource Conservation Service, Bureau of Indian Affairs, et.al. As such, we know what we are doing and we have 2.4 miles of restoration work to show for it. Implementation of this Project will serve and fulfill a necessary step in the completion of this large scale project.

Detailed Budget

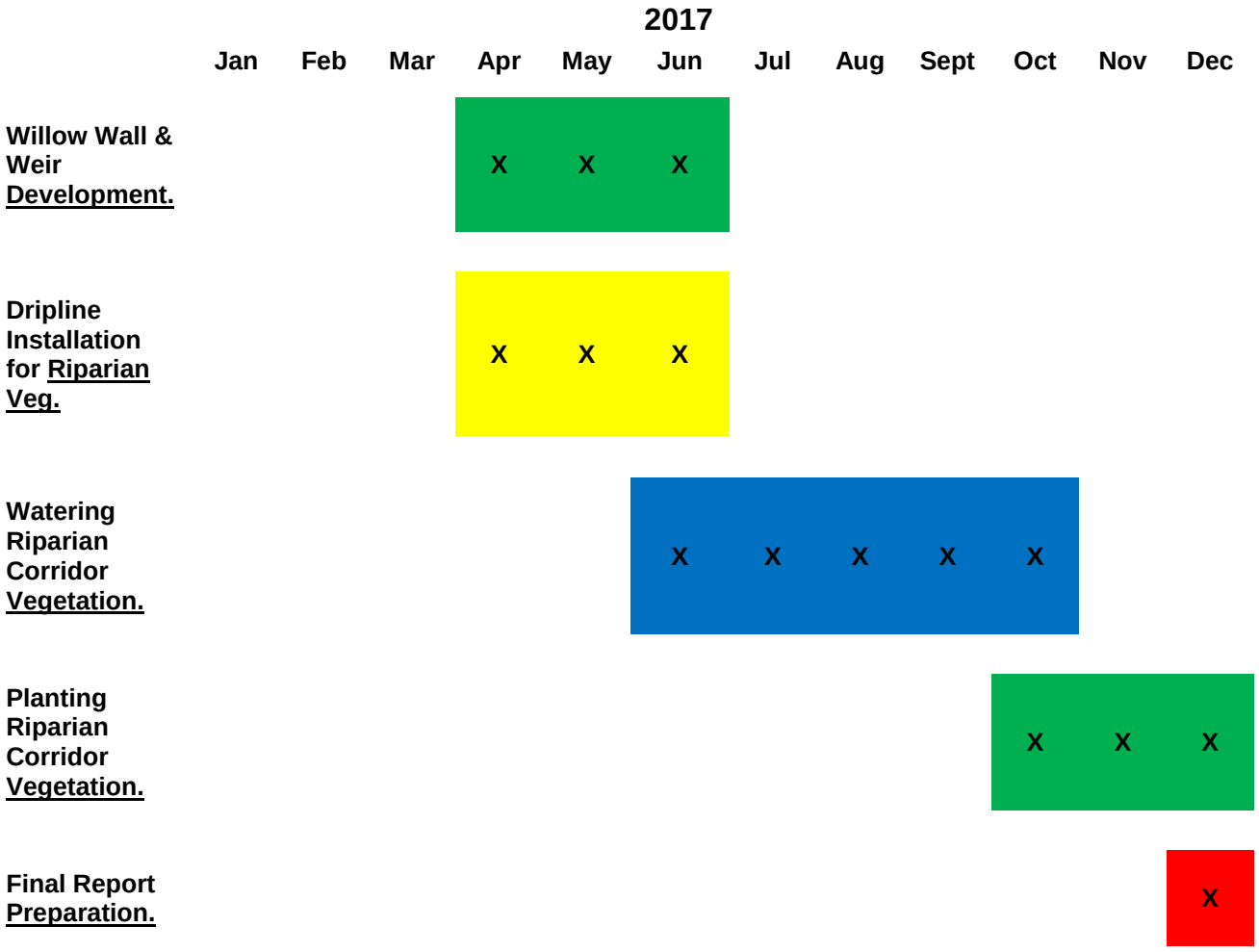
A Detailed Budget has been prepared identifying Personnel Costs, Operating Expenses & heavy equipment, Materials and Supplies, Administrative costs, Requested Amounts, Tribal Share Amounts and Total Project Costs. The Tribe has been implementing this type of work for years, therefore, has honed the Budget to maximize efficiency and minimize non-essential costs.

Mendocino Fish & Game Commission
Estimated Budget for the
Mill Creek Stream Bank Stabilization &
Riparian Corridor Development Project.

PERSONNEL COSTS	Number of Hours	Hourly Rate	TEPA Amount Requested	Amount of In-Kind Tribal Share	Project Total
Level of Staff					
EPA Secretary	100	15	1,500	0	1,500
EPA Restoration Technicians	200	12	2,400	0	2,400
Sub-Total Staff			3,900	0	3,900
Staff Benefits @ 26%			1,014	0	1,014
Subtotal Staff			**8,814**	**0**	**8,814**
Heavy Equipment Support					
Equipment Operator 1 (Backhoe)	50	30	1,500	5,600	7,100
Equipment Operator 2 (Water Truck)	125	30	3,750	10,000	13,750
Subtotal			5,250	0	5,250
Total Personnel Costs			**10,500**	**15,600**	**26,100**
MATERIALS & SUPPLIES	Units	$			
Riparian Vegetation	500	3.25		1,625	1,625
1 1/2" Irrigation Line (100' roll)	20	4.5		90	90
1/2" Irrigation Line (500' roll)	30	30		900	900
1 1/2" x 1/2" Fittings	48	8		384	384
1/4" Drip Line (500' roll)	10	22		220	220
Water (gallons)	500000	0.027		13,500	13,500
Water Pump (electricity)	200	10		2,000	2,000
Equipment Fuel & Maintenance			500	500	1,000
Total Materials & Supplies			***500***	***19,219***	***19,719***
Sub-TOTAL (Pers., Mat. & Supplies.)			**19,814**	**34,819**	**54,633**
Admin. Costs			**1,000**	**1,000**	**2,000**
TOTAL ESTIMATED BUDGET			**$20,814**	**$35,819**	**$56,633**
$ Requested from Mendo. Fish & Game:			**$20,814**		

Schedule of Events.

