

**California Environmental Quality Act (CEQA) Initial Study
for the
Foster Meadow Restoration Project**

November 14, 2019

Project Title: Foster Meadow Restoration Project

Lead Agency Name and Address: Central Valley Regional Water Quality Control Board
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Project location: Eldorado National Forest, Amador Ranger District
El Dorado County, T09N, R16E, Sections 29, 30 and 31

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General Plan designation: Natural Resource

Zoning: FR-160 (Forest Resource, 160-acre minimum)

Description of Project:

The Foster Meadow Restoration Project would restore channel-floodplain connectivity in the headwaters of the Middle Fork Cosumnes River in Foster Meadow. The Project would eliminate incised gullies in the meadow and improve aquatic organism passage at the Foster Meadow Road (FS9N14) crossing. Construction will require one month during the low/no flow period (proposed for September 1-30, 2019). The Project would enhance wetland conditions on 20.66 acres of palustrine wetland (montane meadow), create 0.86 acres of palustrine open water, and result in an additional 344 feet of riverine channel (0.2 acres).

Filling the incised channels would require excavation and placement, using heavy equipment, of 22,533 cu yds of soil fill in 7 plugs to eliminate the existing gullies and raise/restore the base elevation of

surface water flow in the meadow by redirecting flow into existing vegetated remnant channels. Fill sources include 4 borrow pits along the meadow margins and 4 areas of in-meadow cut/grading. The project will also require placement of 900 cu yds of 2.0-ft minus rock/soil, sourced from the USFS Tragedy Pit; 400 cu yds will be placed in-stream in 9 rock riffles at the project bottom to create a transition between the new meadow gradient and downstream channel gradient. The remaining 500 cu yds of rock will be used to construct an aquatic organism passage below the FS9N14 crossing. The aquatic organism passage work also includes placement of multiple floodplain culverts to eliminate the backwater effect of flow in a single culvert and improve passage opportunities through the crossing. Revegetation with native seed and willows, and stockpiling of existing topsoil, sod mats, and willow wads are an integral component of the Project.

Surrounding land uses and setting:

The Foster Meadow Restoration Project is located in mixed coniferous forest at approximately 6,800 ft. The meadow is accessible via the USDA-Forest Service road network. The meadow was used historically for cattle and sheep grazing; dispersed recreation (e.g., camping, fishing, etc.) is now the primary land use. Surrounding land uses in the vicinity of the meadow include timber harvest, fuels reduction, plantation management, and dispersed summer and winter recreational activities.

Other public agencies whose approval is required:

- Central Valley Regional Water Quality Control Board: 401 Water Quality Certification (in process)
- U.S. Army Corp of Engineers: Clean Water Act, Section 404, Nationwide Permit #27 (received September 4, 2019)
- El Dorado National Forest: Decision Memo (signed January 31, 2019; Attachment H).

California Native American Tribal Consultation Summary:

On May 24, 2019, the Central Valley Regional Water Quality Control Board (CVRWQCB) notified local Native American tribes, pursuant to Public Resources Code Section 21080.3.1, of the proposed project and of the tribes' opportunity to request consultation. Two tribal groups participated in the consultation process: The United Auburn Indian Community (UAIC) and Wilton Rancheria. Mitigation measures have been incorporated into the project at the request of each tribe, and consultation was closed with UAIC on October 15, 2019 and the Wilton Rancheria on October 28, 2019.

Table of Contents

Project Description	4
Background.....	4
Design Narrative.....	4
Meadow Restoration Component	5
Aquatic Passage Component	8
Revegetation	9
Project Monitoring.....	10
Environmental Factors Potentially Affected.....	11
Initial Study and Checklist.....	12
1. Aesthetics.....	12
2. Agriculture/Forest Resources	14
3. Air Quality	15
4. Biological Resources	18
Terrestrial Wildlife	19
Aquatic Wildlife	20
Botanical Species.....	21
Terrestrial Wildlife Species Impacts.....	23
Aquatic Wildlife Species Impacts.....	24
Botanical Species Impacts	26
5. Cultural Resources	29
6. Energy.....	30
7. Geology and Soils.....	31
8. Greenhouse Gas Emissions.....	34
9. Hazards and Hazardous Materials	35
10. Hydrology and Water Quality.....	37
11. Land Use and Planning	40
12. Mineral Resources	41
13. Noise.....	41
14. Population and Housing.....	42
15. Public Services	43
16. Recreation.....	43
17. Transportation/Traffic.....	44
18. Tribal Cultural Resources	45
19. Utilities and Service Systems	47
20. Wildfire.....	48
18. Mandatory Findings of Significance.....	49
References	51
Mitigation, Monitoring and Reporting Program Summary	52

Project Description

Background

The Foster Meadow Restoration Project encompasses approximately 27 acres of meadow along the Middle Fork Cosumnes River on lands administered by the USDA-Forest Service, Amador Ranger District, El Dorado National Forest. The project area is located in El Dorado County, approximately 40 miles east of Jackson, CA, one mile north of State Highway 88, in the vicinity of the Peddler Hill maintenance station. Foster Meadow was identified as a target meadow for restoration in the Amador Calaveras Consensus Group (ACCG) Collaborative Forest Landscape Restoration Project (December, 2006). The ACCG CFLR Project is a multi-stakeholder process to collaboratively address common natural resource concerns over a large geographic area. Amador Ranger District (District) staff had expressed interest in having Plumas Corporation, a meadow restoration group in Plumas County, conduct data collection and design services for this meadow project. Plumas Corporation design work has been funded under a grant contract with the National Fish & Wildlife Foundation. The completed Design Report is provided in Appendix A.

Design Narrative

The Amador Ranger District, El Dorado National Forest and project stakeholders are seeking to restore the natural hydrologic functions of the Foster Meadow system to provide improved water quality, timing of flows and enhanced aquatic and terrestrial habitats onsite and downstream. Attendant with that objective is to remove barriers to aquatic organism passage in this reach of the Middle Fork Cosumnes River. The Foster Meadow Restoration Project proposes to meet these objectives by filling gullies within the meadow using local fill taken from meadow margins and terraces, and installing an aquatic organism passage structure at Foster Meadow road (9N14) crossing. This will require excavation and placement of approximately 22,533 cubic yards in seven (7) total plugs to eliminate the existing gullies as a conduit for flow. The design of the proposed action applies the principles of fluvial geomorphology and the science of landscapes formed by flowing water, to understand the processes that have governed the development of the meadow through the Holocene period (last 10,000 years). This method also helps determine the possible mechanisms that have led to channel degradation and loss of floodplain connection/ecosystem function. This approach combines quantitative data with qualitative observations and historical overviews of land uses, both onsite and watershed-wide.

