



NORTH COAST RESOURCE PARTNERSHIP 2018/19 IRWM Project Application

The North Coast Resource Partnership (NCRP) 2018/19 Project Application Instructions and additional information can be found at the NCRP 2018/19 Project Solicitation webpage (<https://northcoastresourcepartnership.org/proposition-1-irwm-round-1-implementation-funding-solicitation/>). Please fill out grey text boxes and select all the check boxes that apply to the project. Application responses should be clear, brief and succinct.

Project Applications will be accepted until 5:00 pm, March 8, 2019 March 15, 2019. It is important to save the application file with a distinct file name that references the project name. When the application is complete, please email to kgledhill@westcoastwatershed.com

If you have questions, need additional information or proposal development assistance please contact:

- Katherine Gledhill at kgledhill@westcoastwatershed.com or 707.795.1235
- Tribal Projects: Sherri Norris, NCRP Tribal Coordinator at sherri@cieaweb.org or 510.848.2043

Project Name: South Fork Trinity River - Spring Run Chinook Salmon Restoration Project - Phase II

A. ORGANIZATION INFORMATION

- 1. Organization Name: Watershed Research and Training Center**
- 2. Contact Name/Title**
Name: Joshua Smith
Title: Watershed and Fisheries Restoration Program Director
Email: josh@thewatershedcenter.com
Phone Number (include area code): 530-515-1364
- 3. Organization Address (City, County, State, Zip Code):**
98 Clinic Ave, Hayfork, Trinity County, CA, 96041

4. Organization Type

- ☐ Public agency
☒ Non-profit organization
☐ Public utility
☐ Federally recognized Indian Tribe
☐ California State Indian Tribe listed on the Native American Heritage Commission's California Tribal Consultation List
☐ Mutual water company
☐ Other:

5. Authorized Representative (if different from the contact name)

Name: Nick Goulette
Title: Executive Director
Email: nick@thewatershedcenter.com
Phone Number (include area code): 530-628-4206

6. Has the organization implemented similar projects in the past? ☒ yes ☐ no

Briefly describe these previous projects.

The Watershed Research and Training Center (WRTC) and Yurok Tribe implemented a similar project approximately 20 miles downstream in 2018; The project involved planning, design, permitting, and implementation (placement of nearly 300 trees into the South Fork Trinity River (SFTR) by helicopter) to restore spring run chinook habitat. We anticipate being more efficient in planning and design on this second phase of the project with the experience recently acquired working on the first phase.

7. List all projects the organization is submitting to the North Coast Resource Partnership for the 2018/19 Project Solicitation in order of priority.

As the lead entity, this is the only project proposal that the WRTC is submitting to NCRP.

8. Organization Information Notes:

The Watershed Research and Training Center (WRTC) is a community-based non-profit organization in far northern California. The WRTC's mission is to promote a healthy watershed and a healthy community through research, training and education. Since 1993, the WRTC has been working to revitalize the economy of Hayfork, CA, by creating local restoration jobs and a culture of land stewardship. Website: <http://www.thewatershedcenter.com/>

Like many timber towns, Hayfork's economy had been based on natural resource extraction. The geopolitical situation (Hayfork is surrounded by the Trinity National Forest) made the community vulnerable to public lands management changes. In 1996, when Hayfork's mill closed as a result of changes in forest management, 40% of the payroll in the community was lost.

The WRTC was formed in order to rebuild the economy based on an ethic of land stewardship and restoration. To those ends, the organization has re-trained woods workers, innovated forest restoration and wood utilization techniques, promoted the responsible use of prescribed fire, hosted youth and community education programs, developed watershed monitoring and community engagement initiatives in the SFTR watershed, helped lead local collaborative efforts, and is working with partners to develop and implement landscape-scale restoration strategies across the Klamath-Siskiyou bioregion. Our Watershed and Fisheries Program is a marriage of science and culture. We use the best available science in learning all we can about the current condition of the watershed, using what we've learned to inform our strategies. Over time, we will continue to study the watershed and to use this information to define appropriate restoration goals with the

intention of improving the watershed's function and resilience. Meanwhile, we also believe that the land provides the identity of our community and the basis for our local culture. We believe that our program has the potential to re-connect the local communities to their local rivers and foster stewardship values in the people. The SFTR, its problems and its potential, can be a catalyst which connects our community's wellbeing with the health of our ecosystems. We hope that science can lead our intellects in the right direction, while honoring and nurturing culture can reconnect our hearts.

Over the past ten years, the WRTC has been laying the foundation for a robust Watershed Restoration Program focused primarily on the SFTR and its tributaries. We've built partnerships with agencies, organizations, and individual landowners working in the SFTR watershed and throughout the Klamath Basin. Additionally, we have created watershed assessments, watershed management plans, and performed monitoring and restoration work. Through these activities we've identified some specific opportunities that we hope to carry to implementation in the near future. One of our primary initiatives is centered on protecting one of the last remaining wild spring-run Chinook Salmon runs in California. We are presently partnering with the Yurok Tribe, Humboldt State University, the USFS, and CA Department of Fish and Game to learn more about these dwindling spring Chinook populations. Our four priorities in this initiative include facilitating; (1) basic monitoring in the SFTR, Hayfork Creek and their tributaries, (2) a Limiting Factors Analysis for the spring run Chinook, (3) a Genetics Study, (4) and educating local communities of the spring-run Chinook Salmon's precarious status. http://www.thewatershedcenter.com/?page_id=645

B. ELIGIBILITY

1. North Coast Resource Partnership and North Coast IRWM Objectives

GOAL 1: INTRAREGIONAL COOPERATION & ADAPTIVE MANAGEMENT

- ☒ Objective 1 - Respect local autonomy and local knowledge in Plan and project development and implementation
- ☒ Objective 2 - Provide an ongoing framework for inclusive, efficient intraregional cooperation and effective, accountable NCIRWMP project implementation
- ☒ Objective 3 - Integrate Traditional Ecological Knowledge in collaboration with Tribes to incorporate these practices into North Coast Projects and Plans

GOAL 2: ECONOMIC VITALITY

- ☒ Objective 4 - Ensure that economically disadvantaged communities are supported and that project implementation enhances the economic vitality of disadvantaged communities by improving built and natural infrastructure systems and promoting adequate housing
- ☒ Objective 5 - Conserve and improve the economic benefits of North Coast Region working landscapes and natural areas

GOAL 3: ECOSYSTEM CONSERVATION AND ENHANCEMENT

- ☒ Objective 6 – Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity
- ☒ Objective 7 - Enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes

GOAL 4: BENEFICIAL USES OF WATER

- ☐ Objective 8 - Ensure water supply reliability and quality for municipal, domestic, agricultural, Tribal, and recreational uses while minimizing impacts to sensitive resources

- ☐ Objective 9 - Improve drinking water quality and water related infrastructure to protect public health, with a focus on economically disadvantaged communities
- ☒ Objective 10 - Protect groundwater resources from over-drafting and contamination

GOAL 5: CLIMATE ADAPTATION & ENERGY INDEPENDENCE

- ☐ Objective 11 - Address climate change effects, impacts, vulnerabilities, and strategies for local and regional sectors to improve air and water quality and promote public health
- ☐ Objective 12 - Promote local energy independence, water/ energy use efficiency, GHG emission reduction, and jobs creation

GOAL 6: PUBLIC SAFETY

- ☐ Objective 13 - Improve flood protection and reduce flood risk in support of public safety

2. Does the project have a minimum 15-year useful life?

☒ yes ☐ no

If no, explain how it is consistent with Government Code 16727.

3. Other Eligibility Requirements and Documentation

CALIFORNIA GROUNDWATER MANAGEMENT SUSTAINABILITY COMPLIANCE

- a) Does the project that directly affect groundwater levels or quality?
☐ yes ☒ no
- b) If Yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?
☐ yes ☐ no

CASGEM COMPLIANCE

- a) Does the project overlie a medium or high groundwater basin as prioritized by DWR?
☐ yes ☒ no
- b) If Yes, list the groundwater basin and CASGEM priority:
- c) If Yes, please specify the name of the organization that is the designated monitoring entity:
- d) If there is no monitoring entity, please indicate whether the project is wholly located in an economically disadvantaged community.
☒ yes ☐ no

URBAN WATER MANAGEMENT PLAN

- a) Is the organization required to file an Urban Water Management Plan (UWMP)?
☐ yes ☒ no
- b) If Yes, list the date the UWMP was approved by DWR:
- c) Is the UWMP in compliance with AB 1420 requirements?
☐ yes ☐ no
- d) Does the urban water supplier meet the water meter requirements of CWC 525?
☐ yes ☐ no
- c) If Yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

☐ yes ☐ no

AGRICULTURAL WATER MANAGEMENT PLAN

- a) Is the organization – or any organization that will receive funding from the project – required to file an Agricultural Water Management Plan (AWMP)?
☐ yes ☒ no
- b) If Yes, list date the AWMP was approved by DWR:
- c) Does the agricultural water supplier(s) meet the requirements in CWC Part 2.55 Division 6?
☐ yes ☐ no

SURFACE WATER DIVERSION REPORTS

- a) Is the organization required to file surface water diversion reports per the requirements in CWC Part 5.1 Division 2?
☐ yes ☒ no
- d) If Yes, will the organization be able to provide SWRCB verification documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?
☐ yes ☐ no

STORM WATER MANAGEMENT PLAN

- a) Is the project a stormwater and/or dry weather runoff capture project?
☐ yes ☒ no
- b) If yes, does the project benefit a Disadvantaged Community with a population of 20,000 or less?
☐ yes ☐ no
- e) If No, will the organization be able to provide documentation that the project is included in a Stormwater Resource Plan that has been incorporated into the North Coast IRWM Plan, should the project be selected as a Priority Project?
☐ yes ☐ no

C. GENERAL PROJECT INFORMATION

1. Project Name: South Fork Trinity River - Spring Run Chinook Restoration Project

2. Eligible Project Type under 2018/19 IRWM Grant Solicitation

- ☐ Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
- ☐ Water-use efficiency and water conservation
- ☒ Local and regional surface and underground water storage, including groundwater aquifer cleanup or recharge projects
- ☐ Regional water conveyance facilities that improve integration of separate water systems
- ☒ Watershed protection, restoration, and management projects, including projects that reduce the risk of wildfire or improve water supply reliability
- ☐ Stormwater resource management projects to reduce, manage, treat, or capture rainwater or stormwater
- ☐ Stormwater resource management projects that provide multiple benefits such as water quality, water supply, flood control, or open space

- ☐ Decision support tools that evaluate the benefits and costs of multi-benefit stormwater projects
- ☐ Stormwater resource management projects to implement a stormwater resource plan
- ☐ Conjunctive use of surface and groundwater storage facilities
- ☐ Decision support tools to model regional water management strategies to account for climate change and other changes in regional demand and supply projections
- ☐ Improvement of water quality, including drinking water treatment and distribution, groundwater and aquifer remediation, matching water quality to water use, wastewater treatment, water pollution prevention, and management of urban and agricultural runoff
- ☐ Regional projects or programs as defined by the IRWM Planning Act (Water Code §10537)
- ☒ Other: Ecosystem and fisheries restoration and protection

3. Project Abstract

The project intends to increase the habitat quality and ecological conditions for spring-run Chinook Salmon through the placement of whole trees into the channel of the upper South Fork Trinity River.

