

Appendix A

Proposition 50 Workplan for Plumas County



EXHIBIT A WORK PLAN

Project: Last Chance Creek Watershed Restoration Project Phase II

Local Project Sponsor: Plumas Corporation (Feather River Coordinated Resource Management Group)

The second phase of the Last Chance Creek Watershed Restoration Project encompasses eight miles of mainstem channel and short reaches of the confluence zones of the four significant tributaries in the reach. Willow Creek, Little Stony Creek, Stone Dairy Creek, and Cottonwood Creek all have channel incision occurring near the confluence as these tributaries adjust their base channel levels to the incision-lowered elevation of Last Chance Creek. When complete, this project will directly reconnect eight miles of stream channel to over 800 acres of naturally-evolved meadow floodplain and reduce the incision risk to still functional tributary meadows. The result will fully restore the flood attenuation, baseflow augmentation and ecosystem habitat values of a functional montane meadow system.

This Grant Agreement has been funded at 70% of the amount originally requested. For that reason, work under this Grant Agreement shall include all design and environmental review for an 11-mile length of Last Chance Creek, as well as restoration of approximately 3 miles of channel. The remainder of the restoration work will be completed as funding becomes available from various sources, and funding will be pursued to allow all of the work to proceed concurrently. An 11-mile length of stream will undergo design and environmental review because some sections may be unsuitable for restoration work due to archeological concerns, special status species, or physical attributes.

The project entails raising the base level of Last Chance Creek back to the remnant channels on the relic floodplain. This will be accomplished using a technique that has already been used in much of the Last Chance Creek watershed. The technique entails excavating portions of the existing gully wider and deeper. The resulting cut material is used to fill adjacent sections of the gully back to original grade. These filled sections, called plugs, are typically 150 to 300 feet long and compacted, as filled, to match adjacent native material. The massive bulk of the plugs is protection against failure from rodent burrows or infrequent, short duration flood flows without resorting to additional armoring beyond natural vegetation.

Streamflow is directed into the extensive system of remnant channel(s) or an occasional short reach of constructed channel. All vegetation that has become established inside the gully is removed with heavy equipment prior to excavation and fill operations. This vegetation is transplanted into high stress areas of the restored channel, around pond edges and into the plugs. Topsoil from the pond excavation areas is removed prior to excavation and stockpiled adjacent to the plug zone. When the plug is completed with subsoil, the topsoil is spread onto the plug. The native seedbank and fertility of the topsoil is further augmented with locally collected seed from native meadow grasses and sedges.

Project surveys and design will require the 2008 and 2009 field seasons to complete. The existing reconnaissance level surveys will be augmented with additional cross-section and longitudinal profile surveys. The data derived from the additional surveys will be analyzed to develop conceptual design layouts for landowner and project Technical Advisory Committee (TAC) review and revision. The conceptual designs would identify the most effective remnant channel configuration, design parameters for any constructed channels as well as pond and plug locations and configurations. All survey and design work would be performed by FRCRM staff unless additional expertise was requested by the TAC. Project land management planning, fencing and any environmental mitigations will derive from, and inform, the final design.

Accomplishing the Last Chance Phase II Project will entail re-distribution of approximately 285,000 yds³ of on-site, cut and fill material in order to eliminate the gully as a conduit for streamflows, which will complete approximately three miles of the project length. Approximately 7,700 yds³ of 6"-24" rock will be used to establish a valley grade structure at the Doyle Crossing Bridge and minor amounts of armoring at valley constrictions. It is expected that the project will require 190 working days to complete. This timespan will be accomplished over two working seasons from July through October in 2010 and 2011 each season.

The specific project monitoring metrics will develop as the project design is developed and environmental mitigations are identified. At a minimum, this will entail survey cross-sections pre- and post-project, vegetation transects, photo points, streamflow and water temperature monitoring as specified in the Project Assessment and Evaluation Program.

Task LCC-A Project Administration

Task LCC-1. Contracts and Permits

- 1.1 Local Project Sponsor shall document steps taken in soliciting and awarding any contracts to perform grant work complying with all applicable laws and regulations regarding securing competitive bids and undertaking competitive negotiations in Grantee's contracts with other entities for acquisition of goods and services and construction of public works with funds provided by State under this Grant Agreement. Grantee shall provide State with a copy of the awarded contract. Local Project Sponsor shall document all contractor activities and expenditures in quarterly reports. The State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement, including any subcontracts. Provisions ensuring this access shall be in all contracts or subcontracts entered into pursuant to its Grant Agreement with the State.
- 1.2 No work that is subject to California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) may proceed under this Agreement until the State receives documents that satisfy the CEQA/NEPA process.
- 1.3 Local Project Sponsor shall secure all required permits for project work. No work that is subject to permitting may proceed under this Agreement until documents that satisfy the permitting process(es) are received by the State.

Task LCC-2. Quality Assurance Project Plan and Monitoring Plan

- 2.1 The Local Project Sponsor shall revise, maintain, and implement a Quality Assurance Project Plan (QAPP). No monitoring may occur prior to QAPP approval by the State. Grantee shall ensure any groundwater monitoring requirements are consistent with the Groundwater Quality Monitoring Act of 2001 (Part 2.76 (commencing with Section 10780) of Division 6 of the Water Code) and water quality projects shall include a monitoring component that allows the integration of data into statewide monitoring efforts, including but not limited to, the surface water ambient monitoring program carried out by the State Water Resources Control Board.
- 2.2 The Local Project Sponsor shall prepare, maintain, and implement a Monitoring Plan (MP) that shall include description of monitoring objectives, types of constituents to be monitored, and the sampling locations and frequency/schedule for the monitoring activities. The MP shall be approved by the State prior to any sampling and monitoring activities. No monitoring may occur prior to Monitoring Plan approval. The State must approve any changes to the Monitoring Plan prior to implementation.

Task LCC-3. Technical Advisory Committee (TAC)

- 3.1 Establish a project TAC to assist in the development of overall project objectives, project plan, and project effectiveness monitoring program.
- 3.2 The TAC shall include, but not be limited to, the following: Department of Water Resources (DWR), Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), Department of Fish and Game (DFG), Natural Resource Conservation Service (NRCS), Plumas Corporation, University of California Cooperative Extension, Plumas County Public Works, and the landowner.
- 3.3 Conduct TAC meetings at least twice annually to review project design progress, monitoring, and IRWM Plan goals in order to provide input and guidance to the Local Project Sponsor staff and the landowner.

Task LCC-4. Reporting, Invoicing, and Budget Management

- 4.1 Local Project Sponsor shall submit quarterly reports to the Grantee in both electronic and hardcopy forms. Reports shall be presented in the formats described in Exhibit E, Report Format.
- 4.2 An invoice should accompany the progress report, and reflect charges for the work completed during the reporting period covered by the quarterly report. The submittal and approval of reports is a requirement for initial and continued disbursement of State funds.
- 4.3 The Local Project Sponsor shall attend quarterly meetings with the Grantee.
- 4.4 The Local Project Sponsor shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied; and shall keep complete and accurate records of all receipts, disbursements, and interest earned on expenditures of such funds, and shall require its contractors or subcontractors to do the same.
- 4.5 Local Project Sponsor shall submit a Project Completion Report to the Grantee with the final project invoice, which shall include, if applicable, certification of final project by a California Registered Civil Engineer, consistent with Condition D-14 of this Grant Agreement.
- 4.6 Local Project Sponsor shall assist the Grantee in completing a Grant Completion Report upon completion of all projects included in Exhibit A, Work Plan.
- 4.7 Local Project Sponsor shall submit a Post Performance Report to the Grantee within ninety (90) calendar days after the first operational year of the project has elapsed, and thereafter annually for a total of ten (10) years after the completed project begins operation.

Task LCC-B Land Purchase/Easement
N/A

Task LCC- C Planning /Design /Engineering /Environmental Documentation

Task LCC-5. Survey and Design Pond and Plug Project Plan

- 5.1 Conduct a field survey of the project area to determine gully and remnant channel dimensions, and nuances in terrace and floodplain topography using a laser level and rod

eye. Include 10-20 valley-wide cross-sections, and a longitudinal profile of the channel bottom and terrace. Graph the surveyed cross-sections and profiles, and note gross vegetation types on the cross-sections.

- 5.2 Develop a table that displays flow frequencies, using field survey information from task 5.1, and existing similar watershed flood frequency information to verify the suitability of the remnant channel and floodplain to carry 1.5, 10, 20 and 100 year return event flows.
- 5.3 Plot cross-sections, profiles, and vegetation types for purpose of analyzing geomorphic attributes of the channel and valley. This analysis will be used to complete Subtask 5.4 below.
- 5.4 Develop and GPS a draft project design that uses the cross-section and longitudinal graphs, and flow frequency information, and that includes the following:
 - pond and plug placement on the ground, and volume of material to be moved;
 - determine remnant channel capacity, and design any necessary remnant channel modifications;
 - volumes, size of material, and slopes of the rock grade control structure at the bottom of the project area;
 - a plan view map of the project area, which shows pond and plug placement, the remnant channel, and the rock grade control structure.