Table 1 summarizes the action items proposed to restore the hydrologic functions of Foster Meadow utilizing a modified pond-and-plug restoration technique. The design for Foster Meadow is a near-complete gully fill (“plugs”), with the majority of fill material generated from terrace grading and a smaller amount coming from four small borrow ponds along the margins of the meadow. The purpose of the fill material is to raise/restore the base elevation of surface water flow in the meadow. Generally, surface flows will be re-directed to remnant channel(s) elsewhere in the meadow. Surface flows would only cross the “plugs” during floods. Specific features of the project design are discussed in greater detail in the Meadow Component section, below.

Project construction will require one month during the lowest/no flow period, when the channels are expected to be dry (currently proposed for September 1-30, 2020). The 27-acre Project area can be delineated into several reaches of work separated by reaches that are still functional. The functional reaches are at risk from headcuts moving upstream from the degraded reaches. **Figure 1** (Vicinity and Project Area Map) shows the relative location of the treatment reaches under the proposed action. At the upstream end of the project, the culvert at the Forest Highway (FH) 54/Foster Meadow Road (9N14) crossing is a fish barrier and at risk for failure. Downstream of the road crossing there are three (3)

distinct meadow sections: Pocket 1, Pocket 2, and Main Meadow.

Table 1. Action items of the Foster Meadow Restoration Project

Item Number	Action
1	<p>Fill and stabilize the gullied channel of the Middle Fork Cosumnes River in Foster Meadow through (Figures 2 through 4):</p> <ul style="list-style-type: none"> • Excavation of approximately 22,500 yd³ of material from 4 small borrow pits along the margins of the meadow and 4 terrace cuts areas in the meadow. This material will be used to construct the plugs. • Construction of 7 plugs in the meadow to achieve the partial or complete filling or approximately 4,400 feet of channels. The plugs will total approximately 3.1 acres in size. • Construction of 9 in-channel rock riffles in the meadow just down-gradient of the plugs and ponds. It is expected that rock for the riffles will be imported from the Tragedy Pit. <p>Motorized equipment in the meadow would be used in order to accomplish this action item. Approximately 20.72 acres are wet meadow floodplain, 2.20 acres are intermittent and perennial channels, and 4.51 acres are upland.</p>
2	<p>Improve aquatic organism passage at Forest Highway 54 crossing by:</p> <ul style="list-style-type: none"> • Placing rock/soil/vegetation in the channel and floodplain to raise the elevation and eliminate current 'waterfall' at the main culvert. Rock will be imported from Tragedy Pit for this component. • Replacing the existing culvert and adding at least three culverts at floodplain elevation. <p>Motorized equipment would be used in order to accomplish this action item.</p>
3	<p>Plant riparian vegetation throughout portions of the meadow in those areas that are currently deficient in riparian vegetation. Sod and willow transplants would be excavated and placed using heavy equipment. Native seeding, planting of container stock, and willow plantings would be done by hand.</p>

Meadow Restoration Component

Ultimately, the design concept for degraded meadows in the Foster Meadow project areas is to implement near-complete gully fill. The fill material would be excavated from four (4) small borrow ponds along the margins of the meadow and grading four (4) areas of in-meadow terrace down to the design floodplain elevation. This design significantly reduces risk associated with frequent overland flow over plugs and into ponds. Given meadow slopes of 1% -3% and a gully near the center of the meadow, the more traditional pond and plug technique would have some risk.

The principal function of the borrow ponds is to provide native fill material for plug construction. Since the ponds will fill with groundwater and maintain ponded water year-round, habitat features and diversity are incorporated into their construction. These include varying water depths, islands, peninsulas, basking logs, etc., which are determined as fill needs are met. Topsoil is removed and stockpiled adjacent to the plug fill zone to top dress the completed plug. Meadow vegetation such as sod mats and willow wads would be salvaged by excavating and stockpiling the material to use for revegetation of the completed project.