4. Project Description

The South Fork Trinity River (SFTR) is the largest un-dammed river in the State of California, federally designated as a wild and scenic river, and a keystone watershed within the Klamath River basin supporting one of the last remaining populations of wild spring-run Chinook Salmon. This once abundant fishery is in peril, and the spring-run Chinook are nearing the brink of extirpation from this unique stronghold. Ecosystem restoration action is urgent and this proposal seeks the necessary funding to support a reach-scale restoration project to improve watershed health in response to climate change and past land use practices.

The SFTR is a ninety-two mile long southern exposed river, flowing from the headwaters in the Yollo Bolly mountain wilderness to the confluence with the mainstem Trinity River near Salyer located in both Trinity and Humboldt Counties. The SFTR watershed has been listed as a sediment impaired waterbody in California's 1995 CWA 303(d) list, adopted by the State of California North Coast Regional Water Quality Control Board (NCRWQCB). This sediment impairment has resulted in the non-attainment of designated beneficial uses, primarily salmonid habitat. In 1998 the NCRWQCB also formally recognized that temperature is a limiting factor for fish populations in the SFTR and added temperature impairment to its 303(d) list.

The project objective is to increase wild spring-run Chinook populations. This would be accomplished utilizing a process based in-stream restoration technique targeted at improving adult and juvenile salmonid habitats, restoring reach-scale physical geomorphic processes, and improving thermal refugia areas. Instream whole tree placement is the primary method for achieving the above goals. The project would utilize two unique techniques to place whole trees in the SFTR. The primary method would use a helicopter to place whole trees at strategic locations throughout a fifteen mile reach of the upper SFTR. The whole trees would be flown from upslope timber harvesting zones and placed in designed configurations to: interact with hydraulic forces to induce scour pools, create habitat complexity, provide instream cover, and promote floodplain connectivity. The second method would utilize a road based mobile cable yarding system to tip whole trees (leaving the root wads intact) that are too large to be carried by helicopter, into the river channel. These tipped trees would act as key pieces in the river channel.

Large wood is a critical element and driver for the interplay between ecosystem health, in-stream habitat complexity, and geomorphic processes in the formation of deep pool habitats for cool water refugia. Strategic placement of whole trees will help provide the necessary reach-scale thermal resiliency for wild spring-run Chinook to migrate through and hold in the SFTR, as well as promote the habitat complexity required by juvenile spring Chinook for successful rearing and emigration.

5. Specific Project Goals/Objectives

Goal 1: Restore and Enhance South Fork Trinity River Spring Run Chinook Habitats within the Project Reach

Goal 1 Objective: Improve Adult Holding and Migration Habitat Conditions

Goal 1 Objective: Improve Juvenile Rearing Habitat Conditions

Goal 1 Objective: Improve Adult Spawning Habitat Conditions

Goal 1 Objective: Improve Ecosystem Function for In-Stream and Floodplain Habitats

Goal 2: Restore and Enhance South Fork Trinity River Geomorphic Processes within the Project Reach

Goal 2 Objective: Increase In-channel Complexity and Floodplain Connectivity

Goal 2 Objective: Increase Pool Frequency, Residual Depths, and Resiliency

Goal 2 Objective: Increase Hydraulic and Hydrogeomorphic Function

Goal 2 Objective: Increase Stream Bed Topographic Heterogeneity and Sustainability

Goal 3: Restore and Enhance South Fork Trinity River Water Quality within the Project Reach

Goal 3 Objective: Improve Water Quality Conditions for Spring Run Chinook

Goal 3 Objective: Increase the Spatial and Temporal Cold Water Retention

Goal 3 Objective: Increase the Quality of In-Channel Thermal Refugia Areas

Goal 3 Objective: Increase Groundwater Hyporheic Exchange Zones

Additional Goals & Objectives (List)

The overall fundamental objective and primary goals of the project is to restore the wild spring-run Chinook salmon in the South Fork Trinity River before extirpation (local extinction) becomes a reality.

6. Describe how the project addresses the North Coast Resource Partnership and North Coast IRWM Plan Goals and Objectives selected.

This SFTR project will result in restoration of cold water refugia for adult holding and juvenile rearing habitats for native salmonids by reintroducing large wood elements and whole trees. Large Wood is necessary for ecological and geomorphic function and process-based maintenance of deep pool salmonid habitats with complex cover, retention/sorting of spawning gravels, floodplain connectivity, hyporheic exchange, and cold water resiliency. These actions are necessary to achieve the TMDLs and attain temperature, dissolved oxygen, biostimulatory substances, and toxicity to meet water quality standards, including the protection and restoration of the beneficial uses of water in the SFTR.

7. Describe the need for the project.

Historically, the SFTR in the Klamath River watershed has been a stronghold for wild spring-run Chinook salmon (TCRCD Report, 2003). The spring Chinook salmon populations were the most abundant anadromous runs in the SFTR basin (PWA, 1994) due largely to the high quality of anadromous habitat in the SFTR and its tributaries (USFS, 1996). This robust population was instrumental in the recovery and recolonization of the main stem of the Trinity River after its populations were devastated by intense mining in the late 19th and early 20th century (Kinziger et al, 2008; USFS, 1999). The SFTR is the largest undammed river in the state of California (Foster Wheeler, 2001; Truman et al 1996). In recent decades there has been a substantial decline in the numbers of fish returning to the SFTR and its tributaries (USFS, 1996). Spring Chinook populations within the SFTR have declined precipitously over the last 45 years, falling from 11,604 in 1964 to an average of less than 200 per year.

8. List the impaired water bodies (303d listing) that the project benefits:

The project will benefit the following 303(d) listed water bodies: South Fork Trinity River. The designated beneficial uses that are not fully supported by this watershed include: cold freshwater habitat (COLD); rare, threatened, and endangered species (RARE); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development of fish (SPWN); commercial and sport fishing (COMM); Native American cultural use and subsistence fishing (CUL, FISH)

9. Will this project mitigate an existing or potential Cease and Desist Order or other regulatory compliance enforcement action? ☐ yes ☒ no

If so, please describe?

10. Describe the population served by this project.

Trinity County is sparsely populated with a population of around 13,000 people. Population density is generally light with an average density of 2 persons per 2/km² (4/mi²). The median income for a family was \$34,343. The communities of Hayfork and Hyampom are rural and have very high unemployment rates. Hyampom has less than 300 residents. Historically these populations have been subsistence hunters and fishermen and the lack of fish remains a problem both socially and economically.

11. Does the project provide direct water-related benefits to a project area comprised of Disadvantaged Communities or Economically Distressed Communities?

- ☒ Entirely
- ☐ Partially
- ☐ No

List the Disadvantaged Community(s) (DAC)

Hyampom and Hayfork

12. Does the project provide direct water-related benefits to a project area comprised of Severely Disadvantaged Communities (SDAC)?

- ☐ Entirely
- ☐ Partially
- ☒ No

List the Severely Disadvantaged Community(s)

13. Does the project provide direct water-related benefits to a Tribe or Tribes?

- ☐ Entirely
- ☐ Partially
- ☒ No

List the Tribal Community(s)

If yes, please provide evidence of support from each Tribe listed as receiving these benefits.

14. If the project provides benefits to a DAC, EDA or Tribe, explain the water-related need of the DAC, EDA or Tribe and how the project will address the described need.

The project will provide jobs to the DAC's of Hayfork, Hyampom and Forest Glen as well as support for one of the only place based organizations in the entire watershed, the Watershed Center. The Watershed Center as an organization provides jobs, works on fuels/fire/and forestry projects for

community wildfire protection and ecosystem resilience, works on water resilience for rivers and for communities, and provides youth and job training programs for this disadvantaged community. This project will provide essential support for the water and ecosystem resilience programs in the Watershed Center.

- 15. Does the project address and/or adapt to the effects of climate change? Does the project address the climate change vulnerabilities in the North Coast region?** ☒ yes ☐ no

If yes, please explain.

The project is process based rather than hard engineering (no bolts, cables, etc.) which means that the river can and will move the wood structures as needed. We are kick starting natural processes which will build climate resilience by providing habitat cover, creating geomorphic interactions which also provide groundwater, habitat, and temp improvements. Furthermore, as one of the last remaining bastions of spring chinook salmon these fish hold genetic attributes needing to be protected.

- 16. Describe how the project contributes to regional water self-reliance.**

If spring chinook salmon populations rebound due to the project, there is hope that the salmon may not be listed as an endangered species. If the ESA listing is not needed, the community would benefit because it would not have the economic restrictions of caring for an endangered species to burden it; similar to how the spotted owl management has greatly disadvantaged these communities economically.

- 17. Describe how the project benefits salmonids, other endangered/threatened species and sensitive habitats.**

The project will be specifically designed to help salmonids including Spring Chinook salmon, recently petitioned to be listed as endangered. We also expect the project to help other threatened species such as foothill yellow legged frogs and western pond turtles by creating instream habitat and cover. Threatened Coho salmon could also be direct beneficiaries of the project.

- 18. Describe local and/or political support for this project.**

Local communities understand the plight of the salmon. Many residents and landowners recall the huge runs of the past, would like to see the runs return, and have pledged support. We've consistently held public meetings in Hyampom about Spring Chinook salmon including their unique genetics, vulnerability, and in recent years these habitat restoration projects. If the species becomes listed under the ESA it will have huge social, political, economic, and environmental consequences.

- 19. List all collaborating partners and agencies and nature of collaboration.**

The Yurok Tribe (YT): The YT's interest in the Spring Chinook salmon of the Klamath River dates back since "Time Immemorial"; US Forest Service (USFS): contributing technical support from fish biologists and hydrologists (both Shasta-Trinity and Six Rivers National Forests); California Department of Fish and Wildlife (CDFW): organizes the major Spring Chinook monitoring event on the SFTR and is assisting in associated temperature monitoring; Salmon River Restoration Council (SRRC): The SRRC has contributed the majority of support to raising awareness and best science about the Klamath River's imperiled salmon.

- 20. Is this project part or a phase of a larger project?** ☒ yes ☐ no

Are there similar efforts being made by other groups? ☒ yes ☐ no

If so, please describe?