Submit the draft design to the State Project Representative for review and comment.
- 5.5 Develop two typical before and after cross-sections, using the plan view map. Show the existing gully, and the proposed project work.
- 5.6 Finalize the project design with TAC assistance in a field meeting with all design materials, and submit the Final Survey and Design Pond and Plug Project Plan for review and approval to the TAC and the State Project Representative for review and approval prior to any implementation. Implementation will occur in Task 8 below.

Task LCC-6. Plan & Design Grazing Infrastructure Improvements

- 6.1 Develop a plan view map of the project area that shows existing and proposed fence lines and water sources.
- 6.2 Identify potential project sites (spring developments and cross fencing) with the assistance of the TAC.
- 6.3 Develop specifications for fencing and spring water developments to be implemented in Task 8 below.
- 6.4 Develop a written landowner agreement that establishes land management goals, responsibilities, and timelines for protection of the project during vegetative recovery and long-term vegetation management within the project area. Agreement will also provide for landowner approval of project tours specified in Task 9.
- 6.5 Obtain written landowner approval of work on private lands using the agreement prepared in Subtask 6.4.
- 6.6 Submit the Plan and Design Grazing Infrastructure Improvement for review and comments by the TAC and the State Project Representative.

Task LCC-7. Environmental Documentation

- 7.1 Local Project Sponsor will contract with Professional Consultants to complete wildlife, botany, and archaeology surveys.
- 7.2 Pre-permitting mitigations shall be completed prior to project construction. (i.e. Section 106 Evaluation, SHPO concurrence, USFWS consultation)
- 7.3 Local Project Sponsor will complete and submit permit applications and all supporting documents to the Army Corps of Engineers, U.S. Forest Service, Plumas County, California Department of Fish and Game, and Regional Water Quality Control Board.

Task LCC-D Construction/Implementation

Task LCC-8. Construct Pond and Plug Project

Construction will include the excavation and placements of approximately 285,000 yds³ of on-site, cut and fill material in order to eliminate approximately three miles of gully as a conduit for streamflows. Approximately 7,700 yds³ of 6"-24" rock will be used to establish a valley grade structure at the Doyle Crossing Bridge and minor amounts of armoring at valley constrictions. It is expected that the project will require 190 working days to complete. This timespan will be accomplished over two working seasons from July through October in 2010 and 2011 each season. Topsoil and vegetation will be removed and stockpiled prior to excavation, and will be planted and spread over the area as the last step in construction.

- 8.1 Construct the Pond and Plug as designed in 5.6.
- 8.2 Remove and replant vegetation disturbed during construction.
- 8.3 Deliver and place quarry rock from USFS pit for the valley grade structure at Doyle Crossing Bridge.
- 8.4 Replant a portion of vegetation in the remnant as needed for channel strengthening; replant and redistribute stockpiled vegetation and topsoil around ponds and onto plugs.
- 8.5 Conduct photo documentation before, during, and after construction.
- 8.6 Submit "As-built" plans after completion of construction to the State Project Representative.

Task LCC-9. Construct Grazing Infrastructure Improvements

- 9.1 Construct fencing, water sources, and other project features contained in the Plan and Design Grazing Infrastructure Improvement Plan in 6.6.
- 9.2 Conduct photo documentation before, during, and after construction.
- 9.3 Submit "As-built" plans after completion of construction to the State Project Representative.

Task LCC-E Environmental Compliance/Mitigation/Enhancement

Task LCC-10. Vegetative Management

- 10.1 Plant supplemental vegetation, including native grass seeding, willow staking, and container plantings on stream banks, plugs, and floodplain.

- 10.2 Construct fencing around identified high risk or other special management zones within the project identified in the Plan and Design Grazing Infrastructure Improvement Plan in (6.6).

Task LCC-F Construction Administration

Task LCC-11. Construction Contract Management

- 11.1 Develop final equipment specifications, including special equipment needs such as ultra low-pressure track equipment for wet ground, additional de-watering needs, etc.
- 11.2 Develop, advertise, and award construction and fencing contract packages following guidelines outlined in Task 1.
- 11.3 Coordinate project/contract activities and directly supervise all construction activities.

Task LCC-G Other

Task LCC-12. Direct and Indirect Project Monitoring

The Local Project Sponsor will conduct all project monitoring, unless specified otherwise, and follow the QAPP, PAEP, and MP as outlined in Task 2.

- 12.1 Conduct ongoing streamflow, water temperature and sediment monitoring at the Doyle Crossing Bridge and existing stations above the project area.
- 12.2 Measure water level and water temperature monthly at existing groundwater monitoring wells one-year pre- and post- project.
- 12.3 Conduct pre- and post-project fish surveys.
- 12.4 Conduct pre- and post-project channel cross-section surveys for width, depth, and entrenchment.
- 12.5 Contracted consultants and/or the Local Project Sponsor conduct intensive storm event monitoring, as needed.
- 12.6 Prepare and submit annual monitoring reports detailing activities and results to the State and other interested stakeholders.

Task LCC-13. Feather River Coordinated Resource Management Group (FR-CRM) Coordination

This task purpose is to coordinate the various agencies and landowners in the watershed in land management activities and development of projects, as well as continuing program development by participating with partners in watershed awareness outreach and education to other stakeholders in the watershed. The coordination task also includes maintaining the CRM's existing meeting schedule with the twenty-three (23) signatory partners, as well as other stakeholders and the larger public; participation with other regional groups in sharing restoration technology, and maintaining the FR-CRM's website.

- 13.1 Coordinate at least nine (9) FR-CRM Management Committee and four (4) FR-CRM Steering Committee meetings. Distribute meeting announcements, agendas and minutes to all members and interested parties on a comprehensive mailing list via email and the FR-CRM website.
- 13.2 Conduct at least two (2) field tours of FR-CRM restoration projects for the purpose of technology transfer. Advertise to other watershed groups, as well as local stakeholders

through news releases, announcements, flyers, and agency referrals. Prior to tour obtain landowner agreements to allow access to their property, and that parties providing transportation have liability insurance. Record tour attendees on a sign-in sheet.

- 13.3 Maintain and enhance programmatic and planning collaboration amongst the signatory entities of the IRWM, through meetings and tours.
- 13.3 Attend at least two (2) regional watershed meetings, workshops and conferences with other watershed restoration practitioners for the purpose of exchanging information and experience. The conferences must be related to watershed restoration and management. Local Project Sponsor will participate as a presenter in at least one of the meetings to share the pond and plug technology as a restoration tool.
- 13.4 Develop and submit at least two grant proposals for future watershed restoration projects, in response to requests for proposals.
- 13.5 Maintain the FR-CRM website as a means to maintain program communication.
- 13.6 Maintain and enhance current K-12 watershed education, including the regionally recognized local Watercourse Program.
- 13.7 Maintain and enhance general public watershed education through four (4) stewardship activities, four (4) news releases, and participating in at least (2) public events with an educational/info booth at such venues as the Plumas/Sierra County Fair, Plumas County Picnic, High Sierra Music Festival, etc.

Project: Upper Middle Fork Project**Local Project Sponsor: County of Plumas (working with U.C. Davis/California Hydrologic Research Laboratory)**

The Upper Middle Fork Project (UMF) project pilots coordinated implementation by two of the IRWM Plan signatories. Plumas County and the Sierra Valley Groundwater Management District each manage significant portions of the project area, but heretofore, have not attempted coordinated management for improved water quality and supply. Future opportunities for enhanced coordination of land use plans, zoning and source water protection will be one outcome of the 12 to 24 water management scenarios that will be developed during the third year of the UMF project. The Upper Middle Fork project pilots the integration of local water management knowledge, local land and water use authorities, and the best available science to further our capacity to practice sustainable resource stewardship at the regional scale. As the first example of the outcome of such integration, this project includes the Forest Service's restoration of the Ramelli Ditch which, in conjunction with improvements made by the Sierra Valley Integrated Water Management Project, will help prevent the Middle Fork from periodically going dry at the lower end of the valley.

The physically-based, water management simulation tool (IWRAM-UMF: Integrated Water Resources Assessment Model for the Upper Middle Fork of Feather River) integrates a watershed model that includes a snow module, a rill/interrill overland flow module, a soil water flow module, an evapotranspiration module, a groundwater module, a stream channel flow module, an erosion/sediment transport module, a nutrient transport module, and a water temperature module with a reservoir operations model, and distributed atmospheric data for current and future climate scenarios. The historical climatic data reconstruction and future climate change data simulation over the Upper Middle Fork will be achieved by means of an existing regional hydroclimate model that was already used successfully in a previous restoration assessment project over Last Chance Creek subwatershed for CalFED. The conceptual framework that is the scientific underpinning for these projects will be refined as experience is gained during the implementation of the water management scenarios in year three of the UMF project. The science decision support tool that we are piloting here begins with our conceptual framework, but then tests that framework through water management scenario simulations. Ten-year time periods will be simulated for both historical and future climate change conditions. For the historical simulations, both extreme flood and drought scenarios will be simulated. Historic and climate change simulations generate a more comprehensive picture of watershed runoff, flood retention, and water quality effects than traditional 100 year flood studies, enabling the County and groundwater management district to "adapt for climate change impacts" on the basis of the best available science. Part of these historic and climate change simulations include extreme multiple flood events and multiyear drought events to assist Plumas County and the SVGMD with integrated flood protection and drought preparedness in the Sierra Valley to "increase regional drought preparedness."

