Summary Form for Electronic Document Submittal

Mattley Meadow Restoration Project

This section summarizes the Mitigation Measures discussed under each section of the Initial Study checklist. Some of the measures are redundant because they protect more than one resource.

Mitigation Measures

Air Quality

3a. Construction fill and cut areas would be watered as necessary to prevent visible emissions from extending more than 100 feet beyond the active work areas unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.

3b. Disturbed surface areas would be watered in sufficient quantity and frequency to suppress dust and maintain a stabilized surface.

3c. At least 80 percent of all inactive disturbed surface areas would be watered on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible due to excessive slope or other safety conditions.

3d. All unpaved roads used for any vehicular traffic would be watered at least once per every two hours of active operations.

3e. The Geology/Soils impact discussion includes mitigation measures to address re-vegetation, which include the following:

- All desirable plant material that would be excavated or buried in plugs, such as sod mats and willow wads, will be removed and transplanted to plugs and at key locations in the remnant channel. Locations of transplants are prioritized according to need for maximum soil protection in bare areas and areas of potentially high stress.
- Following project completion, purchased native seed and locally collected willow stakes, would be dispersed and planted around borrow areas, plugs, and other heavily disturbed areas.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplants. Seeded areas would have at least 50% cover of native vegetation. Any areas that do not meet the survival or cover criteria would be reseeded or replanted.

Biological Resources

4a. The project activities will conform to the conservation measures and terms and conditions requirements in the Biological Opinion (USFWS, 04/29/2020), and Lake and Streambed Alteration Agreement (CDFW, application in process), which appends this to those documents.

4b. Precautions to minimize turbidity/siltation shall be taken into account during project planning and

implementation. This shall require the placement of silt fencing or sediment barrier cloth along the boundary of the project area so that silt and/or other deleterious materials are not allowed to pass to adjacent or downstream reaches. Passage of sediment beyond the sediment barrier(s) is prohibited. If any sediment barrier fails to retain sediment, corrective measures shall be taken. The sediment barrier(s) shall be maintained in good operating condition throughout the construction period and the entire stretch of barrier shall be monitored daily prior to commencement of construction activities to ensure wildlife species have not become trapped or displaced by the barrier. All sediment contained along the barrier shall be removed and disposed of where it will not re-enter a watercourse. All non-biodegradable silt barriers (such as plastic silt fencing) after the disturbed areas have been stabilized with erosion control vegetation shall be removed. Upon CDFW determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective CDFW approved control devices are installed or abatement procedures are initiated

4c. Prior to commencement of construction, grading, vegetation removal, equipment staging or other project-related activities, a focused survey for sensitive species (such as but not limited to fish, plants, reptiles, and amphibians) that are listed under the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) shall be conducted by a Designated Biologist (i.e. Forest Service- or USFWS and CDFW-approved biologist) within a 200 feet radius of the project area by a designated individual that is educated and familiar with all life stages of local fish, plants and amphibians, within three (3) days prior to the beginning of project-related activities and prior to beginning work on a daily basis.

4d. If any CESA or ESA listed species are encountered during the conduct of project activity, including maintenance and restoration activities, work shall be suspended, the USFWS and CDFW notified, and conservation measures shall be developed in agreement with respective regulatory authorities prior to initiating the activity. Work may not re-initiate until respective regulatory authorities (USFWS and CDFW) have been consulted and avoidance measures implemented.

Terrestrial Wildlife

4e. The Stanislaus NF District Biologist will conduct pre-construction surveys for California spotted owl and northern goshawk in August, at least two weeks prior to project construction, to determine presence and status of these species within the project area. If California spotted owl or northern goshawk nesting is detected, a limited operating period (LOP) for the detected species may be observed through September 15, when nesting activities are complete. The LOP may not be necessary depending on where the nest/reproductive activity is taking place, in relation to project activities, and will be assessed by the biologist to protect reproduction as necessary. If deemed necessary, the LOP would restrict project activities no more than 0.25 mile from the located nesting/reproductive activity center. Project construction outside the 0.25 mile buffer may continue during the specified LOP.