The Watershed Center and Yurok Tribe have been trying to build habitat in the SFTR. There are no other organizations doing instream habitat restoration in the SFTR, however the Trinity County RCD and the USFS have been engaged in nearly three decades of upslope sediment mitigation work in the SFTR which is leading to major improvements in instream river conditions.

21. Describe the kind of notification, outreach and collaboration that has been done with the County(ies) and/or Tribes within the proposed project impact area, including the source and receiving watersheds, if applicable.

Yurok Tribe is an official partner on this project and will provide technical planning, design, and implementation. Numerous landowners have been notified and have given provisional permission to access the river via their properties including: John Ostrat, Mike Flint, Jackie Kohl, Neil Palmer, David (She'om) Rose, Lindy McCaslin, and George Newsome. The USFS has cooperated with coordination and discussions for performing restoration on their land.

22. Describe how the project provides a benefit that meets at least one of the Statewide Priorities as defined in the 2018 IRWM Grant Program Guidelines and Tribal priorities as defined by the NCRP?

Protect and Restore Important Ecosystems. This project would improve the aquatic habitat of a 15 mile section of the upper SFTR through the addition of whole trees with rootwads intact. This process based restoration project simply adds necessary ingredients to promote a healthy functional river ecosystem. This section of the upper SFTR was chosen based on proximity to the known upper extent for spring-run Chinook salmon spawning and rearing in the SFTR. This section of the river lacks sufficient quantities of large wood. Increasing the amount of large wood in the channel of the SFTR would help restore the habitat conditions and natural processes that spring-run Chinook salmon have evolved with over millennia.

23. Project Information Notes:

Declines in spring Chinook salmon in the SFTR are attributed to both natural and anthropogenic disturbances. In 1964, LaFaunce estimated that 11,604 adult spring chinook salmon were holding in the SFTR (CDFG 1967) while over the past decade the run size has been averaging around 200 fish (South Fork Trinity River Spring Chinook Subgroup, Trinity River Restoration Program, Fish Work Group, 2013). A history of timber extraction and associated infrastructure development coupled with a huge precipitation event in 1964 caused substantial sediment to be mobilized to and deposited in the SFTR and its tributaries (US Forest Service, Department of Agriculture 1996; Trinity County Resource Conservation District, 2003). The US Geologic Survey website states that the maximum discharge in the history of record at the Hyampom gage was 75,000 cubic feet per second on Feb. 17, 1986 (though the 1964 flood was estimated at 88,000 ft³/s on basis of a USGS flood-routing study). This flood event is often cited as the major factor in the decline in spring Chinook: "the effects of the 1964 flood and erosion coming from poorly managed lands in the western and central portion of the SFTR basin led to destruction of valuable spawning, rearing and holding habitat, and resulted in the long term reduction in the numbers of anadromous fish" (Pacific Watershed Associates; 1994). "In particular, available data and anecdotal observations indicate that, following the December 1964 flood, numerous landslides and debris flows delivered considerable quantities of sediment to the stream channel in some reaches, resulting in formation of river deltas in some locations, channel aggradation and widening, decreased depths and numbers of pools, decreased numbers of fish, increases in fine sediments in the bed material, and, apparently, increases in temperatures associated with decreased depths and loss of riparian canopy" (United States Environmental Protection Agency Region 9, 1998). The overall quantity of sediment delivery to the stream has decreased since then, but chronic inputs of sediment from roads as well as episodic inputs from washouts and mass wasting continues (United States

Environmental Protection Agency Region 9, 1998). While the impacts of the flood were dramatic, there is evidence that the impacts from disturbances were temporary and that recovery is possible.

An assessment done in 1978 (SCDWR 1979) showed that timber harvest was wide spread throughout the South Fork watersheds. The assessment suggests that clear cuts and other more intensive harvest methods were employed without regard for the potential instability of soils. Fifty-two percent of the watershed (1280km²) was logged up to 1977, of the 52 %, 4.5 % (110 km²) was patch clear cut by USFS, and of the remaining 47.5 %, approximately 8 % was seed-tree clear cut on private land, and the rest selective cut on public land. Private timberlands less than 70 % cut are not assessed so the overall impact may have been higher (Trinity County Resource Conservation District, 2003).

It is suggested that road construction associated with timber harvesting was the largest human impact on the watersheds (SCDWR 1979). A more recent review done on the erosional features in the Lower South Fork Trinity has shown that about one third of the erosional features appear to have been related to human activities within the watershed. Management related slides account for 18% of total sediment delivery, while 82% are attributed to natural mass wasting (Catalico, 2011).

In 1982 (SCDWR, 1982) instability hotspots were identified in the South Fork watersheds. Many individual slides on unnamed tributaries were indicated in the areas of highest instability. The Department of Conservation classified the entire SFTR watershed as 'severe' and 'very severe' in terms of overall soil erodibility (SCDWR, 1982). The report indicated a general increase in hazard from east to west and from south to north, with very severe hazards occurring along South Fork Mountain, along the inner gorge of the SFTR from Forest Glen to the mouth, and in the Grouse and Madden Creek watersheds (SCDWR, 1982). Timber harvest activities and associated road building are particularly worrisome in the 'severe and very severe' soil instability zones. Also, there is widespread support to help Spring Chinook and many people would support projects to help prevent the species from becoming listed as Endangered under the ESA.

After nearly two decades of road upgrade and decommission work by the TCRCD and USFS, the SFTR is seeing some recovery. Initial sediment monitoring results show that sediment is routing through the system (Cook and Dresser, SRNF, pers. comm.), however is the timeframe of natural recovery occurring fast enough to save a species on the brink of extinction?

D. PROJECT LOCATION

1. Describe the location of the project

Geographical Information

South Fork Trinity River - From a location just downstream of Cave Creek at the downstream extent (40°22'51.65"N / 123°20'35.67"W) to a location just upstream of its confluence with Silver Creek on its upstream extent (40°18'34.61"N/123°14'46.50"W)

2. Site Address (if relevant):

South Fork Trinity River (SFTR) - Closest Town: Forest Glen (Highway 36)

3. Does the applicant have legal access rights, easements, or other access capabilities to the property to implement the project?

☒ Yes If yes, please describe

☐ No If No, please provide a clear and concise narrative with a schedule, to obtain necessary access.

☐ NA If NA, please describe why physical access to a property is not needed.

The majority of the project is on US Forest Service managed land. We have been working with the Ranger on developing this project. We have initiated discussions with the private landowners nearby and most have expressed support for development of the project. We have not yet acquired legal easements for the private lands but will do so if determined necessary in the planning/design process.

4. Project Location Notes:

The project is located on a wild segment of river in the upper South Fork Trinity River. It is an area that was devastated by the 1964 flood but that now supports a decent amount of spring chinook. It is difficult to access but there is a good foot trail and part of it is accessible with permission from the USFS by UTV or small jeep. It is primarily upstream of Forest Glen on Highway 36.

E. PROJECT TASKS, BUDGET AND SCHEDULE

- 1. Projected Project Start Date:** 6/1/19
Anticipated Project End Date: 4/1/23

2. Will CEQA be completed within 6 months of Final Award?

- ☐ Yes State Clearinghouse Number:
☒ NA, Project is exempt from CEQA
☐ NA, Not a Project under CEQA
☐ NA, Project benefits entirely to DAC, EDA or Tribe, or is a Tribal local sponsor. [Projects providing a water-related benefit entirely to DACs, EDAs, or Tribes, or projects implemented by Tribes are exempt from this requirement].
☐ No

3. Please complete the CEQA Information Table below

Indicate which CEQA steps are currently complete and for those that are not complete, provide the estimated date for completion.

CEQA STEP	COMPLETE? (y/n)	ESTIMATED DATE TO COMPLETE
Initial Study	n	1/1/20
Notice & invitation to consult sent to Tribes per AB52		
Notice of Preparation		
Draft EIR/MND/ND		
Public Review		
Final EIR/MND/ND		
Adoption of Final EIR/MND/ND		
Notice of Determination		
N/A - not a CEQA Project	N/A	

If additional explanation or justification of the timeline is needed or why the project does not require CEQA, please describe.

The Project would utilize the Small Habitat Restoration Project (California Code of Regulations title 14, section 15333) Categorical Exemption

4. Will all permits necessary to begin construction be acquired within 6 months of Final Award?

☐ Yes

☒ NA, Project benefits entirely to DAC, EDA, Tribe, or is a Tribal local sponsor

☐ No

5. PERMIT ACQUISITION PLAN

Type of Permit	Permitting Agency	Date Acquired or Anticipated
NOE 401	NCRWQCB	1/1/21
BO	NOAA	1/1/21
CD 1653	CDFW	1/1/21
NWP 27	ACOE	1/1/21
THP	CALFIRE	1/1/21

For permits not acquired: describe actions taken to date and issues that may delay acquisition of permit.

We recently completed the process described in question 5 above. There is a lot of planning to do in order to have all of the locations, designs, and stipulations covered before filing these permits. However, once all necessary data is collected, the permit process is reasonably quick for a restoration project like this. The first steps are to work closely with Water Board, Fish and Wildlife and CALFIRE staff while developing the permits and the process unfolds nicely from there.

6. Describe the financial need for the project.

Currently this grant is the best financial resources available for this type of in-stream restoration implementation on the South Fork Trinity River. Trinity River Restoration Program is currently unable to fund "watershed" projects like this in tributaries to the mainstem Trinity River. We have applied for CDFW funds for this project but its likely we'll need matching funds to be able to implement this project.

7. Is the project budget scalable? ☒ yes ☐ no

Describe how a scaled budget would impact the overall project.

Yes. This project is one of the most scalable implementation actions in restoration. Depending on budget increases or constraints, the project can scaled up or down with financial resources. 300 placed trees is the target, less trees can be placed within the 15 mile reach if funding is reduced.

8. Describe the basis for the costs used to derive the project budget according to each budget category.

The basis of costs used on this proposal were derived from direct experience designing and implementing a similar project nearby. These costs are extremely accurate and we don't anticipate many changes to this budget. That said, the project is scalable per tree. If it needs to be scaled down, we can simply adjust the number of trees accordingly. 300 is about the maximum from a permitting perspective so is thus the maximum budget.

9. Provide a narrative on cost considerations including alternative project costs.

See detailed budget narrative in supporting documents.

"WRTC_SFTR_Heli_II_NCRP_2019_DetailedCostEstimate_Final"

10. List the sources of non-state matching funds, amounts and indicate their status.

US Forest Service - \$20,000 for the USFS Ranger, fish biologist, hydrologist, wildlife biologist, and archaeologist to write appropriate NEPA documents for this project. This is similar to the costs required last time (2018) and the Ranger has indicated support for this project.

Bureau of Reclamation - \$35,934 from the Trinity River Restoration Program for biologic, physical, and temperature monitoring on the South Fork Trinity River in association with these helicopter wood loading projects. Secured.