The Feather River Land Trust's Sierra Valley Integrated Water Management Project, the Sierra Valley Groundwater Management District's well protection project, and the Plumas National Forest's Water Quality Improvement Project will implement and monitor source water protection in different ways and in different places in the Upper Middle Fork watershed. Plumas County and the Sierra Valley Groundwater Management District will expand from these projects to the watershed scale, using the integrated water and land management scenario capacity of the IWRAM-UMF model. Water management scenarios will be designed to integrate project results and local knowledge to address priority needs identified in the IRWM Plan. This marriage of science with local implementation knowledge is "Civic Science." Civic science will be used to implement a public process for the development and prioritization of 12 to 24 water management scenarios that:

- Integrate land management, groundwater management, and surface water quality control to provide integrated solutions for
 - reducing winter flood risks,

- preventing groundwater overdraft, and
- reducing summer surface water conflicts, and
- Protect source water quality in both streams and aquifers by
 - enhancing water quality and cold water fish habitat during the summer drought,
 - enhancing, identifying and protecting groundwater recharge areas, and
 - identifying potential water quality degrading aquifer zones and implementing appropriate well head protection measures.

Within the framework above, this project will:

- 1) develop and prioritize water and land management scenarios that will lead to the restoration of the groundwater storage levels to their original prehistoric levels, to the increase of summer base flows, to the decrease of flood flows, to the decrease of summer stream water temperatures to levels necessary for fish survival, and to the decrease of sediment loads within the Upper Middle Fork watershed;
- 2) develop a surface water/groundwater water budget and environmental (for water temperature and sediment) assessment modeling tool that can be utilized to help coordinate the future management actions of the local organizations on the Upper Middle Fork watershed land/water resources.

Task UMF-A Direct Project Administration

Task UMF-1. Reporting, Invoicing, and Budget Management

- 1.1 Local Project Sponsor shall submit quarterly reports to the Grantee in both electronic and hardcopy forms. Reports shall be presented in the formats described in Exhibit E, Report Format.
- 1.2 An invoice should accompany the progress report, and reflect charges for the work completed during the reporting period covered by the quarterly report. The submittal and approval of reports is a requirement for initial and continued disbursement of State funds.
- 1.3 The Local Project Sponsor shall attend quarterly meetings with the Grantee.
- 1.4 The Local Project Sponsor shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied; and shall keep complete and accurate records of all receipts, disbursements, and interest earned on expenditures of such funds, and shall require its contractors or subcontractors to do the same.
- 1.5 Local Project Sponsor shall submit a Project Completion Report to the Grantee with the final project invoice, which shall include, if applicable, certification of final project by a California Registered Civil Engineer, consistent with Condition D-14 of this Grant Agreement.
- 1.6 Local Project Sponsor shall assist the Grantee in completing a Grant Completion Report upon completion of all projects included in Exhibit A, Work Plan.

Task UMF-2. Quality Assurance and Monitoring

- 2.1 Local Project Sponsor shall develop and submit QAPP for approval.
- 2.2 Local Project Sponsor shall develop and submit PAEP and Monitoring Plan for approval.

Task UMF-B Land Purchase/Easement

N/A

Task UMF-C Planning/Design/Engineering/Environmental Documentation

Task UMF-3. Ramelli Ditch Design and NEPA

- 3.1 Design pipeline to replace Ramelli Ditch.
- 3.2 Complete NEPA review for Ramelli Ditch replacement.

Task UMF-D Implementation/Construction

Task UMF-4. Field Monitoring and Field Work

- 4.1 Conduct isotope water signature work at the headwaters of the Middle Fork canyon to identify baseflow water source areas for aquifer geology analysis and characterization of the aquifer/stream exchange in recharge areas and for characterization of the floodplain and lacustrine aquifer parameters.
- 4.2 Conduct stream flow and water quality record assessment and set up additional stream gauging stations to fill in data gaps.
- 4.3 Conduct analyses of existing groundwater data/records within the basin.
- 4.4 Conduct well drawdown pump testing over multiple seasons.
- 4.5 Coordinate the work to set up the weather stations that provide measurements of the local evapotranspiration, precipitation, temperature, relative humidity, wind speed.
- 4.6 Add additional weather stations or specialized equipment, as needed (budget contingency)
- 4.7 Develop short- and long-term monitoring plans
- 4.8 Conduct streamflow, water temperature and sediment monitoring at new and existing stations.
- 4.9 Conduct sampling of groundwater monitoring wells.
- 4.10 Conduct intensive storm event monitoring, as needed.
- 4.11 Prepare annual reports detailing monitoring activities and results.

Task UMF-5. Model Construction and Validation

- 5.1 Reconstruct historical climate data and future climate data under climate change scenarios.
- 5.2 Develop GIS database on the local land and geologic features and historical climate conditions of the basin:
 - 5.2.1. Collect spatially distributed soil survey data, land use/land cover data, vegetation data, groundwater data, and other water related geo-referenced data to establish GIS for the UMF area.
 - 5.2.2. Locate and accumulate all existing hydrologic and hydraulic reports and data pertinent to the project, including, but not limited to precipitation, temperature, snow cover, stream flow, and groundwater data.

5.2.3. Perform field visits to document the visible hydrologic and hydraulic conditions of the watershed for model parameters.

5.3 Parameters' estimation for Integrated Water Resources Assessment Model of Upper Middle Fork of Feather River (IWRAM-UMF)

5.4 Revise IWRAM-UMF conceptual model as necessary based on results of isotope study and field monitoring studies (budget contingency)

5.5 Calibration of the IWRAM-UMF model by historical hydrologic and environmental data observed in the Upper Middle Fork (UMF) basin.

5.6 Validation of the IWRAM-UMF model by historical hydrologic and environmental data at UMF basin.

5.7 Flood, stormwater recharge, baseflow discharge modeling using the IWRAM-UMF model.

Task UMF-6. Application of Model and Development of Management Scenarios

6.1 Install model and conduct training.

6.2 Development of various water/land use management scenarios for the basin, based upon local knowledge and experience, and on the insight on hydrological and environmental processes to be gained from field monitoring and model implementation studies.

6.3 Simulation of the developed water/land use management scenarios by the calibrated/validated model in order to quantify their surface/subsurface water balances and environmental consequences;

6.4 Implement a reservoir operation model for the simulation of the reservoir re-operations within the basin under the newly developed land use and water management scenarios.

6.5 Implement and use a snow model for the simulation of snow conditions in the basin.

Task UMF-7. Ramelli Ditch Replacement

7.1 Replace Ramelli Ditch with pipeline.

Task UMF-E Environmental Compliance/Mitigation/Enhancement

N/A

Task UMF-F Construction Administration

8.1 Coordinate all project/contract activities and monitor construction and implementation.

Task UMF-G Other

Task UMF-8. Coordination, Planning, and Education

9.1 Maintain and enhance communication and collaboration among Local Project Sponsor, Plumas GeoHydrology, and the public at large.

9.2 Maintain and enhance excellent programmatic and planning collaboration with the signatory entities of the IRWM.

9.3 Provide three public education presentations in Plumas County and/or Sierra County.

Project: Quincy Wetlands Treatment Project

Local Project Sponsor: Plumas Corporation (Feather River Coordinated Resource Management Group, working with Quincy Community Services District)

The Quincy Community Services District operates a wastewater treatment plant in American Valley that is located adjacent to Spanish Creek near the Quincy airport. The plant processes wastewater for both Quincy and East Quincy, with service to approximately 1750 connections. Plant effluent (treated wastewater) monthly average flow (previous three years) averages 0.81 million gallons per day. Daily peak wet weather flow (highest last three years) is 3.1 million gallons per day. Under the present NPDES (National Pollutant Discharge Elimination System) permit, discharge of treated wastewater is allowed into Spanish Creek from November 1 to May 15 of each year, and is restricted during that period of time based on the measured flow of Spanish Creek. During low flow years, discharge is severely restricted.

From mid May until November, treated wastewater is utilized as irrigation water on adjacent pasturelands. Any changes in future management strategies on adjacent lands that would reduce the utilization of treated wastewater as an irrigation source would have serious financial and regulatory implications for the services district, requiring other alternatives for the distribution of treated wastewater during the non-discharge period. A constructed wetland is a viable alternative to pastureland application.

In anticipation of existing and future regulatory requirements, the Feather River Coordinated Resource Management Group will work with the Quincy Community Services District to develop a constructed wetland on district property that will have the potential to be extended onto adjacent private lands. The benefits of this project include:

- Increased dilution of treated waters due to mixing with off-site irrigation waters from Clear Stream and Spanish Creek.
- Further degradation of metals and other pollutants through increased solar exposure.
- Absorption and treatment of metals by emergent riparian vegetation and microbiological organisms.
- Creation of wetland habitat, especially Northwestern pond turtles (a state listed species). Populations already exist within the district boundary.
- Reduction of suspended solids and turbidity.
- Least-cost alternative for meeting future discharge requirements.
- Potential reduction of pollutants from agricultural return water.
- Increased ground water recharge.
- Create grade control structures at the confluence of Spanish Creek and Clear Stream Creek, mitigating advancing headcuts and reducing sediment contributions into Spanish Creek.
- Minimize potential impacts to downstream beneficial uses (i.e. contact water sports, aquatic habitats, etc.).