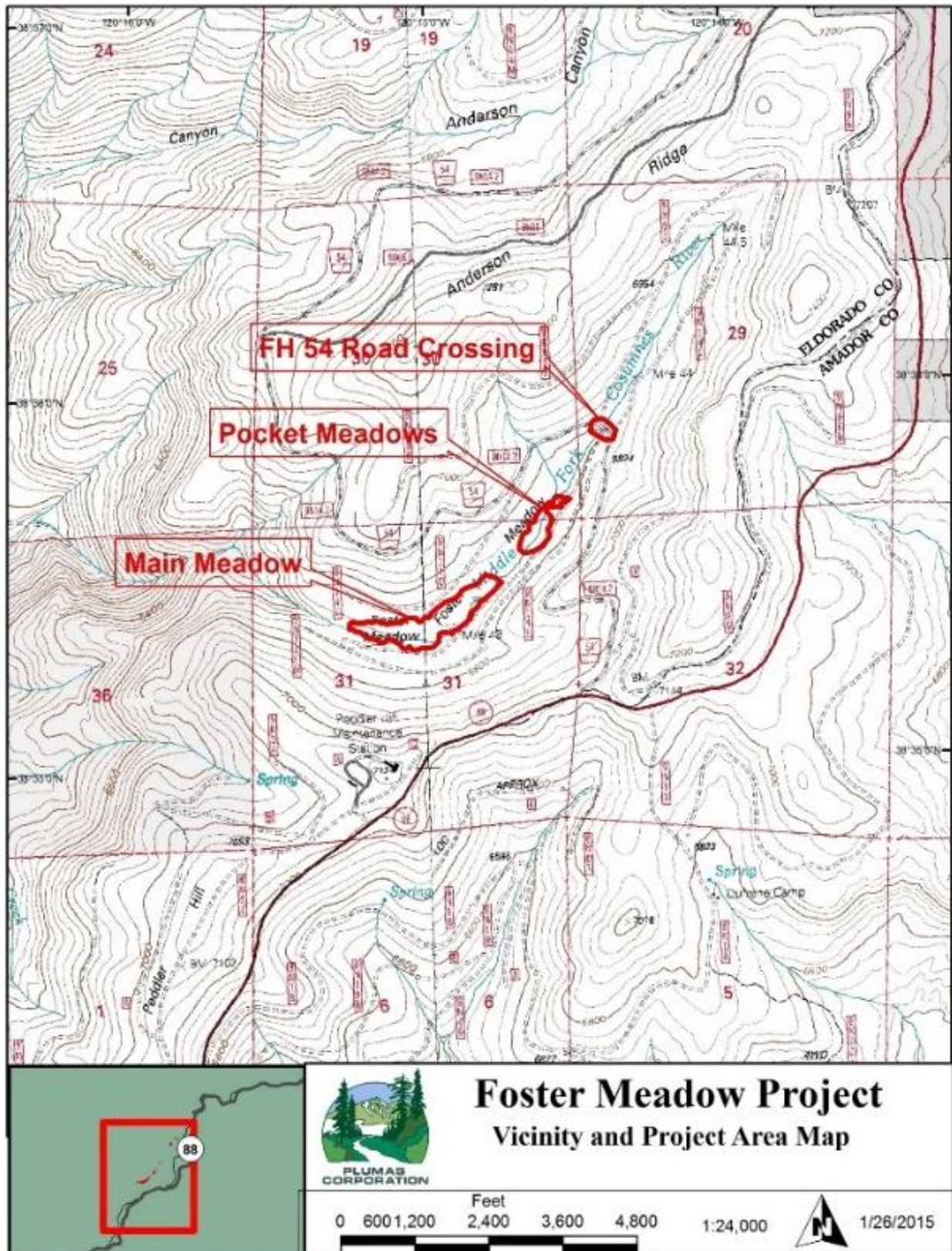


Figure 1. Foster Meadow Restoration Project Treatment Reaches.

All plugs and borrow ponds are sited and configured to accommodate surface and subsurface through flow as well as adjacent hillslope-generated surface and groundwater inflows. Plugs are constructed with wheel loader(s) to provide wheel compaction of the fill. The compaction levels are intended to match the porosity/transmissivity of the native meadow soils. This allows moisture to move freely within the plug soil profile and support erosion resistant meadow vegetation for long term durability as well as preventing preferential pathways for subsurface flows either in the plug or the native material. Design features specific to the Pocket Meadows #1 and #2 are as follows (**Figure 2**). All gully fill for Pocket Meadow #1 will be generated from the one borrow pond excavated into the timbered terrace to the south. Approximately 7 trees (red fir/lodgepole) will be incorporated into the plug fill surfaces and the remnant channel for velocity reduction. This borrow pond will provide an off-channel, in-forest, perennial surface water habitat feature. The majority of the earth fill for the gully in Pocket Meadow #2 will be generated from cutting terrace features down to floodplain elevation. This will provide more meadow area and floodplain extent, but not open water habitat. One borrow pond will be excavated into the forested terrace to the north. This will be an off-channel, in-forest, perennial surface water habitat feature. Approximately 4 red fir trees would be removed and used for habitat in the pond.

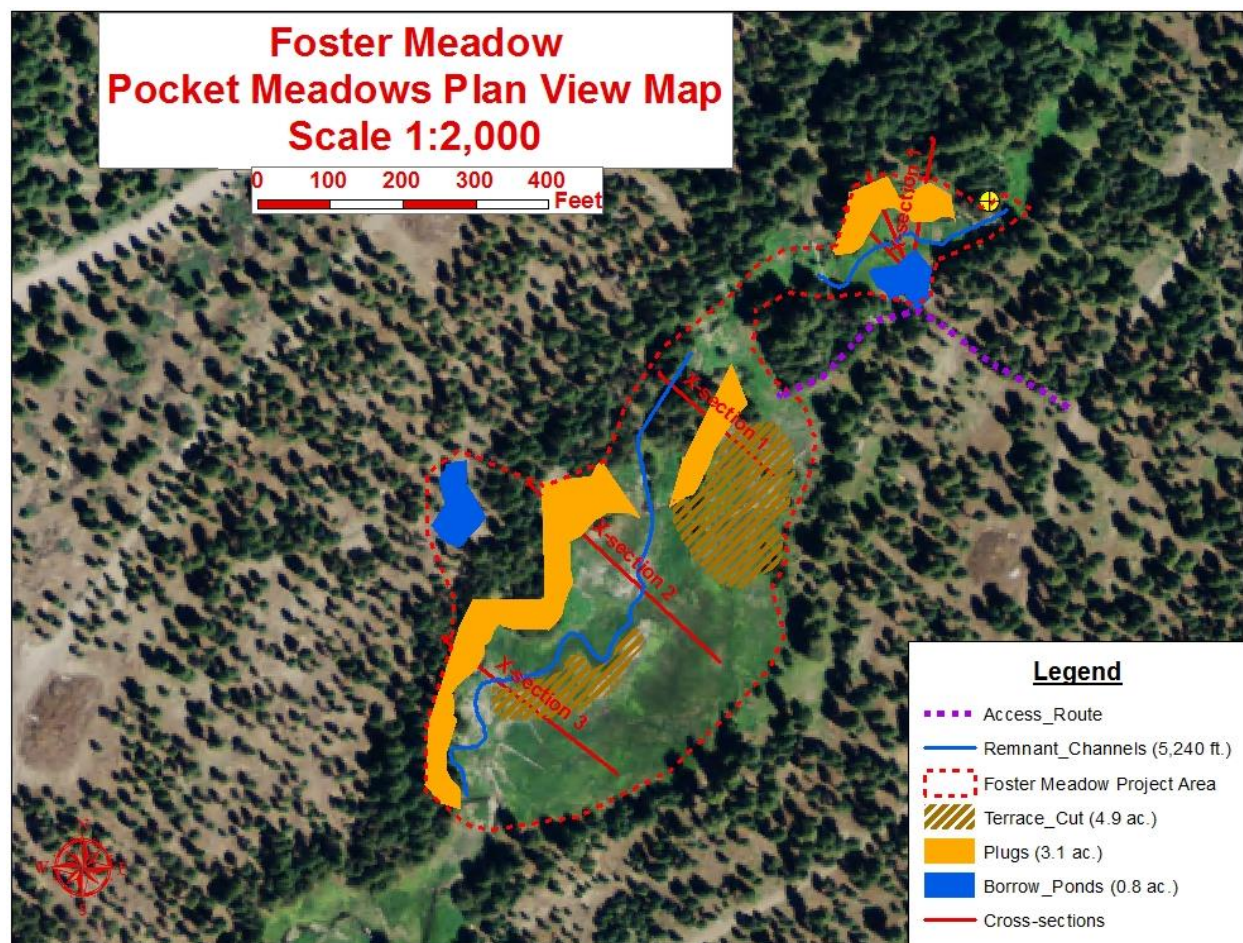


Figure 2. Foster Pocket Meadows Restoration Design Schematic.