Yurok Tribe - \$27,000 for survey equipment that will be used on the project including multiple RTK units (\$2,000/wk rental x 3 wks = \$12,000), a DJIM210 RTK UAS with thermal and high resolution camera (\$5,000/wk rental x 3 wks = \$15,000). Essentially this is in place of a \$30,000 LiDAR flight.

Bureau of Reclamation - Furthermore, we have not yet applied for this but we are anticipating applying for funding from the Trinity River Restoration Program for about \$200,000 for this project as direct match for monitoring and construction purposes.

11. List the sources and amount of state matching funds.

N/A

12. Cost Share Waiver Requested (DAC or EDA)? ☒ yes ☐ no

Cost Share Waiver Justification: Describe what percentage of the proposed project area encompasses a DAC/EDA, how the community meets the definition of a DAC/EDA, and the water-related need of the DAC/EDA that the project addresses. In order to receive a cost share waiver, the applicant must demonstrate that the project will provide benefits that address a water-related need of a DAC/EDA. The project is located in the South Fork Trinity River watershed which is entirely located within an extremely disadvantaged community.

13. Major Tasks, Schedule and Budget for NCRP 2018 IRWM Project Solicitation

Please complete MS Excel table available at <https://northcoastresourcepartnership.org/proposition-1-irwm-round-1-implementation-funding-solicitation/>; see instructions for submitting the required excel document with the application materials.

14. Project Tasks, Budget and Schedule Notes:

The project is broken into four Categories: A) Direct Project Administration; B) Land Purchase/Easement; C) Planning/Design/Engineering/Environmental Documentation; D) Construction/Implementation. The project tasks include:

- A1 - Administration - \$64,349
- A2 - Monitoring Plan - \$3,721
- A3 - Labor Compliance Program - \$5,952
- A4 - Reporting - \$19,254
- B - Not being used - N/A
- C1-C6 = \$33,476.00
- C1 - 90% Design Development
- C2 - Survey
- C3 - Geomorphic investigation
- C4 - Biologic investigation

C5 - Forestry investigation
C6 - Final Design/plans
C7-C8 = \$33,476.00
C7 - CEQA
C8 - NEPA
C9 - Permit Development = \$27,016.00
D1 - Construction contracting = \$22,252.00
D2 - Site preparation = \$22,273.00
D3 - Project construction: Tree harvest = \$241,764.00
D4 - Project construction: Tree tipping/yarding = \$93,800.00
D5 - Project construction: Tree placement = \$410,680.00
D6 - Project construction management: Construction project close out, inspection, and demobilization. = \$45,221.00
D7 - Project performance monitoring = \$57,606.00
D8 - Construction administration = \$7,228.00

Project Timeline (Starting June of 2019 through approximately and ending near March of 2023):

A1-A4: Throughout the Performance Period - Fundamental task that will occur throughout the project and all stages to document progress. Initial step is for WRTC to sub-award/contracts for technical assistance, planning, and design. Additional sub-contracts include timber supply, tree harvesting, transportation, and Implementation.

Note: another key step that will happen outside of this proposal is: Public Outreach and Education - This task is a vital component to the project's success. The plan will be to strategically reach out to private riverine landowners, general community, and public agencies (USFS) to bring awareness regarding the spring run Chinook salmon and gain support for project benefits and scientific justification.

C1: Develop 90% designs will occur in 2019-2021.

C2-C5: Survey, geomorphic, biological, forestry investigations will occur from 2019-2021.

C6: Final designs, design analysis, hydraulic modeling, large wood force calculations, construction drawings, and design report will be developed between 2020-2023.

C7-C9: Environmental Documentation and permitting will be initiated when designs are confidently finalized but will be completed in earnest once final designs are complete. The WRTC and the Yurok Tribe have already begun initial discussions with permit agencies and landowners.

D1: The construction contracting process will begin as soon as the grant is awarded, but final contracts will not be signed until the final designs, environmental compliance and permits are complete.

D2: Technical Coordination/Oversight/Management task will begin several weeks prior to when the field crews are on the ground and continue through wood placement. The technical team will layout and prepare for each of the designed large wood sites to organize field crews for harvesting operation.

D3-D6: Tree harvesting will occur around April-June and continue for approximately 2 months with a yield of 10 trees harvested (with root wad) via excavator, loaded, and hauled per day to the "forward-staging" zone in preparation for helicopter loading. Implementation/construction via yarder and helicopter will occur over a two week period in August (compliance) once final designs, compliance and permits are complete, possibly in 2021, 2022 or 2023 depending on how quickly the design and permit process go. Quality Control will occur while the helicopter and yarder are actively placing trees to provide on-site direction and troubleshooting any design changes or engineering considerations. This will consist of a multi-disciplinary team of a project director, engineer, geomorphologist, and restoration biologists. Technical inspection will take place during helicopter placements real-time to insure that doesn't need to be a field change prior to the helicopter demob. Minor changes can be made with field crews post-helicopter loading.

D8-D9: project performance monitoring and construction administration will occur during the entire time period when sub-award/contracts are awarded and continue until the end of the grant period documenting pre and post construction activities and document construction progress, inspection, as-built conditions, and financial invoicing for labor/equipment/materials.

F. PROJECT BENEFITS & JUSTIFICATION

1. Does the proposed project provide physical benefits to multiple IRWM regions or funding area(s)?

☐ yes ☐ no

If Yes, provide a description of the impacts to the various regions.

2. Provide a narrative for project justification. Include any other information that supports the justification for this project, including how the project can achieve the claimed level of benefits. List any studies, plans, designs or engineering reports completed for the project. *Please see the instructions for more information about submitting these documents with the final application.*

The purpose of this project is to increase and improve the aquatic habitat and ecological conditions for Spring-run Chinook salmon within the SFTR. To achieve this purpose there is a need to deepen pools and develop structure within the SFTR. Process-based large wood loading of stream and floodplain habitats have a demonstrated ability to immediately improve rearing and spawning habitats. Large wood will increase low velocity refuge for adults and juveniles over the full range of flows, improve spawning potential, and increase pool area, volume, and cover. Large wood inputs into the stream channel provide morphological variability that causes buildup of finer sediments directly upstream and hydrologic scouring directly downstream, subsequently deepening the stream channel to form pool habitat that is typically selected by rearing juvenile salmonids. Research from Washington found juvenile salmon production increased in stream reaches where more complex structures were installed compared to simple log structures (Cederholm et al. 1997). Similar projects implemented in the Lower Klamath have resulted in increased pool frequencies and volumes, instream habitat complexity, and development of off-channel habitats vital to juvenile survival. Implementation of the proposed project is anticipated to result in similar beneficial habitat changes.

A final report for the Phase 1 of the SFTR Large Wood Enhancement project is expected to be completed in April 2019. This report will contain design engineering, drawings, and post-project results. At this time, we do not have any completed studies or reports for post-project results

3. Does the project address a contaminant listed in AB 1249 (nitrate, arsenic, perchlorate, or hexavalent chromium)? ☐ yes ☒ no

If yes, provide a description of how the project helps address the contamination.

4. Does the project provide safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes consistent with AB 685? ☐ yes ☒ no

If Yes, please describe.

5. Does the project employ new or innovative technologies or practices, including decision support tools that support the integration of multiple jurisdictions, including, but not limited to, water supply, flood control, land use, and sanitation? ☒ yes ☐ no

If Yes, please describe.

The use of helicopters in instream restoration is a new and innovative technology. While this technique has been used for decades in Oregon and Washington, our last project was the 3rd of its type in California. We learned a ton in the last project and will be much more efficient and effective in a second round of using this technique.

6. For each of the Potential Benefits that the project claims complete the following table to describe an estimate of the benefits expected to result from the proposed project. [See the NCRP Project Application Instructions, Potential Project Benefits Worksheet and background information to help complete the table. The NCRP Project Application, Attachment B includes additional guidance, source materials and examples from North Coast projects.]

PROJECT BENEFITS TABLE

Potential Benefits Description	Physical Amt of Benefit	Physical Units	Est. Economic Value per year	Economic Units
Water Supply				
Water Quality				
Increase in Cold Water refugia for Adult salmon	187,500	cubic feet		
Increase in Cold water refugia for Juvenile salmon	62000	cubic feet		
Increased Spawning gravel sorted and available	27000	square feet		
Decrease in summer stream temperature	1	degrees C		
Other Ecosystem Service Benefits				
Increase in salmon habitat - juvenile	42000	square feet		
Increase in foothill yellow legged frog habitat	16000	square feet		
Increase in western pond turtle habitat	360000	square feet		

Potential Benefits Description	Physical Amt of Benefit	Physical Units	Est. Economic Value per year	Economic Units
Other Benefits				

7. Project Justification & Technical Basis Notes:

(1) Spring chinook in the South Fork Trinity River: Recommended management actions and the status of their implementation - Trinity River Restoration Program, February 1st 2013 (TRRP et. al, 2013).

(2) Action Plan for the Restoration of the South Fork Trinity River Watershed and It's Fisheries , Pacific Watershed Associates (PWA 1994).

(3) Barnhart, R A. D.C. Hillemeier 1994. Summer habitat utilization by adult spring Chinook Salmon and summer steelhead, SFTR, California. California Cooperative Fishery Research Unit. HSU

(4) Catalico, Nora. 2011. Lower South Fork Trinity Restoration History. Six Rivers National Forest. USFS, Six Rivers NF. Eureka, CA.

(5) Dean, M. 1996. Life history, distribution, run size, and harvest of spring Chinook Salmon in the South Fork Trinity, 1994-1995 season. California DFG, Inland Fisheries Division Sacramento.

(6) Dresser, A.T. 2008. Long Term Trend Monitoring Program for the SFTR watershed. USFS, Six Rivers NF. Eureka, CA.