The goal of the Quincy Community Services District, in partnership with Plumas Corporation and the Feather River Coordinated Resource Management Group, is to develop an integrated wetland system that will function as a secondary treatment system for both treated wastewater and agricultural return waters. The project area is located mostly on QCSD property initially, affecting approximately 25 to 30 acres. The potential for expansion onto adjacent properties is likely, and could eventually encompass between 50 and 75 acres or more in size.

Design criteria include the following features:

- Redirection of pumped water from Spanish Creek and channel flow in the Clear Stream ditch through a developed wetland, prior to returning to the ditch several hundred feet down gradient. A series of shallow ponds will also be developed in the ditch, the intent of which is to enhance natural attenuation of potential pollutants, especially those transported in Clear Stream ditch from

up-gradient developed lands such as the airport, State Highway 70, and other commercial properties. Developed ponds and wetlands will continue down Clear Stream to just above the confluence of Spanish Creek. *[Note: QCSD is working with the Regional Water Quality Control Board to determine whether the final point of project discharge will be in Spanish Creek or Clear Stream. The final discharge point will be analyzed and selected as part of the CEQA review.]*

- A series of shallow ponds, supported by reconstructing an up-gradient ditch, will be developed in what is presently an unlined emergency pond. Down-slope gradient is 2-4% and will support this design with the minimum of excavation. Excavated materials will be utilized to develop earthen mounds that can be used by waterfowl and other riparian dependent species.
- At present, a migrating headcut is advancing upstream from the confluence of Spanish Creek and the Clear Stream ditch. As a result, turbidity values are elevated and are impacting the ability of the services district to meet compliance standards imposed under present and future waste discharge requirements. The integrity of the ditch is also threatened, potentially affecting future irrigation needs. The project includes a step pool, grade control system that would not only check the advance of the headcut, but also offer additional treatment of the water through a series of cascades, increasing aeration and mixing.

Task Q-A Direct Project Administration

Task Q-1. Contracts and Permits

- 1.1 Local Project Sponsor shall document steps taken in soliciting and awarding any contracts to perform grant work complying with all applicable laws and regulations regarding securing competitive bids and undertaking competitive negotiations in Grantee's contracts with other entities for acquisition of goods and services and construction of public works with funds provided by State under this Grant Agreement. Grantee shall provide State with a copy of the awarded contract. Local Project Sponsor shall document all contractor activities and expenditures in quarterly reports. The State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement, including any subcontracts. Provisions ensuring this access shall be in all contracts or subcontracts entered into pursuant to its Grant Agreement with the State.
- 1.2 No work that is subject to California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) may proceed under this Agreement until the State receives documents that satisfy the CEQA/NEPA process.
- 1.3 Local Project Sponsor shall secure all required permits for project work. No work that is subject to permitting may proceed under this Agreement until documents that satisfy the permitting process(es) are received by the State.

Task Q-B Land Purchase/Easement

Task Q-2. Easement

- 2.1 Formalize drainage easement between Quincy CSD and adjacent landowner.

Task Q-C Planning/Design/Engineering/Environmental Documentation

Task Q-3. Environmental Review and Permits

- 3.1 Conduct resource surveys, including wildlife, botany, and archeology.
- 3.2 Complete CEQA review, including determination of final discharge point.
- 3.3 Obtain 401 and 404 permits and agreement with Department of Fish & Game.

Task Q-4. Project Design

- 4.1 Prepare final design and layout of facilities
- 4.2 Submit final design to Regional Water Quality Control Board for approval.

Task Q-D Construction/Implementation

Task Q-5. Construction

- 5.1 Perform earth work to configure site
- 5.2 Construct spillways and conveyance ditch
- 5.3 Install control valves
- 5.4 Construct detention ponds
- 5.5 Construct grade control structures
- 5.6 Improve or expand step pool headcut structures, if needed (budget contingency)
- 5.7 Establish groundwater monitoring wells

Task Q-E Environmental Compliance/Mitigation/Enhancement

Task Q-6. Restoration

- 6.1 Reestablish vegetation, if necessary.

Task Q-F Construction Administration

Task Q-7. Construction Administration

- 7.1 Develop final equipment specifications
- 7.2 Develop, advertise and award construction contract package
- 7.3 Provide direct supervision of all construction activities by FRCRM Project Manager and QCSD staff.
- 7.4 Coordinate project and contract activities with QCSD staff.
- 7.5 Coordinate all other project/contract activities and monitor construction.

Task Q-G. Other

Task Q-8. Post-Project Monitoring and Evaluation

- 8.1 Conduct monitoring as described in PAEP
- 8.2 Establish on-site evaporation monitoring station

8.3 Monitor effectiveness of metal extraction through use of tertiary wetlands

8.4 Evaluate potential for project expansion

8.5 Monitor western pond turtle population trends

8.6 Prepare annual reports detailing monitoring activities and results

Task Q-9. Coordination, Planning, and Education

9.1 Maintain and enhance communication and collaboration within the 23-member FRCRM as well as between the FRCRM and larger public.

9.2 Conduct monthly FRCRM meetings augmented with frequent general public/stakeholder meetings and watershed project tours

9.3 Maintain and enhance excellent programmatic and planning collaboration amongst the signatory entities of the IRWM

9.4 Maintain and enhance current K-12 watershed education, including special events such as the regionally recognized Watercourse tour

Project: National Forest Water Quality Improvement Project

Local Project Sponsor: USDA/Forest Service – Plumas National Forest

This project includes a suite of site-specific treatments designed to improve water quality, reduce sedimentation, improve timing of flows, and increase water yields. The most significant water quality impairments in the watershed are related to sedimentation and temperature. Funding is also sought to complete five Watershed Analyses. These analyses will allow the Plumas National Forest to ascertain current watershed conditions. During the analysis process new projects will be identified, prioritized, and worked into the out-year planning process.

To comply with environmental regulations it will be necessary to complete an Environmental Assessment (EA), Categorical Exclusion (CE) or Project Initiation Notice (PIN) before completing any site-specific treatments.

In 1997, the Plumas National Forest started a comprehensive inventory of its existing restoration sites. To date, over 1,000 sites dating back to 1938 have been inventoried. A component of this proposal is to obtain funding to address those maintenance needs identified during the initial inventory and to continue inventorying additional known projects. Many of the sites were scheduled to be revisited in three to five years. Some of this grant will be used to conduct this monitoring. Forest personnel have used the data gained from this type of monitoring to adapt restoration techniques and improve project design.

General Project Descriptions

[Project specifications and typicals were submitted in hard copy as part of the grant application.]

The table below identifies the types of physical actions planned for each project, with page references to the hard copy plans and specifications. Generally, the projects are described as follows:

Road Relocation or Realignment: In typical road relocation, roads that are along streams or are dissecting meadows will be relocated out of the floodplain. The old roadbed will be subsoiled, recontoured seeded with native seed mix and mulched. In realignments portions of the road are relocated.

Road Obliteration: In these projects temporary roads and some system roads that are causing resource damage but are no longer needed as part of the transportation system will be obliterated. The road prism will be subsoiled, recontoured seeded with native seed mix and mulched. In some cases it will be necessary to remove fill material. Frequently this material is used as fill when repairing gully systems.

Road Improvement: This work includes reconstruction, resurfacing, rocking and improving drainage. In most cases crushed rock is used to resurface or surface a road. Studies show that unsurfaced roadbeds generate soil losses six to eight times greater than surfaced roads. On other projects drainage dips or water bars will be constructed to improve road drainage.

Stream and Meadow Restoration: At some sites banks slope modification would occur to expedite a natural process, untreated vertical banks will erode until they reach the natural angle of repose. Eroding material increases the souring power of the water traveling down the stream system this leads to more bank erosion. In addition, vegetation does not readily grow on over steepened streambanks. Sometimes point bars will be reshaped to decrease the stress on the opposite bank. Willows may be harvested from the surrounding area in channel, adjacent to the channel and transplanted into the reslope stream bank. Banks will be seeded with native species and mulched or covered with erosion cloth. In some cases it will be necessary to construct headcut controls or grade control structures. These structures will be constructed out of varying sizes of rock, back filled with soil and planted. In several locations road prisms or skid trails have captured stream flow in these areas stream flow will be directed back into the channel and the gullies and rills will be repaired unless the road is identified for obliteration.

Conifer Encroachment: Mechanical or hand thinning treatments will occur in meadows and aspen stands to release the riparian hardwood species or to stop meadow conversion.

Fisheries Improvement: Fisheries will benefit from addressing erosion and sedimentation problems originating from plugged or undersized culverts. Culverts will be replaced or removed. In some cases bottomless arches or low water crossings will be used in place of culverts. Additional benefits of these actions are improved fish passage and spawning gravels.

Prepare Watershed Analysis (WA): Hydrologists with the assistance of members of an Inter Disciplinary Team will analyze the existing condition of six 5th field watersheds. These watersheds will be characterized, issues will be identified, opportunities will be identified and priorities will be set.