Design features specific to the Main Meadow include having the bulk of the gully fill being generated from terrace cut (**Figure 3**). This will reduce shear stresses on the remnant channel and reverse the xeric trend on approximately 5 acres of wet meadow that are currently transitioning to upland vegetation.

The lower end of the project will require using 9 rock riffles to raise the base level of the channel, in lieu of gully fill, in its existing alignment. The installation of riffles in the existing channel will raise the base level at the downstream end of the project, allowing a seamless transition of the new meadow gradient to the existing channel at the downstream end of the project. All access for equipment and materials will be on existing open or closed roads and recent timber harvest skid trails and landings.

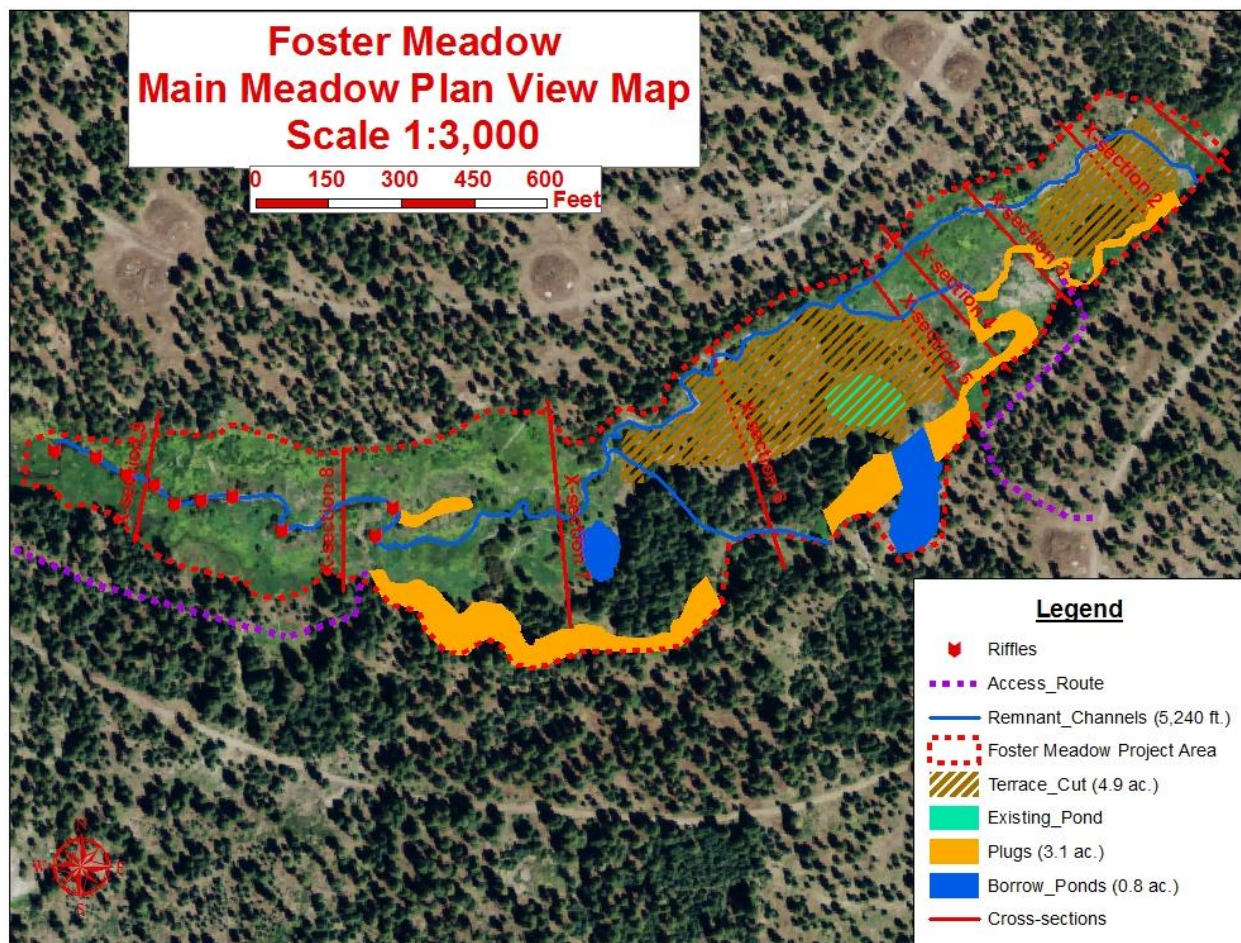


Figure 3. Foster Meadow Main Meadow Restoration Design Schematic.

Aquatic Passage Component

The second phase of the project will be construction of the aquatic organism passage (AOP) (**Figure 4**). The AOP will reduce the backwater effect of high flow from a single culvert with additional culverts set at floodplain elevation. The floodplain culverts would be installed in the road crossing with invert elevations approximately 1 foot above the invert elevation of the channel culvert. Ideally, no less than 3 additional culverts should be installed. These floodplain culverts would be ‘squash’ type, and set at as close an interval practicable across the floodplain. The AOP also includes the construction of a valley grade structure (VGS). The VGS will provide a durable, aquatic organism-passable channel/floodplain transition reach (125 feet long) between the road crossing elevation and downstream channel elevation, which would eliminate the current “waterfall” at the culvert outlet. Because the project is a forest highway road crossing, the AOP and VGS will be engineered. The VGS will require approximately 500 yds³ of 2.0-foot minus rock and soil, sourced from the USFS Tragedy Pit (approximately 8 miles from the

Project site). A water truck will be required on-site for dust suppression during rock transport. One excavator (36" bucket) and four rock trucks will be required to load and transport rock to the Project site, and placement of rock at the VGS will require the use of a second excavator.