Major Tasks, Schedule and Budget for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

Project Name: The South Fork Trinity River Heli-wood Phase II
 Organization Name: The Watershed Research and Training Center (WRTC)

Task #	Major Tasks	Task Description	Major Deliverables	Current Stage of Completion	IRWM Task Budget	Non-State Match	Total Task Budget	Start Date	Completion Date
A Category (a): Direct Project Administration									
1	Administration	In cooperation with the County of Humboldt sign a sub-grantee agreement for work to be completed on this project. Develop invoices with support documentation. Provide audited financial statements and other deliverables as required. Includes administrative indirect rate of 19.75%	Invoices, audited financial statements and other deliverables as required	0%	\$64,349.00	\$0.00	\$64,349.00	3/1/20	3/31/23
2	Monitoring Plan	Develop Monitoring Plan to include goals and measurable objectives	Final Monitoring Plan	0%	\$3,721.00	\$0.00	\$3,721.00	3/1/20	3/31/23
3	Labor Compliance Program	Execute service agreement with Labor Compliance Program company	Submission of Labor Compliance Program	0%	\$5,952.00	\$0.00	\$5,952.00	3/1/20	3/31/23
4	Reporting	Develop monthly reports describing work completed, challenges, and strategies for reaching remaining project objectives. Develop Final Report	Quarterly and Final Reports	0%	\$19,254.00	\$0.00	\$19,254.00	3/1/20	3/31/23
B Category (b): Land Purchase/Easement									
1	n/a			0%	\$0.00	\$0.00	\$0.00		
C Category (c): Planning/Design/Engineering/Environmental Documentation									
1-6	Final Design /Plans /Consultants	Develop a set of plans and specifications to the 90% complete level. 90% plans and specifications will be supplied to all interested parties for review and comment. Complete land/topographic survey work needed for project design including RTK , totalstation, and UAS photogrammetry surveys. Yurok Tribe. Complete geomorphic and hydrologic investigation to inform project design/plans. Rocco Fiori and Yurok Tribe. Complete biological inventory work needed for project design. Jon Lee, Carrieann Lopez, Samantha Chilcote, and Yurok Tribe. Complete forest inventory and mapping needed for harvest design. Develop a set of final design plans and specifications. The plans and specifications will conform to all necessary requirements to ensure a high quality product.	90% Plans and Specifications Final Survey checked by a Licensed Land Surveyor Final Designs/Plans informed by geomorphologist, engineer and consultants. Final Designs/Plans informed by fish biologist team Final Designs/Plans informed by forester Final Project Design and Construction Specifications	0%	\$75,401.00	\$62,934.00	\$138,335.00	3/1/19	3/1/22
7-8	Environmental Documentation: CEQA/NEPA *	Prepare DWR Environmental Information Form; Use the HREA process (we just completed this for our first project of this type in 2018); notify tribes about the project and solicit input per PRC \$75102; Conduct preliminary project review; Prepare Initial Study and all relevant CEQA documents as per CEQA Guidelines. File Notice of Determination Work with USFS staff to ensure that NEPA process is followed and all relevant documents are completed as per NEPA guidelines. Follow identical process as we just completed in 2018.	Environmental Information Form; Notice of Determination; Letter from lead agency stating there were no legal challenges during public review; Approved and adopted CEQA documentation USFS NEPA forms; Letter to the file, PIL, CE, Section 7, etc. Approved and adopted NEPA documentation.	0%	\$13,476.00	\$20,000.00	\$33,476.00	3/1/19	3/1/22
9	Permit Development *: 401 NOI, CDFW, NCRWQCB	All appropriate permit shall be secured for the project from the State and County Planning Division.	Final forms/permits from: NCRWQCB, CDFW, ACoE, NOAA, CAL FIRE, etc.	0%	\$27,016.00	\$0.00	\$27,016.00	3/1/19	3/1/22
D Category (d): Construction/Implementation									
1	Construction/Implementation Contracting	Develop bids and/or contract documents; conduct contractors meetings; perform evaluation of contractors; award contracts. Purchase trees.	Summary of Bids and Contract Awards	0%	\$22,252.00	\$0.00	\$22,252.00	1/1/21	3/1/22
2	Site Prep	Prepare Project Site: 1. Initiate project site preparation; 2. Order project equipment and supplies; 3. Assure project permits are in place; 4. Conduct pre-project site photo-monitoring	Summary of site preparation activities in monthly reports; pre-project site photos	0%	\$22,273.00	\$0.00	\$22,273.00	1/1/21	3/1/22

Project Name: The South Fork Trinity River Heli-wood Phase II
Organization Name: The Watershed Research and Training Center (WRTC)

Task #	Major Tasks	Task Description	Major Deliverables	Current Stage of Completion	IRWM Task Budget	Non-State Match	Total Task Budget	Start Date	Completion Date
3	Project Construction: Tree Harvest	Construction of project components: 1. Source trees; tree identification, inventory, mark, and map by WRTC. Utilize RPF and LTO to ensure compliance. 2. Initiate construction with Yurok Tribe Watershed Restoration team. Mobilization of equipment for tree harvest by Yurok Tribe operators. 2. Conduct project construction photo-monitoring. Keep daily records, gps files, photos, inspection.	Summary of construction activities in monthly progress report; Photo documentation; Construction completed	0%	\$241,764.00	\$0.00	\$241,764.00	4/1/22	7/30/22
4	Project Construction: Tree tipping/yarding	Construction of project components: 1. Initiate project construction with Blue Ridge Logging. Mobilize yarder units. Keep daily records of construction activities, inspection, and progress; 2. Conduct project construction photo-monitoring; 3. Construct project components	Summary of construction activities in monthly progress report; Photo documentation; Construction completed	0%	\$93,800.00	\$0.00	\$93,800.00	8/1/22	9/30/22
5	Project Construction: Tree placement	Construction of project components: 1. Initiate project construction with Columbia Helicopters. Keep daily records of construction activities, inspection, and progress; 2. Conduct project construction photo-monitoring; 3. Construct project components	Summary of construction activities in monthly progress report; Photo documentation; Construction completed	0%	\$410,680.00	\$0.00	\$410,680.00	8/1/22	9/30/22
6	Project construction management: Construction Project Close Out, Inspection & Demobilization	Oversee project construction. Work with consultants to inspect project components and establish that work is complete. Verify that all project components have been installed and are functioning as specified will be conducted as part of construction inspection and project closeout. Conduct project completion photo monitoring. Prepare record drawings.	As-Built and Record Drawings; Project completion site photos; Construction completed	0%	\$45,221.00	\$0.00	\$45,221.00	1/1/21	12/31/22
7	Project Performance Monitoring	The performance of the project will be monitored by measuring the project completion schedule, budget, and physical project properties. We utilize a variety of tools including various monitoring techniques, internal budgets and project management software.	Description in final report.	0%	\$57,606.00	\$0.00	\$57,606.00	1/1/23	3/31/23
8	Construction Administration	Complete tasks necessary to administer construction contract	Construction Management Logs; Completed construction administration tasks documented in monthly progress reports	0%	\$7,228.00	\$0.00	\$7,228.00	1/1/21	3/31/23
Total North Coast Resource Partnership 2018/19 IRWM Grant Request					\$1,109,993.00	\$82,934.00	\$1,192,927.00		
Is Requested Budget scalable by 25%? If yes, indicate scaled totals; if no delete budget amount provided.					\$832,494.75	\$82,934.00	\$894,695.25		
Is Requested Budget scalable by 50%? If yes, indicate scaled totals; if no delete budget amount provided.					\$554,996.50	\$82,934.00	\$596,463.50		

South Fork Trinity River - Spring Run Chinook Restoration Project II												
Date: March 15 2019												
Watershed Research and Training Center (WRTC)												
List of Specific Tasks	Project Manager/ Technical Coordinator	Executive Director	Program Associate	Financial and Budget	RPF Forester	Licensed Timber Operator	Field Technician	Field Technicians	Field Crew	Operations Admin	Totals	
	Josh	Nick	Cindy Buxton	Heather	Dave	Chester	Jason	WSP Members	Crew	Cindy		
Loaded Hourly Rate (Includes: Fringe/Burden)	\$49.00	\$60.00	\$33.00	\$38.00	\$50.00	\$50.00	\$31.00	\$25.00	\$175.00	\$51.00		
Category (a): Direct Project Administration												
Task a1 - Administration	85	44	10	79						104	15,441	
Task a2 - Monitoring Plan	20	4	30								2,210	
Task a3 - Labor Compliance Program	20	8		5						40	3,690	
Task a4 - Reporting	40	8	40	15						20	5,350	
Subtotal of Hours=	165	64	80	99	0				0	164	26,691	
Total Loaded Labor	\$8,085	\$3,840	\$2,640	\$3,762	\$0				\$0	\$8,364	\$26,691	
Category (b): Land Purchase/Easement												
Not Applicable												
Subtotal of Hours=	0											
Total Loaded Labor	\$0										\$0	
Category (c): Planning/Design/Engineering/Environ. Documentation												
Task c1 - c7 - Final Design /Plans Development	50	4	50	5	30		100	200		4	14,334	
Task c1.1 - Jon Lee Consulting	25		20								1,885	
Task c1.2 - Carneann Lopez SWAMP Technician	25		20								1,885	
Task c1.3 - Samantha Chilcote Consulting	25		20								1,885	
Task c1.4 - Rocco Fiori Consulting	25		20								1,885	
Task c7 & c8 - Environmental Documentation: CEQA/NEPA	40	8	40							4	3,964	
Task c9 - Permit Development:	20	8	20	5	40	35				4	6,264	
Task c9.1 - CDFW Permit Development: \$6,000	20		20								1,640	
Task c9.2 - NCRWQCB Permit Development: \$1,000	20		20								1,640	
Subtotal of Hours=	250	20	230	10	70	35	100	200	0	12	35,382	
Total Loaded Labor	\$12,250	\$1,200	\$7,590	\$380	\$3,500	\$1,750	\$3,100	\$5,000	\$0	\$612	\$35,382	
Category (d): Construction/Implementation												
Task d1 - Construction/Implementation Contracting	60	20		20						20	5,920	
Task d2 - Project Construction/Implementation: (Field Crew Site Preparation)	20	8	20						50		10,870	
Harvesting]	60				30	35	40	200			12,430	
Helicopters)	10										490	
Task d5 - Heli-Loading of Wood - Flight Time (Columbia Helicopters)	30										1,470	
Task d6 - Project Construction - Technical Coordination/Oversight/Management	60	8	40		20				40		12,740	
Task d6.1 - Project Construction - Quality Control and Engineering Support	20		5		10						1,645	
Task d6.2 - Project Close Out, Inspection & Demobilization	50	4	5		10						3,355	
Task d7 - Project Performance Monitoring	80	8	100		10						8,200	
Task d8 - Construction Administration	30	4	30	8						8	3,412	
Subtotal of Hours=	420	52	200	28	80	35	40	200	90	28	60,532	
Total Loaded Labor	\$20,580	\$3,120	\$6,600	\$1,064	\$4,000	\$1,750	\$1,240	\$5,000	\$15,750	\$1,428	\$60,532	
Total Hours	835	136	510	137	150	70	140	400	90	204	2672	
Percent of Total Effort	31.3%	5.1%	19.1%	5.1%	5.6%	2.6%	5.2%	15.0%	3.4%	7.6%	100.0%	
Vehicle (\$69/day) 37 days	\$ 2,553											
UTV for access on river trail (\$ 322/day) 4 weeks	\$ 6,440											
Travel 2600 miles @ .58	\$ 1,508											
Chainsaw (\$ 50/day) 10 days	\$ 500											
Garmin InReach (\$16/month) 2 months	\$ 32											
GPS units (\$60 /day) 10 days	\$ 600											
Lodging (\$70/Night or \$350/week) 25 nights	\$ 1,750											
Per Diem (\$39/Day) 25 days	\$ 975											
Lodging (\$70/Night or \$350/week)	\$ 1,000											
Per Diem (\$46/Day or 250/week)	\$ 350											
Expenses Total	\$15,708	\$0	\$0	\$0	\$0				\$0	\$15,708	\$138,313	
Federally Assigned Indirect Rate (19.75%)										Indirect =	\$27,317	
Additional Indirect on Yurok Sub-Contract (19% on Maximum of 50,000)										Indirect =	\$9,875	
Additional Indirect on Timber Harvest (19% on Maximum of 25,000)										Indirect =	\$9,875	
	\$40,915									Total =	\$185,380	