Task PNF-A Direct Project Administration

The work performed in this budget category shall include the following:

1. Local Project Sponsor shall submit quarterly reports to the Grantee in both electronic and hardcopy forms. Reports shall be presented in the formats described in Exhibit E, Report Format.
2. An invoice should accompany the progress report, and reflect charges for the work completed during the reporting period covered by the quarterly report. The submittal and approval of reports is a requirement for initial and continued disbursement of State funds.
3. The Local Project Sponsor shall attend quarterly meetings with the Grantee.
4. The Local Project Sponsor shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied; and shall keep complete and accurate records of all receipts, disbursements, and interest earned on expenditures of such funds, and shall require its contractors or subcontractors to do the same.
5. Local Project Sponsor shall submit a Project Completion Report to the Grantee with the final project invoice, which shall include, if applicable, certification of final project by a California Registered Civil Engineer, consistent with Condition D-14 of this Grant Agreement.
6. Local Project Sponsor shall assist the Grantee in completing a Grant Completion Report upon completion of all projects included in Exhibit A, Work Plan.

Task PNF-B Land Purchase/Easement

N/A

Task PNF-C Planning/Design/Engineering/Environmental Documentation

The work in this budget category include all project specific surveys, data analysis, draft and final design, environmental investigations, pre-permitting mitigations, transportation related to this budget item and NEPA document preparation as required for each project (as reflected in the table below):

1. Develop schedule.
2. Complete all surveys and field reconnaissance.
3. Develop and GPS initial design layout for Inter Disciplinary Team (IDT) review.
4. Complete IDT project field reviews.
5. Conduct surveys for wildlife, botany and archaeology.
6. Complete pre-permitting mitigations, if any, (i.e. Section 106 Evaluation, SHPO concurrence).
7. Prepare required NEPA analysis.
8. Complete final design including estimates for materials.
9. Complete and submit permit documents as required to appropriate regulatory agency (Army Corps of Engineers, CDF&G and RWQCB).

Task PNF-D Construction/Implementation

The work in this budget category include all construction and revegetation activities throughout the duration of the project and includes:

1. Order materials and supplies.
2. Initiate construction, restoration, obliteration, monitoring, inventories, conifer removal, development of mine layer, or installation of stream gages and toilets.
3. Deliver materials and supplies to project site.
4. Conduct monthly flow measurements at applicable sites.
5. Install air and water hobotemps mid-June.
6. Following the modified SCI protocol, collect the following data at each monitoring reach: three monumented elevational cross-section surveys; 50 transect surveys include bank stability, bank angle, shore depth, bankfull width, bankfull depth, percent shade; survey entire reach for longitudinal gradient, pool:riffle habitat, pool depths, Wolmann pebble counts, percent pooltail fines, and large woody debris.
7. Collect water samples for lab analysis of nutrients and *E.coli* at Lake Davis before and after toilet installation.
8. Collect water samples and analyze in the field for pH, alkalinity, turbidity, dissolved oxygen, temperature, and electro-conductivity.
9. Collect macroinvertebrate samples.
10. Check hobotemps once in early August where there is a potential for stream flow to go subsurface.
11. Remove all hobotemps in mid-September and download.
12. Mail out bug samples for analysis.
13. Conduct applicable Best Management Practices Monitoring, September thru November.
14. Complete all project components 2010.
15. Complete vegetation transects.
16. Conduct utilization monitoring.

Task PNF-E Environmental Compliance/Mitigation/Enhancement

N/A

Task PNF-F Construction Administration

The work for this budget category includes all construction contract management, supervision and direction of construction work including:

1. Develop final equipment specifications for project components under contract.
2. Develop, advertise and award construction contract package where applicable.
3. Direct supervision of all construction/implementation activities by the Watershed Engineer or Project Hydrologist, both contract and Forest Account.
4. Staff coordination of project/contract activities and contract administration.
5. Conduct Quality Assurance Inspections.
6. Advise operators on project modifications.
7. Certify project completion.

Task PNF-G. Other

The work for this budget category includes all direct and indirect project monitoring activities as outlined in the PAEP including:

1. Continue ongoing streamflow, water temperature and sediment monitoring where designated
2. Purchase and install stream gages
3. Conduct field inspection of existing inventoried restoration sites
4. Prepare annual reports detailing monitoring activities and results.

The Plumas National Forest will conduct ongoing adaptive management monitoring beyond the scope of this Grant Agreement.

Table of Specific Projects/Tasks

Task No. & Watershed	Activity	Description	NEPA
Upper Indian Group			
PNF-1 Upper Indian	road improvement, sediment reduction	reconstruct 27N25Y, 27N19Y, 27N20Y, 27N22Y	CE Maintenance
PNF-2 Upper/Lower Indian	road improvement, sediment reduction	road improvement 29N43, F spur and 0.25 miles Hungry Creek Road	Becknel Hydro report
PNF-3 Upper Indian	stream channel stabilization	headcut repair and streambank treatment	Boulder EA
PNF-4 Upper Indian	stream channel stabilization	construct grade controls and plunge pools, repair headcuts at several locations along Antelope Creek	Draft Upper Indian WA
PNF-5 Upper Indian	stream channel stabilization	construct grade controls and plunge pools, repair headcuts at locations along Little Antelope Creek	Draft Upper Indian WA
PNF-6 Upper Indian	stream channel stabilization	construct grade controls and repair headcuts at several locations along Boulder Creek	Draft Upper Indian WA
PNF-7 Upper Indian	Write NEPA and complete CWE	Write EA for restoration work	Prepare NEPA document
Last Chance Group			
PNF-8 Last Chance	stream channel stabilization	construct headcut controls	Summit and Downing Allotment EA
PNF-9 Last Chance	stream channel stabilization	fix down cutting channel and channel breach, construct headcut controls, reconnect stream channel, remove landing encroachment (2 locations), redirect 6500 ft of stream flow	Squaw WA & Red Clover DFPZ EA
PNF-10 Last Chance	stream channel stabilization	headcut repair: Little Stony	Siegfried EA
PNF-11 Last Chance	stream channel stabilization	headcut repairs (2), repair gullies (300' and 150')	Last Chance WA
PNF-12 Last Chance	road improvement, sediment reduction	construct drainage dips: 25N66, 25N72, 25N78, 26N08 approx 7.2 miles	Squaw WA & Red Clover DFPZ EA
PNF-13 Last Chance	road improvement, sediment reduction	install waterbars, various locations	Squaw WA & Red Clover DFPZ EA
PNF-14 Last Chance	road realignment	25N65, 400 feet	Squaw WA & Red Clover DFPZ EA
PNF-15 Last Chance	road relocation/recontour	25N65A, approximately 3 miles	Squaw WA & Red Clover DFPZ EA
PNF-16 Last Chance	road relocation/recontour	25N72, approximately 1.2 miles	Squaw WA & Red Clover DFPZ EA
PNF-17 Last Chance	road relocation/recontour	28N03, approx 1/2 mile	Jordan EA
Red Clover Group			
PNF-18 Red Clover	road improvement, sediment reduction	24N03Y: pull 2 Xings, reconnect channels at grade	Spike EA
PNF-19 Red Clover	road oblit, reconstruct & stream stabilization	10.5 mi temp rd, sediment reduction to Dotta and Red Clover Creeks, relocate 22N22Y	Dotta MP Salvage EA
PNF-20 Red Clover	road realignment	25N05, 1800 feet	Red Clover Road Analysis

Task No. & Watershed	Activity	Description	NEPA
PNF-21 Red Clover	road relocation/recontour	24N22Y, approx 2 miles	Crock EA
PNF-22 Red Clover	stream channel stabilization	headcut repair and streambank treatment, Dixie Cr	Spike MPT Hydro report
PNF-23 Red Clover	stream channel stabilization	headcut repair, treat gully and fencing	Chase Allotment EA
PNF-24 Red Clover	Write NEPA and complete CWE	Write EA for restoration work	Prepare NEPA document
East Branch Group			
PNF-25 Lower Indian	Identify existing condition and needs	Write watershed analysis 2007	Pre NEPA
PNF-26 Spanish	Identify existing condition and needs	Write watershed analysis 2006	Pre NEPA
PNF-27 Spanish	road improvement, sediment reduction	Bean Hill, 25N17	CE Maintenance
PNF-28 Spanish	stream channel stabilization	bank work, 900 feet	Grizzly EA
PNF-29 Spanish	stream channel stabilization and CE	construct headcut control structures, redirect flow	Hungarian EA
PNF-30 Spanish	Write NEPA and complete CWE	Write EA for restoration work	Prepare NEPA document
Davis-Frenchman Group			
PNF-31 Frenchman	Write NEPA and complete CWE	Write EA for restoration work	Prepare NEPA document
PNF-32 Lake Davis	road improvement, sediment reduction	blade and shape 23N03Y and 23N03YA, place 6" of crushed rock	Mabie EA
PNF-33 Lake Davis	road obliteration & stream stabilization	24N10D, 24N42X, Freeman Creek	Summit T.S. EA
PNF-34 Lake Davis	road obliteration & stream stabilization	stream stabilization, redirect flow, obliterate temp roads	Threemile ISS EA
PNF-35 Lake Davis	road relocation/recontour	approx 1.5 miles new construction/obliteration	Happy Jack EA
PNF-36 Lake Davis	stream channel stabilization	construct headcut control	Carmen MPT EA
PNF-37 Lake Davis	stream channel stabilization	gully and headcut repair, redirection of flow, reveg	Penman 2 EA
PNF-38 Lake Davis	stream channel stabilization	gully and headcut repair, redirection of flow, reveg	Eagle Point Salvage EA
PNF-39 Lake Davis	stream channel stabilization	gully repair	Davis Timber Sale EA
PNF-40 Lake Davis	stream channel stabilization	headcut repair, stream stabilization cow creek,	Westside Timber Sale
PNF-41 Lake Davis	stream channel stabilization	redirect flow, headcut repair, sediment reduction	Westside Salvage EA
PNF-42 Lake Davis	stream channel stabilization	Big Grizzly Creek accelerated bank erosion	Prospect EA
PNF-43 Lake Davis	water quality improvement	reduce the potential for introduction of contaminants from human fecal matter at Fairview Point, Long Point and Freeman Creek	Lake Davis Fishing Access and toilet installation DN
Middle-South Group			
PNF-44 Nelson-Onion	Identify existing condition and needs	Write watershed analysis 2007	Pre NEPA
PNF-45 Nelson-Onion	stream channel stabilization	headcut repair and culvert maintenance	McFarland CE
PNF-46 Lower MF Feather	meadow improvement	remove encroaching lodgepole, NEPA needs to be refreshed	Tamarack Windfall SSTS
PNF-47	mdw improvement, stream	Meadow enhancement, construct check	Rock Island Project