4f. If construction is scheduled during the bird breeding season (February 15th to August 31st), a Designated Biologist (i.e. Forest Service- or USFWS and CDFW-approved biologist) shall conduct a breeding bird survey no more than 15 days prior to the start of construction. All active bird nests will be marked following the survey to avoid destruction by equipment. If nesting raptors or migratory birds are identified within the area, a non-disturbance buffer and any other restrictions will be determined, before project activities commence, through consultation with the CDFW following completion of the survey.

Aquatic Wildlife

4g. During restoration work within Mattley Meadow, a Forest Service- or USFWS and CDFW-approved biologist must be on site during all activities. Survey the immediate work area for listed amphibians before commencement of daily work and following work stoppages exceeding one hour.

4h. Maintain an 82-foot limited operating area around the SNYLF occupied western channel in Mattley Meadow where mechanical operation for conifer removal is prohibited.

4i. If Sierra Nevada yellow-legged frogs are detected within the work area, the following procedures will be followed: Each Sierra Nevada yellow-legged frog or Yosemite toad encounter shall be treated on a case-by-case, but the general procedure is as follows: (1) Leave the non-injured animal alone if it is not in danger; or (2) move the animal to a nearby safe location if it is in danger. These two actions are further described below:

a. When a Sierra Nevada yellow-legged frog or Yosemite toad is encountered within the project site, the first priority is to stop all activities in the surrounding area that may have the potential to result in the harassment, injury, or death of the individual. Then, the situation shall be assessed by a Forest Service- or USFWS-approved biologist in order to select a course of action that will minimize adverse effects to the individual.
b. Individuals of the three listed species shall be captured and moved by hand only when it is necessary to prevent harassment, injury, or death. A Forest Service- or USFWS-approved biologist shall inspect the animal and the area to evaluate the necessity of fencing, signage, or other measures to protect the animal. If suitable habitat is located immediately adjacent to the capture location, then the preferred option is relocation to that site. An individual shall not be moved outside of the radius it would have traveled on its own.
c. Only Forest Service- or USFWS-approved biologists may capture the three listed amphibians. Nets or bare hands may be used to capture the animals. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within two hours before and during periods when the biologist is capturing and relocating individuals. If the animal is held for any length of time in captivity, they shall be kept in a cool, dark, moist environment with proper airflow, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting shall not contain any standing water, or objects (except sponges), or chemicals.

4j. Existing waterholes and other aquatic sites including ponds, lakes and streams used for water drafting would be surveyed for Aquatic State and federal TES species and flow levels taken prior to use. In the event State and/or federal TES species are found to occur at drafting sites; sites will not be used and future surveys would be conducted by an aquatic specialist to determine presence of potential populations.

4k. The use of low velocity water pumps and screening devices for pumps (per S&G 110) will be utilized during drafting for project treatments to prevent mortality of eggs, tadpoles, juveniles, and adult SNYLF. A drafting box measuring 2 feet on all sides covered in a maximum of 0.25 inch screening is required.

4l. Mechanical operation would be prohibited on days where >0.5 inches of rain are predicted and within 24 hours of such rain events.

Botanical Species

4m. Any new occurrences of sensitive, rare, or other listed plants identified within the project area would be flagged and avoided when necessary.

4n. All off-road equipment would be cleaned to insure it is free of soil, seeds, vegetative matter or other debris that could contain seeds before entering the project area.

4o. Infestations of invasive plants that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest Service botanist.

4p. Onsite sand, gravel, rock, or organic matter would be used where possible.

4q. Any seed used for restoration or erosion control would be native species known to occur in the meadow complex purchased from a reputable local native seed supplier.

Cultural Resources

5a. Four cultural sites in the project area will be flagged with a buffer of at least ten meters prior to project implementation. All contractors will be informed of this location, and no ground disturbing activities will occur within the flagged area. The flagging will be removed post project implementation.