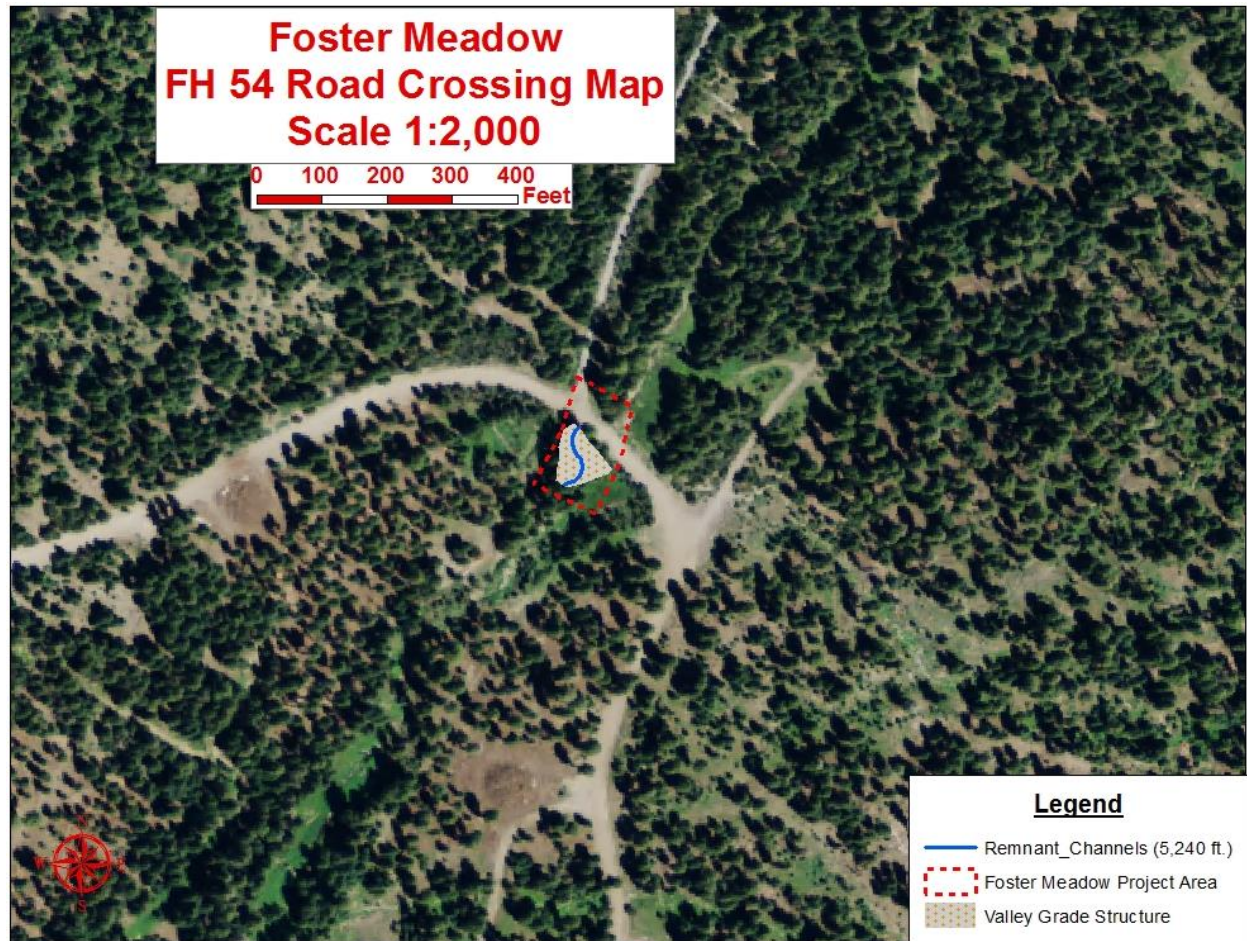


Figure 4. Foster Meadow FH 54/Foster Meadow road (9N14) crossing aquatic passage structure.

Revegetation

Upon completion, all plug surfaces are ripped to a depth of 12" to facilitate rainfall infiltration, dressed with the recovered topsoil, and seeded with native seed. Sod mats, willow wads, and other meadow vegetation from fill and borrow sites will be transplanted to plug edges, terraces and key locations on the remnant channel. Willow stakes will be planted next to stream channels and disturbed areas following construction in the fall to reduce immediate post-project vulnerability to erosion. In the spring following project construction, disturbed areas in the meadow and on graded terraces will be seeded using native seeds collected from Foster Meadow. In key locations during spring seeding, there will also be supplementary willow staking and hand-planting of container stock from locally-sourced material. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs. ENF staff will monitor survival of willow cuttings and percent cover of seeded areas for three years following construction. Successful revegetation will be achieved with 70% survival of willow cuttings and 50% cover of seeded areas. Any areas that do not meet the survival or cover area would be replanted.

Project Monitoring

The Foster 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 2**.

Table 2. 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) and Forest Service Stream Condition Inventory (SCI) conducted once pre- and post-project	Plumas Corporation (CRAM); USFS-ENF (SCI)
Groundwater	4 groundwater wells (approximately 6 to 12 ft in depth) made of 3/4" galvanized perforated pipe, measured monthly*	Plumas Corporation**
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 and SCI	Plumas Corporation (CRAM); USFS-ENF (SCI)
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-ENF

**As access permits*

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

Environmental Factors Potentially Affected

This Initial Study has determined that in the absence of mitigation the proposed project could have the potential to result in significant impacts associated with the factors checked below. Mitigation measures are identified in this Initial Study that would reduce all potentially significant impacts to less-than-significant levels.

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture/Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

On the basis of this initial evaluation:

- ☐ I find that the project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the project MAY have a "Potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Signature

Date

Initial Study and Checklist

Introduction

This checklist is to be completed for all projects that are not exempt from environmental review under the California Environmental Quality Act (CEQA). The information, analysis and conclusions contained in the checklist are the basis for deciding whether an Environmental Impact Report (EIR) or Negative Declaration is to be prepared. Additionally, if an EIR is prepared, the checklist shall be used to focus the EIR on the effects determined to be potentially significant.

1. Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Foster Meadow is in a natural setting, surrounded by forest lands administered by the El Dorado National Forest, Amador Ranger District. The meadow is located approximately one mile north of State Highway 88, which is designated as a State Scenic Highway and USDA-Forest Service Scenic Byway along this section of the highway. The project area is not directly visible from the highway. The nearest campground, the Middle Fork Cosumnes Campground, is approximately 2.5 miles to the west and does not have any views of the project site. The project site is visible from Forest Service roads 09N14 and 09N14H that are near the meadow.