Task No. & Watershed	Activity	Description	NEPA
Lower MF Feather	stabilization	dams	
PNF-48 Lower MF Feather	road improvement, sediment reduction	Improve 300' of Cleghorn Bar road	CE Maintenance
PNF-49 Lower MF Feather	stream channel stabilization	reslope stream banks, reveg. portions of Boulder Creek above road 23N35X	CE Maintenance
PNF-50 Lower MF Feather	Write NEPA and complete CWE	Write EA for restoration work	Robinson EA , refresh NEPA
PNF-51 South Fork Feather	Identify existing condition and needs	Write watershed analysis	Prepare NEPA document
PNF-52 South Fork Feather	meadow improvement	meadow enhancement, non-system road closure - project has KV funds	Pre NEPA
Regional Group			
PNF-53 Plumas	trend monitoring	install 3 gages: Spanish, Greenhorn, Middle Fork	NA
PNF-54 Plumas	monitoring	948 sites previously inventoried	NA
PNF-55 Plumas	sediment reduction	water source reconstruction 12 sites	CE Maintenance
PNF-56 Plumas	Write NEPA and complete CWE	2 each per district	Write CEs

Project: Genesee Valley Integrated Water Management Project

Local Project Sponsor: Feather River Land Trust

The Feather River Land Trust's (FRLT's) 880-acre Genesee Valley property includes 2.5 miles of Indian Creek. The goals for the site are to increase instream flows, improve irrigation efficiency, improve groundwater recharge, lower stream water temperatures, decrease erosion, remove invasive, non-native plants, and increase overstream vegetation cover. The project will install 25,000 feet of permanent riparian fencing, creating a .33-mile wide, 2.5-mile long riparian buffer strip between irrigated pasture and the creek to accelerate the development of riparian vegetative stream cover. Shading, when combined with narrowing and deepening of the Indian Creek channel, is predicted to improve water quality by cooling peak summer surface stream temperatures by at least six degrees. The project will improve wet meadow/irrigated pasture management by installing off-stream water sources for cattle and implementing a progressive rotational grazing program by installing 35,000 ft. of pasture fencing to control livestock on existing wet meadow habitat. The project will eliminate surface (irrigation) water discharge into Indian Creek.

The project will also pipe 16,000 feet of an open and badly leaking diversion ditch, repair Taylor Lake's dam and headgate leakage, and dedicate a portion of the saved water to instream flow augmentation in Indian Creek during the summer low flow season. The overall water rights are 1,700 acre-feet per year. A fish screen will be installed on the irrigation pipeline at the point of diversion on Indian Creek.

This property will serve as a demonstration of co-existing sustainable grazing and preservation of conservation values for regional landowners.

The project will implement integrated monitoring of water quality and coldwater fishery habitat responses. Results will be cross-referenced with paired treatment and monitoring of the FRLT Sierra Valley project through PAEP implementation.

Task LTG-A Administration

Task LTG-1. Contracts and Permits

- 1.1 Local Project Sponsor shall document steps taken in soliciting and awarding any contracts to perform grant work complying with all applicable laws and regulations regarding securing competitive bids and undertaking competitive negotiations in Grantee's contracts with other entities for acquisition of goods and services and construction of public works with funds provided by State under this Grant Agreement. Grantee shall provide State with a copy of the awarded contract. Local Project Sponsor shall document all contractor activities and expenditures in quarterly reports. The State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement, including any subcontracts. Provisions ensuring this access shall be in all contracts or subcontracts entered into pursuant to its Grant Agreement with the State.
- 1.2 No work that is subject to California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) may proceed under this Agreement until the State receives documents that satisfy the CEQA/NEPA process.
- 1.3 Local Project Sponsor shall secure all required permits for project work. No work that is subject to permitting may proceed under this Agreement until documents that satisfy the permitting process(es) are received by the State.

Task LTG-2. Reporting, Invoicing, and Budget Management

- 2.1 Local Project Sponsor shall submit quarterly reports to the Grantee in both electronic and hardcopy forms. Reports shall be presented in the formats described in Exhibit E, Report Format.
- 2.2 An invoice should accompany the progress report, and reflect charges for the work completed during the reporting period covered by the quarterly report. The submittal and approval of reports is a requirement for initial and continued disbursement of State funds.
- 2.3 The Local Project Sponsor shall attend quarterly meetings with the Grantee.
- 2.4 The Local Project Sponsor shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied; and shall keep complete and accurate records of all receipts, disbursements, and interest earned on expenditures of such funds, and shall require its contractors or subcontractors to do the same.
- 2.5 Local Project Sponsor shall submit a Project Completion Report to the Grantee with the final project invoice, which shall include, if applicable, certification of final project by a California Registered Civil Engineer, consistent with Condition D-14 of this Grant Agreement.
- 2.6 Local Project Sponsor shall assist the Grantee in completing a Grant Completion Report upon completion of all projects included in Exhibit A, Work Plan.

Task LTG-B Land Purchase/Easement

N/A

Task LTG-C Planning/Design/Engineering/Environmental Documentation

Task LTG-3. Environmental Compliance

- 3.1 Conduct botany, wildlife, and archeological surveys.
- 3.2 Complete CEQA review.
- 3.3 Complete and submit permit documents to Army Corps of Engineers, US Forest Service, Plumas County, CDF&G, and RWQCB.
- 3.4 Work with NRCS to develop permits and monitor permit compliance.

Task LTG-4. Engineering and Design

- 4.1 Engineering and design for repair of Taylor Lake dam and headgate.
- 4.2 Engineering and design to covert irrigation ditch to pipeline.

Task LTG-D Construction/Implementation

Task LTG-5. Repair Taylor Lake Dam and Headgate

- 5.1 Remove brush and debris from dam and headgate.
- 5.2 Replace headgate.
- 5.3 Construct new, sloping water intake.

5.4 Install fish screen.

5.5 Apply remedial measures to reduce seepage.

Task LTG-6. Repair Irrigation Ditch

6.1 Pipe 16,000 feet of open diversion ditch.

6.2 Repair side ditches to improve irrigation efficiency.

Task LTG-7. Grazing Improvements

7.1 Install 25,000 feet of fencing to exclude cattle from floodplain.

7.2 Install six 700-gallon troughs for off-stream water supply.

7.3 Install 35,000 feet of cross fencing to implement rotational grazing.

Task LTG-E Environmental Compliance/Mitigation/Enhancement

Task LTG-8. Habitat Improvements

8.1 Recruit, train, and supervise FRLT revegetation volunteers.

8.2 Prepared stream restoration plan with assistance from consultants.

8.3 Install logs, rootwads, and boulders to enhance pool/riffle development and cold water refugia.

8.4 Remove non-native plant species.

8.5 Revegetate stream bank and riparian area (plug willows, plant cottonwoods and alders)

Task LTG-F Construction Administration

Task LTG-9. Construction Contract Management

9.1 Develop, advertise, and award construction and fencing contract packages as described in Task 1.1.

9.2 Coordinate project/contract activities and monitor construction activities.

Task LTG-G Other

Task LTG-10 Additional Tasks

10.1 Work with legal adviser to dedicate a portion of the Heart K water rights to instream flow augmentation in Indian Creek during the summer low-flow season, including bypass agreement with downstream diverters.

10.2 Develop short and long term ranch management plans

Project: Sierra Valley Well Inventory, Capping, & Sealing Project

Local Project Sponsor: County of Plumas (working with Sierra Valley Groundwater Management District)

This three-year project will prevent groundwater contamination in shallow, historic, abandoned wells from permeating higher quality water strata in other parts of the Sierra Valley aquifer. Manganese and boron are present in isolated geothermal water strata at higher concentrations than the drinking water (MCL) standards for these constituents. Inactive wells will be inventoried and evaluated for potential public health and safety risks and also for reuse potential as monitoring or recharge wells. The SVGMD estimates that 50 inactive wells in Sierra Valley may need to be capped, and five to ten wells will actually need to be sealed. These tasks would be accomplished in year three, after the well inventories and assessments have been completed.