South Fork Trinity River - Spring Run Chinook Restoration Project II								
Date: March 15 2019								
Tiber Harvest Company - Sub Contract					<i>Tree Supply</i>			
Calculations/Assumptions for Tree Supply			Cost Per Linear Length of Tree (\$/Ft.)	Average Length Per Tree (Ft)	Cost Per Tree (\$/Tree)	Total Trees (No.)	Total Cost of Materials (\$)	
			\$2.20	90	\$198	300	\$59,400	
								Totals
Category (d): Construction/Implementation								
							Total =	\$59,400

South Fork Trinity River - Spring Run Chinook Restoration Project II										
Date: March 15 2019										
Yurok Tribe Technical Team - Partner/Sub-Award										
List of Specific Tasks	Project Manager	Geomorphologist	Hydraulic/Civil Engineer	Restoration Biologist	Fisheries Biologist II	Engineering Technican II	Fisheries Technician II	CEQA/NEPA Specialist	Administration	Totals
	Dave Bandrowski	Dave Gaeuman	Dave Bandrowski	Aaron Martin	Eric Wiseman	TBD	TBD	Eric Wiseman	Diane Bowers	
Loaded Hourly Rate (Includes: Fringe/Burden/20.0 % Indirect)	\$114.43	\$110.86	\$114.43	\$80.28	\$69.36	\$34.80	\$34.80	\$69.36	\$30.47	
Category (a): Direct Project Administration										
Task a1 - Administration	11							4	10	\$1,841
Task a2 - Monitoring Plan				5				16		\$1,511
Task a3 - Labor Compliance Program	4	4	4	4				4	10	\$2,262
Task a4 - Reporting	10	20	40	40	5	5		30	5	\$13,904
Subtotal of Hours=	25	24	44	49	5	5		54	25	\$19,518
Total Loaded Labor	\$2,861	\$2,661	\$5,035	\$3,934	\$347	\$174	\$0	\$3,745	\$762	19,518
Category (b): Land Purchase/Easement										
Not Applicable										
Subtotal of Hours=	0									
Total Loaded Labor	\$0									0
Category (c): Planning/Design/Engineering/Environ. Documentation										
Task c1-c7 - Final Design /Plans	4	47	75	50	25	25		10	4	\$21,684
Task c7 & c8 - Environmental Documentation: CEQA	4	4	4	5				110	4	\$9,512
Task c9 - Permit Development: [Includes 401, etc]	4	4	4	4				125	4	\$10,472
Subtotal of Hours=	12	55	83	59	25	25	0	245	12	\$41,667
Total Loaded Labor	\$1,373	\$6,097	\$9,498	\$4,737	\$1,734	\$870	\$0	\$16,993	\$366	41,667
Category (d): Construction/Implementation										
Task d1 - Construction/Implementation Contracting	16								4	\$1,953
Task d2 - Project Construction/Implementation: [Field Crew Site Preparation]	2	8	30	30	30	30	30	4		\$11,403
Task d3 & d4- Project Construction/Implementation: [Tree Supply and Harvesting]										\$169,934
Task d6 - Project Construction - Technical Coordination/Oversight/Management	8	8	32	48	30	25			4	\$12,390
Task d6.1 - Project Construction - Quality Control and Engineering Support	0	30	30	20	10	10		10	4	\$10,221
Task d6.2 - Project Close Out, Inspection & Demobilization	8	8	8	8	5	10		10	4	\$4,870
Task d7 - Project Performance Monitoring	30	70	110	110	110	110	110	20	4	\$49,406
Task d8 - Construction Administration	4	4	20	4					10	\$3,816
Subtotal of Hours=	68	128	230	220	185	185	140	44	30	\$94,059
Total Loaded Labor	\$7,781	\$14,190	\$26,319	\$17,662	\$12,832	\$6,438	\$4,872	\$3,052	\$914	\$94,059
Total Hours	105	207	357	328	215	215	140	343	67	1,977
Percent of Total Effort	5.3%	10.5%	18.1%	16.6%	10.9%	10.9%	7.1%	17.3%	3.4%	100%
Equipment/Supplies/Software/Fuel	\$130	\$200	\$1,000	\$500	\$200	\$200	\$200	\$100		
Lodging (\$70/Night or \$350/week)	\$350	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$700	\$150		
Per Diem (\$46/Day or 250/week)	\$200	\$500	\$500	\$500	\$500	\$500	\$500	\$120		
Expenses Total	\$680	\$1,900	\$2,700	\$2,200	\$1,900	\$1,900	\$1,400	\$370	\$13,050	\$168,295
									Total =	\$168,295

South Fork Trinity River - Spring Run Chinook Restoration Project II							
Date: March 15 2019							
Yurok Tribe Watershed Restoration Department - Partner/Sub-award		Tree Supply					
Calculations/Assumptions for Tree Supply Harvest	Cost Per Linear Length of Tree (\$/Ft.)	Average Length Per Tree (Ft)	Cost Per Tree (\$/Tree)	Total Trees (No.)	Total Cost of Materials (\$)		
	\$1.20	90	\$108	300	\$32,400		
Totals							
Category (d): Construction/Implementation							
Task d3 - Project Construction/Implementation: [Tree Supply and Harvesting]							
Water Truck	\$46.40/Hr. for Truck	Total Time = 30 Days	10 hrs./Day		\$41,760		41,760
Water Tender		Total Time = 30 Days		Tender = 250/day	\$7,500		7,500
Excavator Operator	\$76.79 / Hr.	Total Time = 30 Days	10 hrs./Day		\$23,037		23,037
Dozer Operator	\$76.79 / Hr.	Total Time = 30 Days	10 hrs./Day		\$23,037		23,037
Excavator Equipment Fee	\$109.00 / hr.	Total Time = 30 Days	10 hrs./Day		\$32,700		32,700
Dozer Equipment Fee	\$128.00 / hr.	Total Time = 30 Days	10 hrs./Day		\$38,400		38,400
Equipment Mob/Demob				\$3,500	\$3,500		3,500
Subtotal of Costs =						Total=	169,934
						Total =	\$169,934

Total Trees = 300

Whole Tree Harvest (Mob/Demob, Equipments, Operators, Harvest and Site Rehab)

Costs include operated 70K lb excavator, ground crew and service truck. Mob/Demob are included at \$3,500. Water truck rental and fire protection water trailer would be additional costs.

Total Wood Quantity (Pieces)	Trees Per Day	Harvest Cost Per Day	Harvest Days	Harvest Cost	Cost per Log
300	10	\$5,664.47	30	\$169,934	\$566

Volume for a 24" dbh x 100' tall Doug fir to a 8" top is 489 board feet, Scribner rule.
At \$350/MBF, this works out to 0.489 MBF x \$325/MBF = \$159.00 per 100' log or roughly \$1.59 per Lft.

South Fork Trinity River - Spring Run Chinook Restoration Project II						
Date: March 15 2019						
Other - Sub Contracts			Helicopter Costs			
	Hourly Rate (\$/hr)	Total Hours	Total per sample	# samples	Total Cost (\$)	
Task c1.1 - Jon Lee Consulting			\$ 300.00	5	1500	
Task c1.2 - Carrieann Lopez SWAMP Technician	\$ 50.00	20			\$ 1,000.00	
Task c1.3 - Samantha Chilcote Consulting	\$ 100.00	50			\$ 5,000.00	
Task c1.4 - Rocco Fiori Consulting	\$ 120.00	50			\$ 6,000.00	
Task c9.1 - CDFW Permit Development: \$6,000					\$ 6,000.00	
Task c9.2 - NCRWQCB Permit Development: \$1,000					\$ 1,000.00	
						Totals
Categories: (c) Planning/Design/Engineering/Environ. Documentation						
Subtotal of Costs =					\$20,500	20,500
					Total =	\$20,500

South Fork Trinity River - Spring Run Chinook Restoration Project II	
Date: March 15 2019	
Summary of Costs (Watershed Center + Sub-Contractors)	
List of Specific Tasks	Totals
Category (a): Direct Project Administration	
Task 1a - Administration	\$17,281.86
Task 3a - Monitoring Plan	\$3,721.16
Task 4a - Labor Compliance Program	\$5,952.13
Task 5a - Reporting	\$19,253.84
Subtotal of Cost =	\$46,208.99
Category (b): Land Purchase/Easement	
Not Applicable	\$0.00
Subtotal of Cost =	\$0.00
Category (c): Planning/Design/Engineering/Environ. Documentation	
Task 1c - Final Design /Plans	\$61,021.86
Task 7c & c8 - Environmental Documentation: CEQA	\$13,475.75
Task 9c - Permit Development: [Includes 401, etc]	\$27,015.87
Subtotal of Cost =	\$101,513.49
Category (d): Construction/Implementation	
Task 1d - Construction/Implementation Contracting	\$7,872.75
Task 2d - Project Construction/Implementation: [Field Crew Site Preperation]	\$22,273.28
Task 3d & 4d- Project Construction/Implementation: [Tree Supply and Harvesting]	\$241,764.00
Task 4d Tree Tipping /yarding	\$93,800.00
Task 5d - Mobilization/Demobilization and Fuel Staging (Columbia Helicopters)	\$410,680.00
Task 6d - Heli-Loading of Wood - Flight Time (Columbia Helicopters)	\$45,221.84
Task 6d - Project Construction - Technical Coordination/Oversight/Management	
Task 6d - Project Construction - Quality Control and Engineering Support	
Task 6d - Project Close Out, Inspection & Demobilization	
Task 7d - Project Performance Monitoring	\$57,605.87
Task 8d - Construction Administration	\$7,227.57
Subtotal of Cost =	\$886,445.32
Indirect from Watershed Center (Prime Contractor) =	\$47,066.82
Supplies/Travel/Software/Fuel Costs (Watershed Center and Yurok Tribe) =	\$28,757.72
Total =	\$1,109,992.34

KEY MAP

California

SOUTH FORK TRINITY RIVER (SFTR)

SFTR - Heliwood Loading Project (Hitchcock Reach)

Cover Sheet - Large Wood Asbuilt Drawings

Drawing Type:

COVER

Drawn By

Checked By

Approved By

Scale

Design Date

January 2019

Sheet number

1 of 1

Index of Sheets		Large Wood Jam – Summary List – Design vs. Asbuilt					
No.	Sheet Name	Wood Jam ID	Type of Structure	Number of Trees	Wood Jam ID	Type of Structure	Number of Trees
1	Cover Sheet – Location Map	#1	Habitat	Design=2; Asbuilt=1	#34	Geomorphic	Design=6; Asbuilt=7
2	Sheet Index – Quantity List	#2	Habitat	Design=2; Asbuilt=2	#35	Geomorphic	Design=2; Asbuilt=3
3	Planview – Large Wood Jam #1 and #2	#3	Habitat	Design=4; Asbuilt=3	#36	Geomorphic	Design=6; Asbuilt=7
3A	Asbuilt – Large Wood Jam #1 and #2	#4	Habitat	Design=4; Asbuilt=5	#37	Habitat	Design=2; Asbuilt=4
4	Planview – Large Wood Jam #3 and #4	#5	Geomorphic	Design=8; Asbuilt=5	#38	Habitat	Design=2; Asbuilt=2
4A	Asbuilt – Large Wood Jam #3 and #4	#6	Habitat	Design=6; Asbuilt=3	#39	Geomorphic	Design=16; Asbuilt=19
5	Planview – Large Wood Jam #5, #6, and #7	#7	Geomorphic	Design=8; Asbuilt=7	#40	Habitat	Design=2; Asbuilt=2
5A	Asbuilt – Large Wood Jam #5, #6, and #7	#8	Habitat	Design=8; Asbuilt=7	#41	Habitat	Design=2; Asbuilt=4
6	Planview – Large Wood Jam #8 and #9	#9	Geomorphic	Design=14; Asbuilt=12	#42	Habitat	Design=2; Asbuilt=1
6A	Asbuilt – Large Wood Jam #8 and #9	#10	Habitat	Design=4; Asbuilt=3	#43	Habitat	Design=2; Asbuilt=4
7	Planview – Large Wood Jam #10, #11, and #12	#11	Habitat	Design=6; Asbuilt=10	#44	Habitat	Design=8; Asbuilt=13
7A	Asbuilt – Large Wood Jam #10, #11, and #12	#12	Geomorphic	Design=4; Asbuilt=12	#45	Geomorphic	Design=2; Asbuilt=5
8	Planview – Large Wood Jam #13 and #14	#13	Geomorphic	Design=16; Asbuilt=10	#46	Habitat	Design=4; Asbuilt=6
8A	Asbuilt – Large Wood Jam #13 and #14	#14	Habitat	Design=4; Asbuilt=3	#47	Geomorphic	Design=12; Asbuilt=16
9	Planview – Large Wood Jam #15 and #16	#15	Geomorphic	Design=6; Asbuilt=5	#48	Geomorphic	Design=4; Asbuilt=8
9A	Asbuilt – Large Wood Jam #15 and #16	#16	Geomorphic	Design=4; Asbuilt=4	#49	Habitat	Design=2; Asbuilt=9
10	Planview – Large Wood Jam #17 through #22	#17	Habitat	Design=2; Asbuilt=4	#50	Geomorphic	Design=11; Asbuilt=7
10A	Asbuilt – Large Wood Jam #17 through #22	#18	Geomorphic	Design=6; Asbuilt=7	#51	Habitat	Design=4; Asbuilt=4
11	Planview – Large Wood Jam #23 through #26	#19	Geomorphic	Design=6; Asbuilt=5	#52	Habitat	Design=6; Asbuilt=3
11A	Asbuilt – Large Wood Jam #23 through #26	#20	Geomorphic	Design=4; Asbuilt=4	#53	Habitat	Design=4; Asbuilt=4
12	Planview – Large Wood Jam #27, #28, and #29	#21	Habitat	Design=2; Asbuilt=2	#54	Geomorphic	Design=5; Asbuilt=7
12A	Asbuilt – Large Wood Jam #27, #28, and #29	#22	Geomorphic	Design=3; Asbuilt=1	#55	Habitat	Design=5; Asbuilt=3
13	Planview – Large Wood Jam #30 through #34	#23	Habitat	Design=2; Asbuilt=1	#56	Habitat	Design=4; Asbuilt=5
13A	Asbuilt – Large Wood Jam #30 through #34	#24	Geomorphic	Design=18; Asbuilt=17	#57	Habitat	Design=2; Asbuilt=2
14	Planview – Large Wood Jam #35 and #36	#25	Habitat	Design=2; Asbuilt=2			
14A	Asbuilt – Large Wood Jam #35 and #36	#26	Habitat	Design=2; Asbuilt=1		Design Total=	286
15	Planview – Large Wood Jam #37, #38, and #39	#27	Habitat	Design=2; Asbuilt=2		Asbuilt Total=	309
15A	Asbuilt – Large Wood Jam #37, #38, and #39	#28	Geomorphic	Design=6; Asbuilt=6			
16	Planview – Large Wood Jam #39 through #43	#29	Habitat	Design=4; Asbuilt=7			
16A	Asbuilt – Large Wood Jam #39 through #43	#30	Habitat	Design=2; Asbuilt=4			
17	Planview – Large Wood Jam #44, #45, and #46	#31	Geomorphic	Design=6; Asbuilt=4			
17A	Asbuilt – Large Wood Jam #44, #45, and #46	#32	Habitat	Design=2; Asbuilt=2			
18	Planview – Large Wood Jam #47, and #48	#33	Habitat	Design=2; Asbuilt=3			
18A	Asbuilt – Large Wood Jam #47, and #48						
19	Planview – Large Wood Jam #49, and #50						
19A	Asbuilt – Large Wood Jam #49, and #50						
20	Planview – Large Wood Jam #51						
20A	Asbuilt – Large Wood Jam #51						
21	Planview – Large Wood Jam #52, #53, and #54						
21A	Asbuilt – Large Wood Jam #52, #53, and #54						
22	Planview – Large Wood Jam #55 and #56						
22A	Asbuilt – Large Wood Jam #55 and #56						