The Land and Resource Management Plan (LRMP) for the ENF (USDA 1988) contains a discussion of Visual Quality Objectives (VQOs) based on management areas and land use types using the USFS Visual Management System. Views from the project area are middleground views of the surrounding forested hillsides. Middleground views are generally interrupted by adjacent ridges within 1.5 miles (USDA

1988). The VQOs for Foster Meadow range from modification on the west end to middleground partial retention in the northeast portion of the project. The middleground partial retention designation for Foster Meadow is of the Highway 88 viewshed; views from the highway would be affected if the forest between the highway and meadow is altered.

Impact Discussion

This project seeks to restore the hydrologic function of the meadow ecosystem and will not alter the existing vegetation structure. The forest surrounding Foster Meadow, including conifers encroaching on the meadow, was thinned in accordance with USFS VQOs from 2012 through 2014 under the Lost Horse Fuels Reduction Project. The proposed project additionally would remove 11 trees (red fir and lodgepole) from the timbered terraces that will serve as the borrow sites; however, the removal of these trees is negligible relative to the overall forest landscape and would not change the middleground view from the Highway 88 viewshed.

The proposed restoration project would not degrade the existing visual character or quality of the site, nor create any new sources of light or glare. The meadow itself would have bare areas for the first year resulting from the project; however, the degraded hydrology and drought conditions for water years 2012 through 2015 also have created substantial bare ground and loss of meadow vegetation. Additionally, the project description includes a revegetation component to accelerate establishment of meadow vegetation. After the first growing season, meadow vegetation would begin to recover, and would result in an aesthetic benefit in the long term. The revegetation component includes the following features:

- After project construction, all fill surfaces will be seeded with native plant seed that has been collected locally and stored for use in Foster Meadow.
- Sod mats, willow wads, and other meadow vegetation salvaged from fill and borrow sites will be transplanted to plug edges, terraces and key locations on the remnant channel. 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.
- In the spring following project completion, additional locally-collected seeds would be dispersed into terrace cuts, plugs, and other heavily disturbed areas.
- Container stock from locally-sourced material would be hand planted in the spring and summer in key locations. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplanted seedlings. 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.

Project construction will require use of the standard suite of heavy equipment: one excavator with 36" bucket, one excavator with 48" bucket, one track loader, one wheel loader, and one water truck. All access for equipment and materials will be on existing open or closed roads and recent timber harvest skid trails and landings. Heavy equipment would be visible for a 5-week period during construction, representing a temporary but less-than-significant impact to the visual character of the site.

Mitigation Measures: No mitigation required.

2. Agriculture/Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 1 222O(g)) or timberland (as defined by Public Resources Code section 4526)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The proposed project is not located on or near any agricultural lands. The proposed project area is a montane meadow surrounded by coniferous forest. The project parcels are zoned Forest Resource in the 2004 El Dorado County General Plan. The purpose of this zone is to encourage timber production and associated activities, and to limit noncompatible uses from restricting such activities (El Dorado County 2015a).

Impact Discussion

Foster Meadow was identified as a target meadow for restoration in the Amador Calaveras Consensus Group (ACCG) Collaborative Forest Landscape Restoration Project (ACCG 2006), and therefore the project is consistent with the overall forest management direction for the region. The meadow and surrounding forest received vegetation management treatments to reduce the risk of wildfire under the Lost Horse Fuels Reduction Project from 2012 through 2014. The meadow treatment under the Lost

Horse project cut and retained encroaching conifers to restore natural open conditions, and few additional conifers would be removed by the proposed project. The proposed project would remove 11 trees (red fir and lodgepole) from the timbered terraces that will serve as borrow sites for fill material. The trees would be used to create habitat features via incorporation into plug fill surfaces, the remnant channel, and ponds formed by borrow sites. The removal of conifers under the project would not result in a loss of forested land in the overall forest landscape surrounding the meadow. Therefore, there would be no impact to agricultural and forest resources under the proposed project.

Mitigation Measures: No mitigation required.

3. Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The El Dorado County Air Quality Management District (EDCAQMD) administers the state and federal Clean Air Acts in accordance with state and federal guidelines. The EDCAQMD has developed a CEQA Guide for air quality assessment in El Dorado County (EDCAQMD 2002). The potential impacts to air quality under the proposed project were evaluated in accordance with the EDCAQMD CEQA Guide.

The project is located on National Forest lands in southeastern El Dorado County, in the Mountain Counties Air Basin. The Mountain Counties Air Basin is designated as a "nonattainment area" for ozone and PM₁₀ under California ambient air quality standards. El Dorado County is also part of the Sacramento Metropolitan Area nonattainment area under the 2008 8-Hour Ozone National Ambient Air Quality Standards (NAAQS). In 2015, the US Environmental Protection Agency (US EPA) revised the primary and secondary ozone standard levels to 0.070 parts per million (ppm). The US EPA has been

developing area designations under this new standard. The EPA issued a letter on December 20, 2017 indicating that it intends to agree with the California Air Resources Board's recommended ozone designations, which would continue the nonattainment area classification for the Sacramento Metropolitan Area.

Local sources of impact on air quality in the project area are imported constituents from outside the Mountain Counties Air Basin, emissions from vehicular traffic on State Highway 88 and forest management activities, photochemical transformation of local and imported emissions, and dust from infrequent travel on the nearby Forest Service roads. Other infrequent air quality impacts result from wildfires and intermittent controlled burns implemented by the Forest Service. In addition, El Dorado County has naturally-occurring asbestos (NOA), and EDCAQMD has adopted an El Dorado County Naturally Occurring Asbestos Review Area Map which identifies those areas more likely to contain NOA. The project area is outside of the most-recent Asbestos Review Area map, dated January 22, 2015 (El Dorado County 2015).

Impact Discussion

The proposed project would have no long-term impacts to air quality. However, the project includes excavation and grading activities to fill the incised channel in Foster Meadow. Construction activities have the potential to affect PM10 and ozone concentrations through the production of exhaust emissions, and also may affect PM10 through the generation of fugitive dust from soil-disturbing activities. The EDCAQMD CEQA Guide for air quality includes screening criteria for both types of construction emissions that can be used to determine a project's level of impact.

The EDCAQMD CEQA Guide provides that construction exhaust emissions can be evaluated based on fuel use estimates. Under this approach, the average daily fuel use per quarter (or the duration of the construction period if less than 90 days) for all construction equipment at a single site would be used to ensure that emissions remain below the combined 82 lbs/day significance thresholds for ROG and NOx on a quarterly basis (EDCAPCD 2002). Table 3 summarizes the screening levels identified for this approach:

Table 3. Construction Equipment Fuel Use Screening Levels (EDCAPCD 2002).