In addition, it is important to spatially display underground water movement and groundwater volume changes. "Seeing" groundwater pumping effects, seasonal aquifer recharge by flood and irrigation flows and the location and behavior of geothermal water strata, for example, are effective ways to improve public understanding of an "invisible" water resource. Source water protection relies on public understanding of, and support for, groundwater protection measures.

A GIS database will be used to examine, analyze, and display existing groundwater and hydrologic constants that define groundwater conditions in the basin. These elements would include:

- Well aerial distribution
- Well depth
- Well yield
- Specific capacity
- Groundwater levels
- Groundwater extraction
- Groundwater storage capacity
- Groundwater in storage
- Changes in groundwater in storage
- Groundwater flow direction.
- Groundwater Quality

The Geographic Information System can be readily placed over existing digital map products available at the SVGMD. The SVGMD will work cooperatively with DWR to evaluate the current level of monitoring and to identify areas where coverage is lacking. The Upper Middle Fork project will expand aquifer analysis into selected areas outside of the alluvial basin where wells are constructed in hard fractured rock (but still within the jurisdiction of SVGMD). Communities and residences that have developed in the peripheral hard rock areas depend on groundwater sources that are insufficient under peak demand conditions. Currently, there is no capacity to assess the degree of the problem or to predict how additional development will impact water supplies in the uplands or in the Sierra Valley basin. It is anticipated that data from groundwater level monitoring in these areas in combination with modeling simulations and isotope analyses provided by the Upper Middle Fork project will assist SVGMD in making water management decisions. Also, scenarios will be used to evaluate the potential protections afforded by additional groundwater assessment and management measures. This project in combination with the Upper Middle Fork project will assist Plumas County in initiating the development of a water element for the Upper Middle Fork area of the General Plan. This project will also help ensure that water management practices or activities in one sub-area of the Upper Middle Fork subwatershed will not negatively impact the water management in another area of the basin. Redirected impacts from permitted land and water uses on the Plumas County side of the Sierra Valley have been a long-term

concern for Sierra County.

Task SVW-A Administration

Task SVW-1. Contracts and Permits

- 1.1 Local Project Sponsor shall document steps taken in soliciting and awarding any contracts to perform grant work complying with all applicable laws and regulations regarding securing competitive bids and undertaking competitive negotiations in Grantee's contracts with other entities for acquisition of goods and services and construction of public works with funds provided by State under this Grant Agreement. Grantee shall provide State with a copy of the awarded contract. Local Project Sponsor shall document all contractor activities and expenditures in quarterly reports. The State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement, including any subcontracts. Provisions ensuring this access shall be in all contracts or subcontracts entered into pursuant to its Grant Agreement with the State.
- 1.2 No work that is subject to California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) may proceed under this Agreement until the State receives documents that satisfy the CEQA/NEPA process.
- 1.3 Local Project Sponsor shall secure all required permits for project work. No work that is subject to permitting may proceed under this Agreement until documents that satisfy the permitting process(es) are received by the State.

Task SVW-B Land Purchase/Easement

N/A

Task SVW-C Planning/Design/Engineering/Environmental Documentation

Task SVW-2. Design, Environmental Review, and Planning

- 2.1 Coordinate well inventory with Plumas County Environmental Health and Sierra County.
- 2.2 Determine appropriate design for each proposed well cap or seal.
- 2.3 Prepare environmental assessment for well capping sites (as needed).
- 2.4 Coordinate well capping plans with SVGMD and consultants.

Task SVW-D Construction/Implementation

Task SVW-3. Well Inventory

- 3.1 Field locate each supply well and monitoring well in the Valley (approx. 500 wells) using GPS.
- 3.2 Classify wells as to type, use, depth, type of pump and available horsepower, casing diameter, etc.
- 3.3 Prepare tables showing well type, casing diameter, casing diameter, extent of perforations and other information.
- 3.4 Link GPS well location data with drilling log spreadsheets and create a digital layer of linked well location and drilling log data.

- 3.5 Prepare maps, overlaid on USGS topographic maps, showing well locations and measurement protocols at each well.
- 3.6 Acquire geolocated well locations and other GIS layers.
- 3.7 Reformat GIS layers into an ESRI format that can readily be transformed into an ESRI software package such as ArcGIS, ArcView or Arcinfo.
- 3.8 Create a GIS layer that in an ESRI format that can be read into ArcGIS format and ensure overlay with other digital GIS layers. Convert GPS coordinates into a shapefile or an ArcGIS layer file.

Task SVW-4. Well Capping and Sealing

- 4.1 Prioritize wells for capping or sealing in consultation with Plumas County Environmental Health, Sierra County, and Sierra Valley Groundwater Management District.
- 4.2 Contract with construction company to cap up to 50 inactive wells.
- 4.3 Contract with construction company to seal up to 8 wells.

Task SVG-E Environmental Compliance/Mitigation/Enhancement

N/A

Task SVW-F Construction Administration

Task SVW-5. Construction Contracts

- 5.1 Develop, advertise, and award construction contracts as described in Task 1.1.
- 5.2 Coordinate project/contract activities and oversee construction.

Task LTG-G Other

Task SVW-6. Education and Outreach

- 6.1 Conduct initial public information campaign, include newspaper notices.
- 6.2 Target public outreach through Sierra Valley Resource Conservation District, Upper Feather River Watershed Group, and Plumas-Sierra Cattlemens Association.
- 6.3 Conduct second round of public outreach at conclusion of inventory stage and beginning of capping/sealing stage.
- 6.4 Coordinate development of groundwater management scenarios with the Upper Middle Fork project.

Project: Sierra Valley Integrated Water Management Project

Local Project Sponsor: Feather River Land Trust

This project will be implemented by the Feather River Land Trust on the 575-acre Maddalena Ranch property to install 8,500 feet of permanent riparian fencing and revegetate eroding stream banks. Water quality will be improved by creating a 60-acre riparian buffer strip between irrigated pasture and the Middle Fork of the Feather River. The development of wetland and riparian stream cover, when combined with narrowing and deepening of the river channel, is predicted to cool peak summer surface stream temperatures by at least six degrees.

The project implements the NRCS Ranch Management Plan to improve wet meadow/irrigated pasture management through installing off-stream water sources and cattle fencing to enhance existing wetlands and waterfowl habitat, increase groundwater infiltration, and eliminate surface (irrigation) water discharge into the Middle Fork. Specific elements include:

- Install 8,500 feet of fencing around the 60-acre permanent wetland to exclude the area from cattle grazing.
- Install 6,000 feet of cross-fencing. NRCS is providing \$9,000 in matching funds via the EQIP Program.
- Install well and pump to provide cattle water and facilitate rotational grazing. NRCS is providing \$10,500 in matching funds via the EQIP Program.
- Install a stream stabilization structure to control erosion. NRCS will provide \$2,200 in matching funding via the EQIP Program.
- Replace two weir structures to control erosion and improve irrigation efficiency. NRCS will provide \$1,500 in matching funds via the EQIP Program.
- Remove nonnative plant species and re-seed with native grasses on 50 acres, including cattle exclusion fencing. NRCS is providing \$17,000 in matching funds via the EQIP Program).

Project activities will be measured at the Feather River CRM monitoring reach just downstream of the project area near the mouth of Sierra Valley at a continuous flow and weather monitoring station. One continuous recording flow station and a weather station will be installed in this area of the watershed as part of the Upper Middle Fork project, and one will be installed at the site where measurements will be taken for habitat and cover, fish populations, water temperature, and other appropriate protocols from the SCI suite.

This property will serve as a demonstration of co-existing sustainable grazing and preservation of conservation values for regional landowners. The project will implement integrated monitoring of water quality and coldwater fishery habitat responses. Results will be cross-referenced with paired treatment and monitoring of the FRLT Genesee Valley project through PAEP implementation.

Task LTM-A Project Administration

Task LTM-1. Contracts and Permits

- 1.1 Local Project Sponsor shall document steps taken in soliciting and awarding any contracts to perform grant work complying with all applicable laws and regulations regarding securing competitive bids and undertaking competitive negotiations in Grantee's contracts with other entities for acquisition of goods and services and construction of public works with funds provided by State under this Grant

Agreement. Grantee shall provide State with a copy of the awarded contract. Local Project Sponsor shall document all contractor activities and expenditures in quarterly reports. The State shall have the right to inspect the work being performed at any and all reasonable times during the term of the Grant Agreement, including any subcontracts. Provisions ensuring this access shall be in all contracts or subcontracts entered into pursuant to its Grant Agreement with the State.

- 1.2 No work that is subject to California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) may proceed under this Agreement until the State receives documents that satisfy the CEQA/NEPA process.
- 1.3 Local Project Sponsor shall secure all required permits for project work. No work that is subject to permitting may proceed under this Agreement until documents that satisfy the permitting process(es) are received by the State.