Each component of the proposed activities has a specific timeframe when the work should be implemented to ensure survival of the planted vegetation and avoidance of contact with surface waters. The Project Biologist and the Restoration Crew will follow the guidelines and specific planting instructions described in the Mill Creek Riparian Corridor Development Plan, developed by the NRD. The chart below highlights primary activities and timeframes.



Roles and Responsibilities.

The components outlined in this proposal will be managed by the Tribal EPA. The overall implementation of the Mill Creek efforts will be conducted in cooperation with the Tribes NRD and the Tribes Roads Department to help ensure successful implementation and completion of the listed activities. Managers to ensure that the overlapping goals and objectives of the Mill Creek Project are achieved as described in the Roles and Responsibilities table below.

QA/QC.

NRD has collected several years of data (cross sectional profiles, an extensive GPS elevation profile, McNeil Gravel Samples and a comprehensive photo-documentation collection) in conjunction with the Mill Creek Stream Restoration Project and the Riparian Corridor Development Project. As such, a monitoring plan is currently in place to monitor tree growth and survival rates in conjunction with Riparian Corridor Development efforts.

In addition, NRD has developed a working relationship with the local schools (Grade through High School) to foster a better understanding of the many roles that the stream systems play in the ecosystem of Round Valley. As such, NRD has worked closely with the schools in a number of ways to help build appreciation for and understanding of the importance of Mill Creek through tree planting field trips, Biological and ecological studies and mentoring independent research projects in order to provide "hands on" participation by the students on the Valleys largest Tribal restoration project (See Item 14). We plan on involving the Schools again for participation in tree planting activities in 2017.

Thank you for your consideration of this proposal!

Literature Cited.

California Salmonid Stream Habitat Restoration Manual, 3rd Ed. Calif. Department of Fish & Wildife. 1998.

Handbook for Developing and Managing Tribal Nonpoint Source Pollution Programs Under Section 319 of the Clean Water Act. U.S. Environmental Protection Agency, 2010.

Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. EPA 840-B-92-002 January 1993.

Mill Creek Riparian Corridor Development Project, Round Valley Indian Tribes, 2014

Anadromous Stream Habitat Typing and Inventory Assessment Report. Round Valley Indian Tribes, 1998 & 2005.

319 Nonpoint Source Assessment Report, Round Valley Indian Tribes, 2013.

Comprehensive Integrated Resource Management Plan (IRMP), Round Valley Indian Tribes, 2010.

SUPPLEMENTAL INFORMATION

Please See Attached Appendices for Additional and Supportive Reference

Appendix A
Before and After Photos of Mill Creek

Picture 1. Mill Creek – *BEFORE* Restoration efforts! (Thrashers corner to right)

Picture 2. Mill Creek – 2 years *AFTER* Restoration! (Thrashers corner to right)

Picture 3. Stream conditions in Phase 2 "Before" Restoration Efforts upstream of Medicine Hill. Note the lack of channel definition and lack of riparian corridor vegetation.

Picture 4. Stream conditions in Phase 2 "*After*" Restoration Efforts upstream of Medicine Hill. Note the Willow Walls planted along the active channel and several young cottonwood sprigs growing above bank-full level. Today some of these trees are 30' tall.

Picture 5. Stream conditions in Phase 5 "*Before*" Restoration efforts. Note two other active channels off to the right.

Picture 6. Stream conditions in Phase 5 "*After*" Restoration efforts. Note the well defined single channel and three year old cottonwood and willow trees growing along the left bank.

Appendix B
Sites identified for Willow Wall / Weir Development

Picture 7. Elgin site 1 – This is the largest of the streambank stabilization sites that will utilize Willow Walls and Willow Weirs to protect the banks and capture/deposit sediments.

Picture 8. Elgin site 2 – Waterflow has gotten behind the vegetation last winter and seems to trying to establish itself here. Development of deflectors at the upstream end and a series of weirs downstream will help direct the flow back to the left and naturally deposit materials to the right.

Picture 9. "Crawford Crossing" Willow Walls to be planted along inside bend (right side) to prevent stream bank erosion and serve as a vegetated buffer during high water flow events at this floodplain entry point site.

Picture 10. "Swensons Bank" - Willow Wall site to be planted at base of stream bank slope.

Appendix C
Supplemental Photos of Riparian Corridor Development along Mill Creek

Picture 11. A watering "Cell" can covers a length of ~500' and width of ~ 125' outward from the stream bank and contain hundreds of planted trees, shrubs or Willow Walls.

Picture 12. Example of Willow Wall planted early in the spring as it looked later in the Fall, note new vigorous growth!

Picture 13. The Tribes Greenhouse stocked with a variety of Cottonwoods, Alders, Willows, Buckeyes, et al.

Picture 14. School kids planting vegetation downstream of Medicine Hill following channel development efforts associated with stream restoration. School involvement for education and planting activities has been an annual goal since the Projects inception in 2000!