Equipment Age Distribution	Average Daily Fuel Use Per Quarter (Gallons per Day)
All equipment 1995 model year or earlier	337
All equipment 1996 model year or later	402

The proposed project will utilize 5 pieces of construction equipment per day at any given time (e.g., track loader, two excavators, wheel loader, and water truck) for the duration of construction. The average daily fuel consumption on past Plumas Corporation meadow restoration projects of this size is approximately 175 gallons/day. This usage is well below 337 gal/day, the most conservative significance threshold. Based on the EDCAQMD CEQA Guide, the impact of exhaust emissions on CO and PM10 would be less-than-significant, and would not cumulatively contribute to an increase in PM10, ozone, or ozone precursors.

The proposed project includes soil-disturbing activities that have the potential to generate fugitive dust PM10 emissions. The project is located on National Forest lands and will not be required to obtain a grading permit or implement a Fugitive Dust Plan. The CEQA Guide for air quality assessment in El

Dorado County includes screening criteria for Fugitive Dust PM10 emissions based on the incorporation of mitigation measures (EDCAPCD 2002). The effects of a proposed project are assumed to be less-than-significant if the project includes mitigation measures that will prevent visible dust beyond the project property lines. Because of its rural forested location, it is expected that grading work under the proposed project would not generate visible dust beyond the project property lines. However, the fugitive dust control measures from the CEQA Guide will be implemented as necessary to prevent visible emissions beyond the project property lines; therefore, impacts to PM10 emissions under the proposed project would be less than significant.

Mitigation Measures: The following fugitive dust control measures will be implemented as needed to ensure that PM10 fugitive dust emissions from construction activities are maintained at a less-than-significant level:

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, terraces 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.
- During the spring and summer following project completion, locally collected seeds would be dispersed into terrace cuts, plugs, and other heavily disturbed areas.
- Container stock from locally-sourced material would be hand planted in the spring and summer in key locations. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplanted seedlings. 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.

4. Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The following discussion is summarized from the following sources, provided as appendices to this document:

- Appendix B: Biological Evaluation and Assessment for Terrestrial Threatened, Endangered, and Sensitive Wildlife Species, Foster Meadow Restoration Project (USDA-Forest Service 2018a)
- Appendix C: Aquatic Biological Assessment for the Foster Meadow Restoration Project (USDA-Forest Service 2017a)
- Appendix D: Aquatic Biological Evaluation for the Foster Meadow Restoration Project (USDA-Forest Service 2017b)

- Appendix E: Biological Assessment/Evaluation for Botanical Species: Foster Meadow Restoration Project (USDA-Forest Service 2018b)
- Appendix F: Additional Botanical, Terrestrial and Aquatic Wildlife Species Considered for Analysis for the CEQA Initial Study (Plumas Corporation 2018)

Environmental Setting

Foster Meadow consists of a 32-acre upper alpine meadow (elevation 6,800 ft) near the headwaters of the Middle Fork of the Cosumnes River, which passes through and along the edge of the meadow within the project area. The channel is deeply incised but supports typical meadow riparian vegetation consisting of willows (*Salix* sp.), *Lupinus polyphyllus*, *Heracleum lanatum*, *Senecio triangularis* and *Delphinium glaucum*. As a result of the down cut channel, large patches of xeric vegetation have become established, characterized by little to sparse cover of mesic meadow vegetation. These areas are typically dominated by *Veratrum californica*, *Mertensia ciliata*, *Ligusticum grayi* and *Oreostemma alpigenum*. There are two fens within the meadow. The meadow also includes several seeps where more typical wet meadow vegetation has managed to persist, dominated by robust sedges (*Carex* sp.), *Eleocharis* sp., *Deschampsia cespitosa*, *Bistorta bistortoides*, and grasses and forbs. Lodgepole pine encroachment has been a problem in the lower portions of the meadow which have been repeatedly addressed by past projects to cut and pile young lodgepoles throughout the meadow.

A list of potential state- and federally-listed, special-status, and Forest Sensitive species that may be present in the project area was compiled using information requested from the US Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife Biogeographic Information and Observation System (BIOS), and the USDA-Forest Service Region 5 Sensitive Species List (June 2013). The evaluation of botanical impacts also included a review of Forest special-interest, or “watchlist” species, which includes rare plants on the California Rare Plant list that were identified in BIOS.

Terrestrial Wildlife

Table 4 presents a list of species from the CNDDb, USFWS, and Regional Forester’s lists that may occur in the project area.

Table 4. Terrestrial wildlife species potentially occurring in the Foster Meadow Restoration Project Area.

Species	Listing Status*
Mammals	
American marten (<i>Martes americana</i>)	FS
Pacific fisher (<i>Pekania</i> [= <i>Martes</i>] <i>pennanti pacifica</i>)	FS; SSC; FT-Proposed
California wolverine (<i>Gulo gulo luteus</i>)	FS; ST; FT-Proposed
Sierra Nevada red fox (<i>Vulpes vulpes necator</i>)	ST; FS**
Pallid bat (<i>Antrozous pallidus</i>)	FS; SSC
Townsend’s big-eared bat (<i>Corynorhinus townsendii</i>)	FS; SSC
Fringed myotis (<i>Myotis thysanodes</i>)	FS
Birds	
California spotted owl (<i>Strix occidentalis occidentalis</i>)	FS; SSC
Northern goshawk (<i>Accipiter gentilis</i>)	FS; SSC
American bald eagle (<i>Haliaeetus leucocephalus</i>)	FS; SE; FP
Great gray owl (<i>Strix nebulosa</i>)	FS; SE
Willow flycatcher (<i>Empidonax traillii</i>)	FS; SE

Invertebrates	
Morrison bumblebee (<i>Bombus morrisoni</i>)	SA
Western bumblebee (<i>Bombus occidentalis</i>)	FS

*FP = State Fully Protected; FS = Forest Sensitive Species within the Eldorado National Forest; SA = CDFW Special Animal; SE = State Endangered; ST = State Threatened; SSC = State Species of Special Concern

**Included on the Region 5 Sensitive Animal Species List in the Lassen and Stanislaus national forests; not included for the Eldorado National Forest.

Aquatic Wildlife

Table 5 presents the listed and FS-Sensitive aquatic wildlife species occurring on the ENF that may potentially occur in the project area.