Task LTM-2. Reporting, Invoicing, and Budget Management

- 2.1 Local Project Sponsor shall submit quarterly reports to the Grantee in both electronic and hardcopy forms. Reports shall be presented in the formats described in Exhibit E, Report Format.
- 2.2 An invoice should accompany the progress report, and reflect charges for the work completed during the reporting period covered by the quarterly report. The submittal and approval of reports is a requirement for initial and continued disbursement of State funds.
- 2.3 The Local Project Sponsor shall attend quarterly meetings with the Grantee.
- 2.4 The Local Project Sponsor shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied; and shall keep complete and accurate records of all receipts, disbursements, and interest earned on expenditures of such funds, and shall require its contractors or subcontractors to do the same.
- 2.5 Local Project Sponsor shall submit a Project Completion Report to the Grantee with the final project invoice, which shall include, if applicable, certification of final project by a California Registered Civil Engineer, consistent with Condition D-14 of this Grant Agreement.
- 2.6 Local Project Sponsor shall assist the Grantee in completing a Grant Completion Report upon completion of all projects included in Exhibit A, Work Plan.

Task LTM-B Land Purchase/Easement

Task LTM-3. Land Purchase

- 3.1 Acquire 575-acre Maddalena Ranch in Sierra Valley.

Task LTM-C Planning/Design/Engineering/Environmental Documentation

Task LTM-4. Environmental Compliance

- 4.1 Conduct botany, wildlife and archeological surveys.
- 4.2 Complete CEQA review.
- 4.3 Complete and submit permit documents to Army Corps of Engineers, US Forest Service, Plumas County, CDF&G, and RWQCB.
- 4.4 Work with NRCS to develop permits and monitor permit compliance.

Task LTM-D Construction/Implementation

Task LTM-5 Construction and Improvements

- 5.1 Work with subcontractor to develop a working well system on the Maddalena Ranch, including pump installation, 1,500 gallon water holding tank with float switch, and any other required plumbing.
- 5.2 Install, per NRCS specifications, additional watering troughs, including gravel aprons around the troughs and necessary plumbing.
- 5.3 Install permanent fencing around riparian areas, including, gates and signage.
- 5.4 Install cross fencing, including gates and signage.
- 5.5 Improve existing water distribution systems on the ranch, including installing water pipe in trenches at least three feet deep, installing connections to each field's water system, and setting up a float system that is efficient and meets the current water need only (i.e. no runoff).
- 5.6 Install a stream stabilization structure and monitoring wells, including providing material to build the structure, installing groundwater monitoring wells, and purchasing and installing a water meter.

Task LTM-E Environmental Compliance/Mitigation/Enhancement

Task LTM-6. Environmental Enhancement

- 6.1 Recruit, train, and supervise FRLT revegetation volunteers.
- 6.2 Remove non-native plant species.
- 6.3 Revegetate stream bank and wetlands (plug willows, bulrush, and cattails)

Task LTM-F Construction Administration

Task LTM-7. Construction Administration

- 7.1 Develop, advertise, and award construction and fencing contract packages as described in Task 1.1.
- 7.2 Coordinate project/contract activities and monitor construction activities.

Task LTM-G Other

Task LTM-8. Additional Tasks

- 8.1 Document management strategies that will be implemented to increase values in key variables of interest, including instream flows, groundwater recharge, non-native plants, water temperature, vegetative cover, and the health of fish and wildlife populations.

Appendix B

Upper Feather River
Watershed Group
Correspondence

June 20, 2013

To: Terry Swofford, Chairman Plumas County Board of Supervisors
John Olofson, Chairman Plumas County Planning Commission
Randy Wilson, Plumas County Planning Director

Re: Plumas County General Plan and Environmental Impact Report

Dear Chairman Swofford, Chair Olofson, Director Wilson and all Board Members;

The UFRWG Board of Directors and its 100 agricultural landowner membership appreciates the focus and effort of the Plumas County Supervisors and Planning Commission to develop a final General Plan with a strong agriculture component, that recognizes the value and role of agriculture to our rural county. We encourage the continued effort to develop a document that best defines Plumas County and its vision and goals.

We have followed the correspondence and concerns of the agriculture community. Particularly regarding the inaccuracy of the Greenhouse Gas Inventory in Appendix E of the Environment Impact Report (EIR) developed by outside consultants using Sacramento County GHG Inventory figures for "assumed" agricultural fertilizer application of 140 lbs per acre for all crops and improved pasture in our two counties (Plumas and Sierra).

This data does not accurately reflect the regional agricultural commodity variances, nor actual product input practices of Plumas County agriculture. Use of next available data in the absence of local data, by the consulting firm who drafted the GP and EIR, is a disturbing trend we have witnessed in the Irrigated Lands Regulatory Program as well. This type of data mining has huge potential to erroneously increase the regulatory burden on the local agricultural community.

We request that the more accurate information researched and obtained by Plumas-Sierra UCCE Natural Resource and Livestock Advisor, working with her colleagues in the University of California Cooperative Extension network and University of California Davis, replace the inaccurate Sacramento County data inserted in the initial drafts of the EIR.

Board of Directors

Russell Reid, Chairman
Brian Kingdon, Director

Paul Roen, Vice Chairman
John Genasci, Director

Carl Genasci, Sec/Treas.
Jeff Carmichael, Director

Carol Dobbas, Executive Director
Mia Van Fleet, Director

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Loyalton, CA 96118
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Additionally, we request that all references to the *2005 Community-Wide Greenhouse Gas Emissions Inventory*, and/or use of the fertilizer input data therein; in the General Plan, EIR and all other County documents, current and future, be deleted or include a footnote or disclaimer regarding the fertilizer figures in Appendix E of that report, for both counties. (Identical numbers were used in Table G-3 in the *2005 Sierra County Community-Wide Greenhouse Gas Emissions Inventory*)

Revised and more accurate local data has been compiled by University of California, Davis researchers in response to concerns about the inaccuracy of the "assumed" data* in the above inventory. A document developed by UC Davis and Plumas-Sierra UCCE which better reflects actual local practices is attached to this letter.

We again thank you for your attention to this vital component of the GHG figures for the Plumas County Agriculture Sector.

A solid locally supported General Plan, that identifies Plumas County visions and goals for its own region, can be supported by all county citizens and various organizations. The same concept would apply to neighboring Sierra County as it begins to update its General Plan.

On behalf of the agricultural producers in compliance with state water quality regulations of the ILRP, and represented by the seven member Board of Directors of the Upper Feather River Watershed Group, we thank you for working toward a supportable end document that best reflects the local cultural practices and environmental stewardship of the agricultural community of the two counties.

Sincerely,



Carol Dobbas,
Executive Director, UFRWG

Cc: Sierra County Board of Supervisors
Sierra County Planning Director
Sierra Business Council
Pacific Gas and Electric Company

- * Plumas County 2005 Community-Wide Greenhouse Gas Emission Inventory, page 39.
- * Sierra County 2005 Community-Wide Greenhouse Gas Emission Inventory, page 45.

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The true amount of fertilizer N put on fields is unknown, but these estimates are closer to real numbers than 140 lbs N/ac figure from the Sacramento County GHG Inventory that consultants used for Plumas and Sierra Counties. I worked with UCCE colleagues to come up with figures then consulted with a few local growers as well as two major fertilizer salesmen who have serviced the area for years. It is important that nitrogen use efficiency be looked at, not just rate.
 –Holly George, University of California Cooperative Extension, Plumas-Sierra Counties, April 2013.

Agriculture Sector Notes for Plumas and Sierra County 2005 Community-Wide GHG Inventory Reports

CROP	# AC in Plumas County *	# AC in Sierra County*	Estimated Average #/ac N fertilizer **	Notes
Alfalfa Hay	6,000	1,200	10	N amount from fertilizers is estimate of the annual application of P fertilizers (across all fields) with 11-52-0 being applied. Not applied every year to all fields, with many fields receiving zero for many years. (Range 0-25 #N/ac/yr)
Meadow Hay	3,000	1,600	10	Most (~90%) of this acreage isn't fertilized as it is low quality forage; estimate ~10% of acreage receives 100#N/ac (Range 0-100#N/ac/yr)
Grain Hay	1,000	700	70	Range 0-150#N/ac/yr
Irrigated Pasture	35,000	11,445	25	Some improved irrigated pastures (~10%) are fertilized; but much of the acreage is a grass/sedge/rush mixture with the majority of the acreage (~90%) not being fertilized. (Range 0-80#N/ac/yr)

*Source of figures is 2005 Crop & Livestock Report prepared by Plumas-Sierra County Department of Agriculture

** Source of Estimated fertilizer application, UCCE Intermountain Farm Advisors (Holly George-Plumas-Sierra Counties, Steve Orloff-Siskiyou County, Rob Wilson-Intermountain Research and Extension Center-Tulelake) and Dan Putnam, Statewide Alfalfa-Forage Specialist, UC Davis.

Footnotes

1. These estimates may be high due to the widespread lack of inputs on some of these more marginal grounds, common practice for economic reasons.
2. Rate is only one of the factors when it comes to either water quality impacts or atmospheric gas emissions. Timing (single vs multiple), method of application (surface, knifing in, etc.), and source of fertilizer, plus use of nitrification inhibitors are at least as important if not more important. This is an important message for the water regulators as well as the air boards.