INDEX

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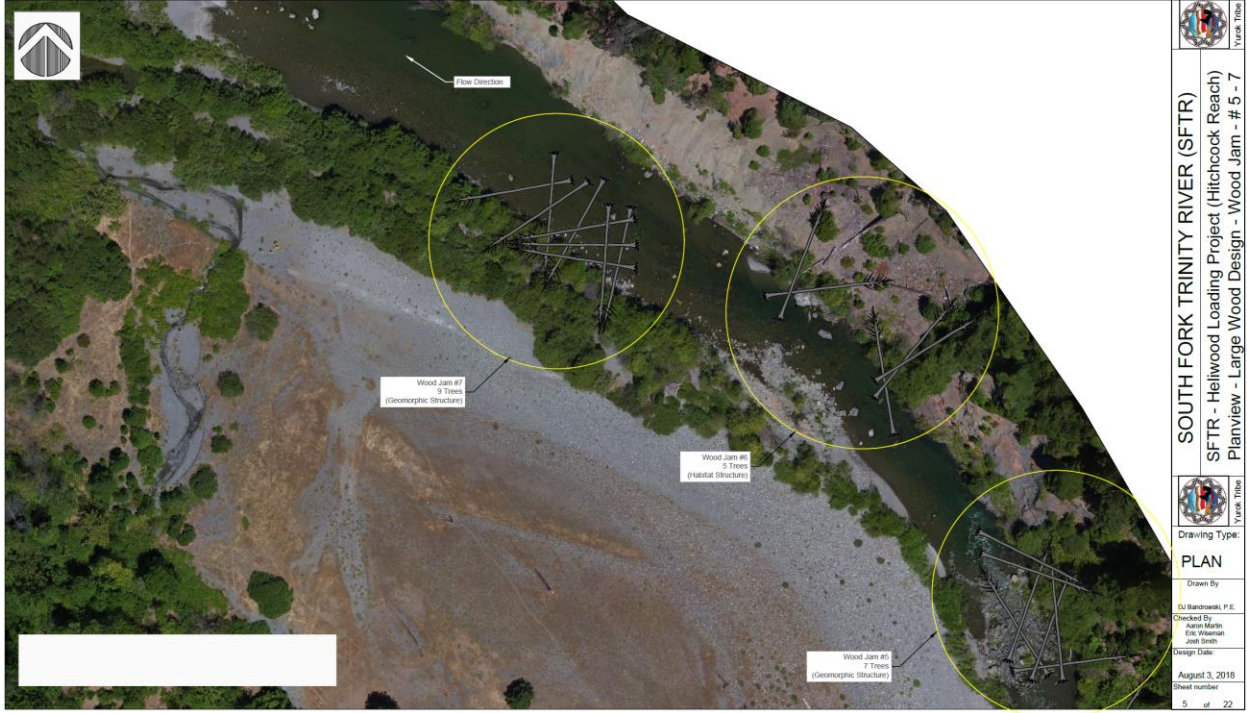
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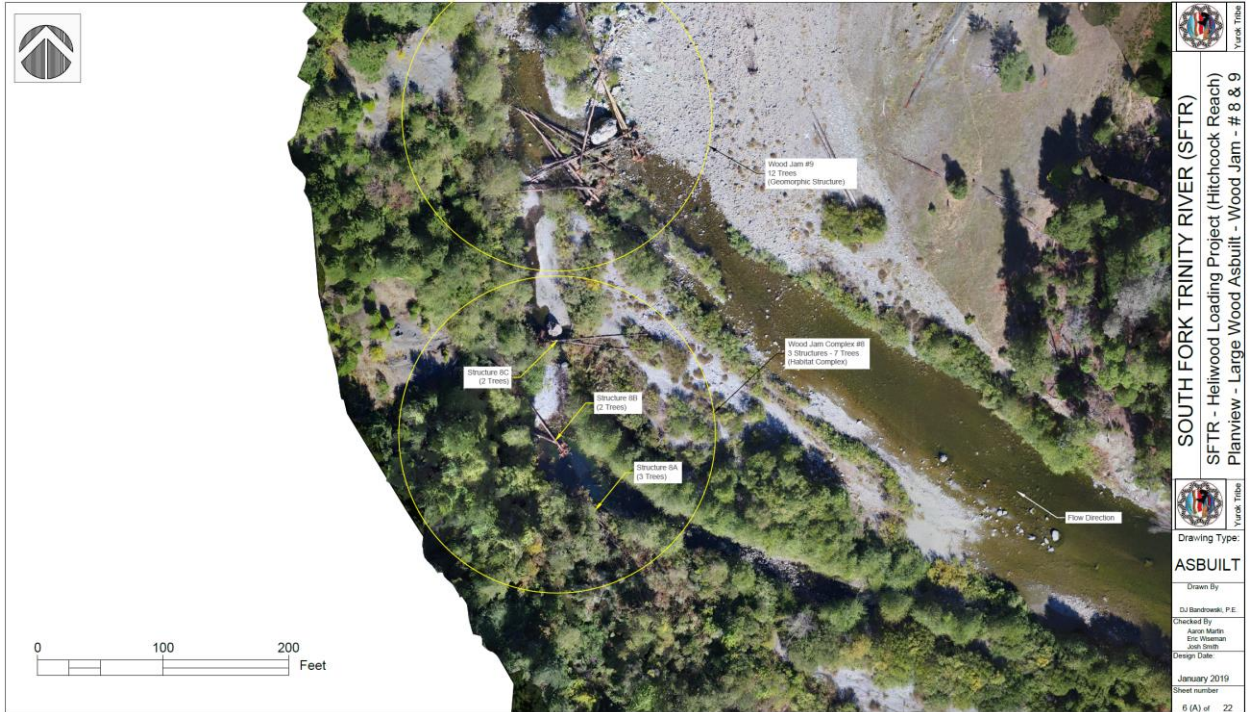
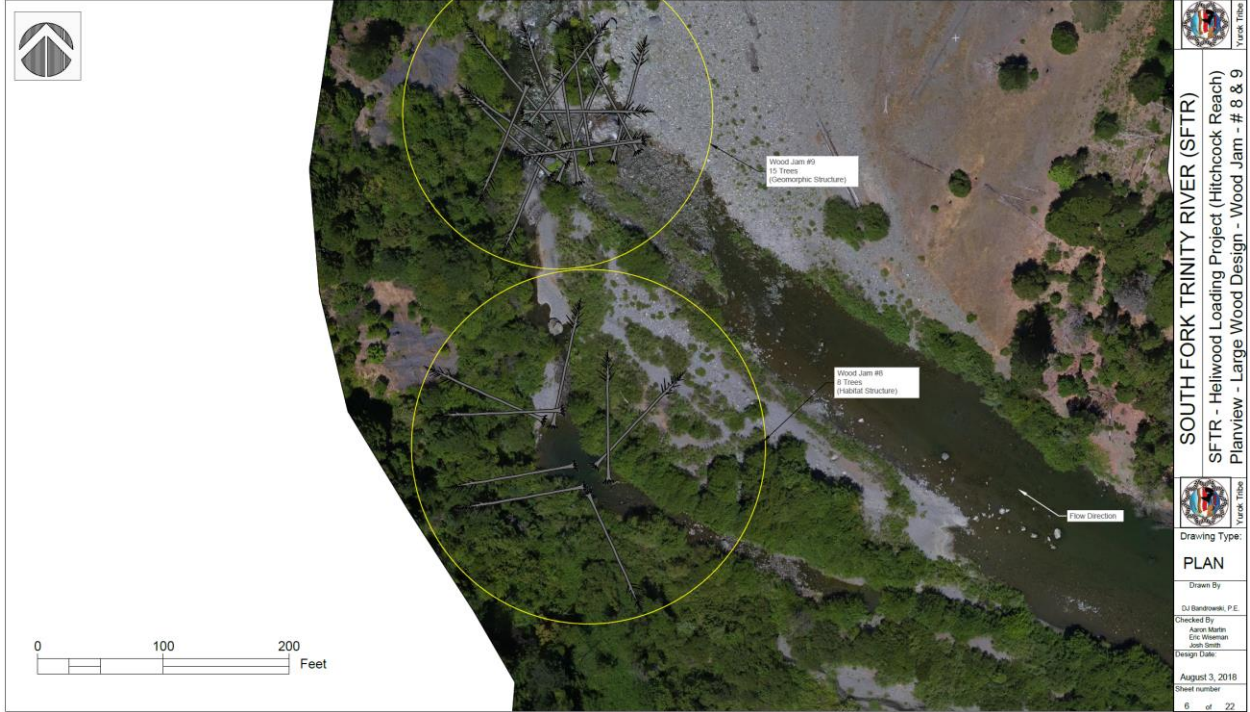
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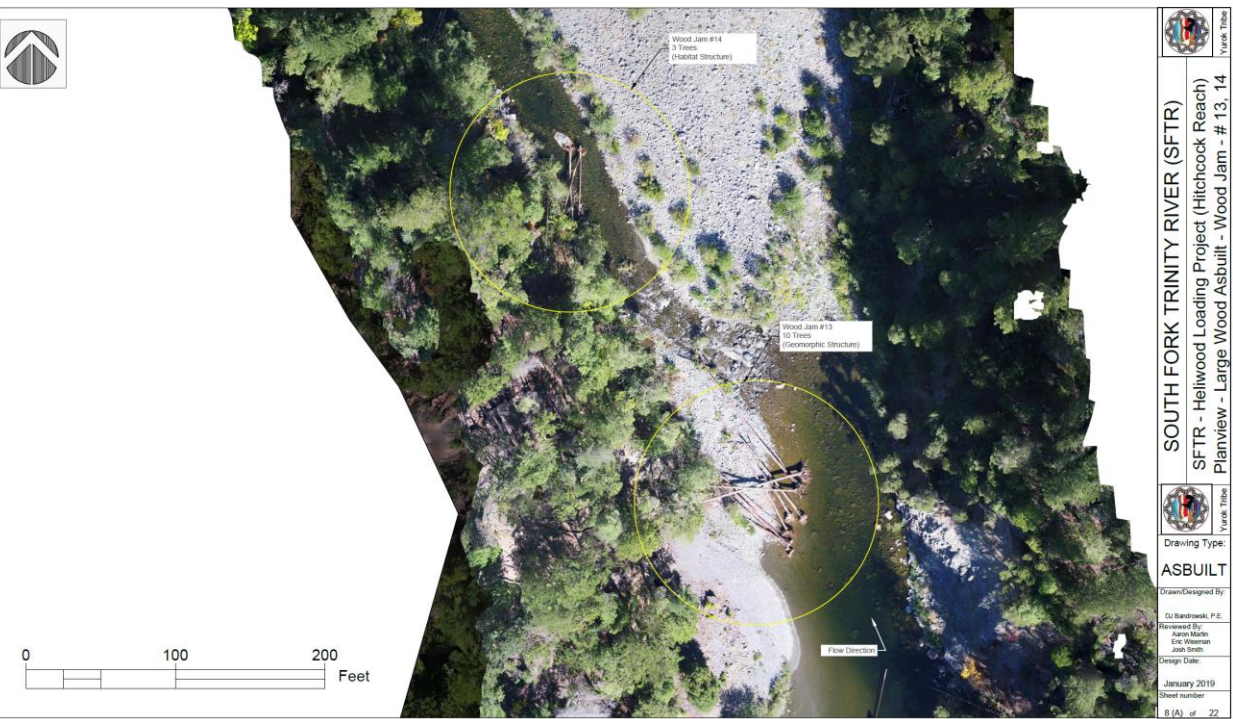
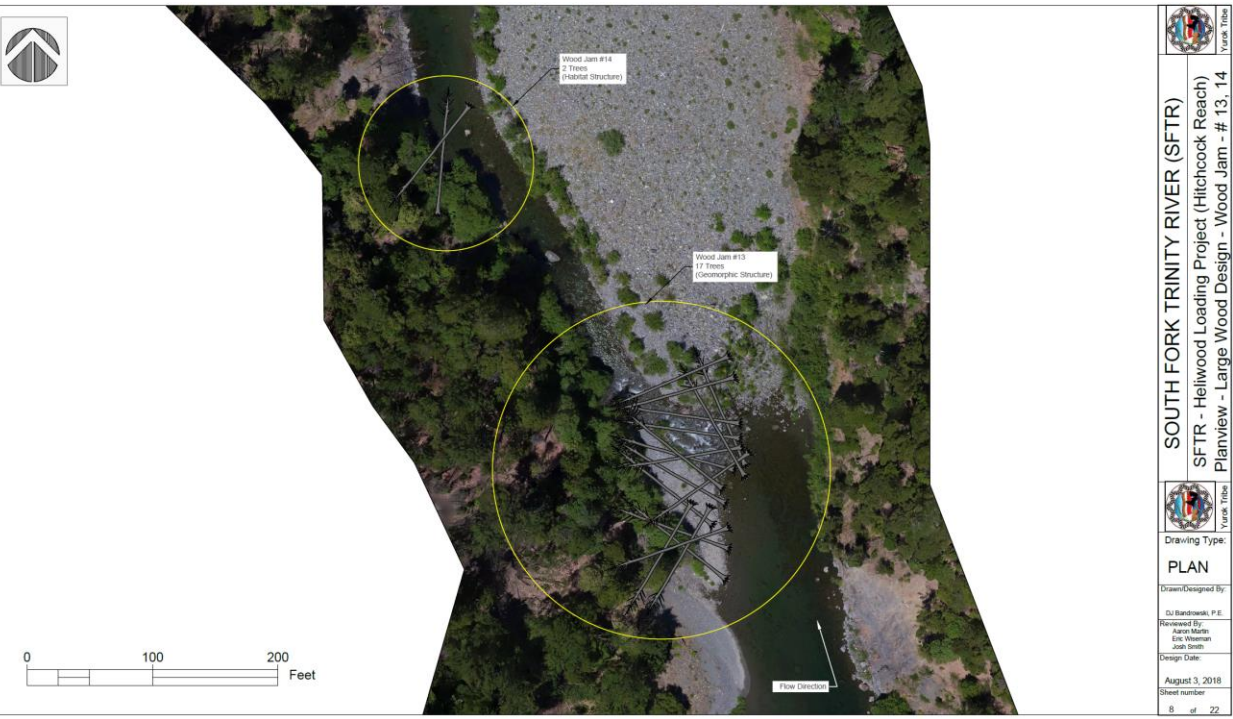
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WRTC SFTR Heliwood Phase II – Supporting Documents

NCRP 2019

Several of our important supporting documents we have produced in various past efforts and these are available on our website at the following location: <https://thewatershedcenter.com/local/watershed-stewardship/planning-modeling-and-assessments/>

- Watershed wide temperature analysis that shows this area is of the highest quality habitat for spring chinook from a temperature perspective and is likely to stay high quality even with predicted climate change warming. See the SFTR supplemental watershed assessment's Appendix 2 Stream Temperature Analysis.
- Spring Chinook in the South Fork Trinity River: Recommended Management Actions and the Status of Their Implementation. This document summarizes the available literature on the South Fork Trinity River and its tributaries as they link to spring-run Chinook salmon (Spring Chinook). Data gaps and potential limiting factors for South Fork Trinity River Spring Chinook have been identified and recommendations for next steps have been outlined.

Another important document is the Petition to list Spring Chinook as an endangered species. More information can be found at the petitioner's website: <http://www.karuk.us/index.php/information/62-announcements/503-esa-listing-for-spring-chinook>

Lastly, I've attached to the email a pdf document with some of the design AsBuilt documents from the phase I project.