Geology and Soils

7a. Construction would occur during the low flow period, and coincides with the most favorable moisture conditions to the depth of borrow site excavation. The subsurface soil material excavated is used to plug the channel incision. This material requires enough moisture to allow for compaction to background condition of the adjacent native soil. (The purpose of compaction is to preclude subsidence of the plug material during saturated conditions. Subsidence can lead to the initiation of erosion on the plugs.) Utilization of onsite fill material allows the best match of soil types at the least cost. Material too wet to efficiently transport and work would be avoided. The subsurface (compacted) portions of the plug are constructed using the 'layer lift' method, which entails spreading the material in a thin veneer over the general area of the plug with each delivered bucket load of material. This repeated action, with occasional re-cutting of the working surface allows for efficient wheel compaction without supplemental equipment.

7b. Topsoil, and any organic material, in the area of excavation will be removed to a depth of approximately one foot and stockpiled adjacent to the plugs. When the plugs have been constructed to the design elevation, the plug surface will be cross-ripped to a depth of 12" to restore a deep infiltration capacity. Stockpiled topsoil with associated organics and native seed bank will be spread across the plug with a low ground-pressure track loader. The final pass with equipment is to dress and roughen the topsoil surface for microclimate roughness and to fully incorporate the topsoil with the surface of the subsoil.

7c. Equipment travel into the project area will be restricted to existing open or closed OHV roads and recent timber harvest skid trails and landings. During construction, routes from the borrow sites to plug areas with compaction resulting from construction will be scarified perpendicular to expected surface water flow and dressed with scattered organic material.

7d. Staging areas and temporary haul routes used during the project will be minimized to lessen soil compaction and disturbance to the greatest extent possible. After construction, they will be sub-soiled, perpendicular to surface flow directions, to the full depth of compaction to restore soil porosity. Areas with residual meadow sod will only be lightly scarified to preserve sod integrity. The emphasis is on the least soil disruption while loosening the soil. Extensive mixing or plowing can have a negative effect on soil microorganisms. This technique has been successful in loosening the soil, restoring soil porosity, providing a high infiltration capacity, and thereby reducing cumulative watershed effects.

7e. The project will require re-vegetation. Access routes are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed, depending on the condition of the sod. Revegetation will consist of the following measures:

- All desirable plant material that would be excavated or buried in plugs, such as sod mats and willow wads, would be removed and transplanted to plugs, pond margins, and at key locations in the remnant channel. Locations of transplants are prioritized according to need for maximum soil protection in bare areas and areas of potentially high stress. Sod would be placed with heavy equipment and could be secured using live willow stakes. Willow wads also would be excavated and replanted using heavy equipment.
- Following project completion in the fall, purchased native seed would be dispersed into plugs, around ponds, and other heavily disturbed areas.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplanted sod and willow wads. Seeded areas would have at least 50% cover of native vegetation. Any areas that do not meet the survival or cover criteria would be reseeded or replanted.

7f. Erosion control would be accomplished using locally collected materials (wood chips, duff, pine needles, etc.). Straw would not be used.

7g. Meadow restoration projects include rest from grazing in disturbed areas for up to three years after construction in order to allow the newly planted vegetation to become established. The project area would be fenced to protect disturbed areas from livestock for 2-3 years. Off-site water may also be developed to lessen livestock impacts on riparian areas after grazing is re-established in the project area.

Hazards and Hazardous Materials

9a. Equipment will be re-fueled and serviced at the designated staging area, which is outside of the riparian area and meadow. No fuel will be stored on-site. In the event of an accidental spill, hazmat materials for quick on-site clean-up will be kept at the project sites during all construction activities, and in each piece of equipment.

9b. For fire prevention, a trash pump and/or water truck will be on-site at all times.

Hydrology and Water Quality

Erosion Control Plan *(BMP 2.13 Erosion Control Plans)*

10a. The erosion control plan will consist of the BMPs incorporated into the project design criteria as well as any additional measures required by regulating agencies as part of the project permitting process (e.g., 404/401 permits, Streambed Alteration Agreement, etc.)

10b. Implementation of BMPs will be documented in a BMP checklist that will be prepared prior to project implementation.

10c. Construction would be supervised on-site by at least one person who has worked on at least one previous partial fill (pond and plug) meadow floodplain restoration project.

Meadow Restoration *(BMP 1.19 Streamcourse and Aquatic Protection; BMP 7.1 Watershed Restoration)*
10d. Required permits would be obtained including the 404 permit from the U.S. Army Corps of Engineers, 401 Permit from the Central Valley Regional Water Quality Control Board, and a 1600 Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife.

10e. Construction activities in Mattley Meadow(s) would occur during the time of year when the flow of Mattley Creek is at its lowest. This typically occurs between August 1 and October 30. Anticipated implementation is September 1-30, 2021.

10f. Equipment access would be on existing and temporary routes. Temporary routes would be restored at the end of project implementation.

10g. Erosion of disturbed areas would be reduced utilizing one or more of the following techniques: placement of large and small woody debris; soil scarification; scattering of fine organic debris (such as wood straw or chips, pine needles, etc.); other practices as needed or required by permits.

10h. To promote revegetation, topsoil would be removed and stockpiled during pond excavation and then used to top dress the completed plugs. Live plant material such as sod mats and willows excavated during construction may be transplanted to plugs or other areas. Locally collected seed, plant stakes, or live plants may be used where needed.

10i. Grazing would be excluded from restoration areas using temporary fencing until the site has sufficiently revegetated and stabilized, generally a minimum of 2 – 3 years.

Equipment Refueling and Servicing *(BMP 2.11 Equipment Refueling and Servicing; 7.4 Forest and Hazardous Substance Spill Prevention Control and Countermeasure Plan; 1.19 Streamcourse and Aquatic Protection)*
10j. Allow equipment refueling and servicing only at approved locations, which are well away from waterbodies. Servicing and refueling activities would be located a minimum of 100 feet away from the meadow edge. Site specific locations for equipment fueling would be identified prior to or during project implementation. A non-porous mat or equivalent would be used for the refueling at the staging area.

10k. Report spills and initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules and regulations. A Spill Prevention Control and Countermeasure (SPCC) plan would be implemented when a total oil product at a site exceeds 1,320 gallons or any single container exceeds 660 gallons. The Forest has a SPCC spill plan designed to guide the emergency response to spills during construction.

10l. Clean equipment used for instream work prior to entering the water body: Remove external oil, grease, dirt and mud from the equipment and repair leaks prior to arriving at the project site. Inspect all equipment before unloading at site. Inspect equipment daily for leaks or accumulations of grease, and correct identified problems before entering streams or areas that drain directly to waterbodies. Remove

all dirt and plant parts to ensure that noxious weeds and aquatic invasive species are not brought to the site.

Water Sources *(2.5 Water Source Development and Utilization)*
10m. Use of water sources would be in accordance with the conditions (e.g., minimum instream flows, etc.) specified in BMP 2.5 (Water Source Development and Utilization). Water may be needed to assist in construction of structures. Approved drafting sites designated by the District hydrologist would be utilized.

Monitoring *(BMP 7.6 Water Quality Monitoring)*
10n. Visual and photo point monitoring of the meadow restoration area would be conducted for several years after implementation to ensure restoration actions are functioning as intended and meeting project objectives. BMP effectiveness monitoring using the national protocol may also be conducted. Corrective actions consisting of any of the tools and techniques as described for the proposed action may be implemented where needed.

10o. Implement all monitoring and reporting required by terms of the 401, 404, and 1600 permits.

Tribal Cultural Resources

18a. All cultural sites in the vicinity of the project area will be flagged with a buffer of at least ten meters prior to project implementation. All contractors will be informed of site locations, and no ground disturbing activities will occur within the flagged areas. The flagging will be removed post project implementation.

18b. The following mitigation measure is intended to address inadvertent discoveries made by construction personnel, agencies, or consultants at the work site when no archaeological or tribal monitor is present during ground disturbing activities.

If potential tribal cultural resources (TCRs) or archaeological resources are discovered during ground disturbing construction activities, all work shall cease within 100 feet (or an appropriate distance based on the apparent distribution of the TCR) of the find. A qualified cultural resources specialist meeting the *Secretary of Interior's Standards and Qualifications for Archaeology*, as well as Native American Representatives from traditionally and culturally affiliated Native American Tribes will assess the significance of the find. To avoid or minimize adverse impacts when tribal cultural resources, archaeological resources, or other cultural resources are discovered, Native American Representatives may make recommendations for further evaluation and treatment as necessary. Culturally appropriate treatment may include, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the Project area where they will not be subject to future impacts. Recommendations of the treatment of a TCR will be documented in the project record. For any recommendations made by traditionally and culturally affiliated Native American Tribes that are not implemented, a justification for why the recommendation was not followed will be provided in the project record.

If articulated or disarticulated human remains are discovered during ground disturbing construction activities or ground disturbing activities, all work shall cease within 100 feet of the find and all ground disturbing activities shall not resume until the requirements of Health and Safety Code section 7050.5 and, if applicable, Public Resources Code 5097.98 are met.

Monitoring & Reporting

Monitoring is a means to determine if conditions in Mattley Meadow are meeting or moving toward the desired conditions. Extensive surveys have been conducted to document the existing conditions within the meadow and stream channel(s). Additional monitoring would take place immediately after the project is implemented and annually for two years to document the effectiveness of the project. This monitoring would be conducted by Calaveras Ranger District staff and project partners, and includes: ground water, surface water, sediment transport, planted vegetation success or mortality, wetland condition (CRAM), noxious weed presence, the integrity of the restoration, and the presence of new headcuts (see **Table 1** for details).

During construction, Plumas Corporation and SNF staff would be on-site continuously, and responsible for ensuring that Best Management Practices are followed, mitigations measures are implemented, and water quality leaving the project area is sampled (in the event of surface water during construction). Once the project is completed, a report on construction is sent to the funding agency, as well to the permitting agencies (Regional Water Quality Control Board and US Army Corps of Engineers). The report will certify compliance with mitigation measures.

Project Monitoring

The Mattley Meadow Restoration Project is expected to benefit multiple resources by restoring the hydrological and ecological functions of the meadow floodplain system. The purpose of project monitoring is to measure project effectiveness on water quality, timing of flows, and enhancement of wildlife and aquatic habitats. Monitoring parameters and methods that would be utilized are outlined in **Table 1**.

Table 1. Project Effectiveness Monitoring of the Proposed Action

Monitoring Parameter	**Method**	**Responsible Party**
Water Temperature	Water temperature data loggers installed above and below project area May-Sept*	Plumas Corporation**
Aquatic Habitat	California Rapid Assessment Method (CRAM)	Plumas Corporation
Groundwater	6 groundwater wells (approximately 6 to 12 ft in depth) made of 3/4" galvanized perforated pipe, measured monthly*	Plumas Corporation**; USFS as time allows
Stream Flow	Staff gage and pressure transducer installed at the bottom of project area; monthly* manual calibration flow measurements; quarterly* collection of oxygen isotope samples and measurement of electrical conductivity (EC) from inflows, springs, and wells	Plumas Corporation**
Sediment Supply	Channel cross-section surveys; CRAM	Plumas Corporation
Meadow Vegetation	All revegetation areas would be monitored for three years following project completion. Monitoring will quantify willow survival and percent cover of native meadow vegetation.	USFS
Sierra Nevada yellow-legged frog Population	Existing SNYLF population in the untreated "West" channel would be monitored annually, as well as the remnant channel and borrow ponds in the restored area of Mattley Meadow for potential SNYLF dispersal.	USFS

**As access permits*

***Plumas Corporation has secured funding for monitoring through 2020. Additionally, Plumas Corporation is working with the ACCG so that this group can continue monitoring outside of the existing funding window.*