Table 5. Evaluation of potential for project effects under the Foster Meadow Restoration Project to listed and special-status aquatic wildlife species.

Species	Listing Status	Preferred Habitat
Fish		
Delta smelt (<i>Hypomesus transpacificus</i>)	FT; SE	Sacramento-San Joaquin delta
Hardhead Minnow (<i>Mylopharodon conocephalus</i>)	FS; SSC	Sacramento-San Joaquin delta, S. Fork American River – Slab Reservoir
Pacific lamprey (<i>Lampetra tridentata</i>)	FS; SSC	Lower North Fork Consumnes River and Camp Creek
Steelhead (<i>Oncorhynchus mykiss</i>) Northern California DPS	FT	Central Valley delta and up rivers to man-made and natural barriers
Amphibians		
Foothill yellow-legged frog (FYLF) (<i>Rana boylei</i>)	FS; SC-T); SSC	Below 6,000 ft. High elevation low-gradient streams and small ponds that are either intermittent or perennial
Sierra Nevada yellow-legged frog (SNLYF) (<i>Rana sierrae</i>)	FE; ST	Above 4,500 ft. High elevation low-gradient streams and small ponds that are either intermittent or perennial
Sierra Nevada yellow-legged frog (SNLYF) (<i>Rana sierrae</i>)	CH	Above 4,500 ft. High elevation low-gradient streams and small ponds that are either intermittent or perennial
Southern long-toed salamander (SLTS) (<i>Ambystoma macrodactylum sigillatum</i>)	SSC	Riverine and Lacustrine; from near sea level to 9,180 feet
Yosemite toad (YOTO) (<i>Anaxyrus canorus</i>)	FT; FS; SSC	Above 6,400 feet. Breeding habitat occurs in lakes, ponds and wetlands, south from the Blue Lakes region of Alpine County.

Species	Listing Status	Preferred Habitat
Yosemite toad (YOTO) (<i>Anaxyrus canorus</i>)	CH	Above 5000 feet. Breeding habitat occurs in lakes, ponds and wetlands, south from the Blue Lakes region of Alpine County. Designated Critical Habitat: Blue Lakes unit
Reptiles		
Western pond turtle (WPT) (<i>Actinemys marmorata</i>)	FS; SSC	Below 5,000 ft. Ponds and slow moving streams

Botanical Species

Currently the only listed plant species expected to occur on the ENF is *Packera layneae* (Federally Threatened). This species occurs on rocky, gabbroic, or serpentinitic soils in chaparral and cismontane woodland below 3,000 feet. Potential habitat for *Packera layneae* is not found within the proposed project area.

The project area was surveyed for Sensitive plants and invasive plants in 2009 and 2016. Botanical surveys conducted for the proposed project focused on species with potential habitat. Surveys were intuitive, targeting potential habitat in the project area. No Forest Sensitive or other listed plant species were detected. In 2009 *Botrychium simplex* (a special interest, or forest “watchlist” species) was found growing in a fen within the meadow. Additional surveys in 2016 extended the known occurrence of *Botrychium simplex* and also found an additional population within the meadow.

Sensitive Natural Communities

A composite list of botanical species was developed based on extensive sensitive plant surveys, long-term range monitoring, and seed collection efforts at Foster Meadow. The complete list of botanical species was reviewed to determine the potential sensitive natural community alliances that may be present in the project area (Appendix F). Table 6 presents the ten alliances and basic characteristics for the alliances that have the potential to occur in the project area.

Table 6. List of Sensitive Natural Communities that may occur in the project area (gray rows indicate no seed was collected from dominant species).

Alliance Scientific Name	Alliance CaCode	Common Name	Alliance Global Rank	Alliance State Rank	Seed Collected?	NWPL Classification	Alliance membership rules
<i>Carex (aquatilis, lenticularis)</i>	45.168.00	Water sedge and lakeshore sedge meadows	G5	S3	Y	OBL	C. aquatilis or C. lenticularis ≥ 30% relative cover (in herbaceous layer); C. scopulorum, C. utriculata, or C. vesicaria absent or at relatively low cover
<i>Carex integra</i> (Provisional)	45.175.00	Small-fruited sedge meadows	G4?	S2?		OBL	Not defined (provisional alliance)
<i>Carex microptera</i> (Provisional)	45.181.00	Small-winged sedge meadows	G4	S2?	Y	FACU	Not defined (provisional alliance)
<i>Danthonia californica</i>	41.050.00	California oat grass prairie	G4	S3		FAC	> 50% relative cover (in herbaceous canopy)

Alliance Scientific Name	Alliance CaCode	Common Name	Alliance Global Rank	Alliance State Rank	Seed Collected?	NWPL Classification	Alliance membership rules
							generally > 25% absolute cover (in herbaceous layer)
<i>Festuca idahoensis</i>	41.250.00	Idaho fescue grassland	G4	S3?	Y	FACU	usually > 30% relative cover with other perennial grasses in the herbaceous layer
<i>Glyceria (elata, striata)</i>	41.222.00	Manna grass meadows	G4	S3?	Y	FACW*	G. elata or G. striata ≥ 1% absolute cover (in herbaceous layer)
<i>Hordeum brachyantherum</i>	42.052.00	Meadow barley patches	G4	S3?	Y	FACW	> 30% relative cover (in herbaceous layer; H. brachyantherum characteristically present, usually with other wetland plants that may be at high cover
<i>Juncus (oxymetris, xiphioides)</i> (Provisional)	45.568.00	Iris-leaf rush seeps	G2?	S2?		OBL	Not defined (provisional alliance)
<i>Mimulus (guttatus)</i>	44.111.00	Common monkey flower seeps	G4?	S3?		OBL	> 50% relative cover in the herbaceous layer, though may be > 30% with Eleocharis acicularis present; Trifolium variegatum is absent or < 1% absolute cover
<i>Scirpus microcarpus</i>	52.113.00	Small-fruited bulrush marsh	G4	S2	Y	OBL	≥ 30% relative cover in the herbaceous layer; shrub cover < 15% absolute cover; S. microcarpus or S. congdonii > 5% absolute cover, > 50% relative cover in the herbaceous layer; shrub cover < 25% absolute cover

**Glyceria elata*, the species present in Foster Meadow, is a FACW species.

Alliance CaCode = CDFW numeric code for the vegetation alliance; Global Rank= NatureServe Global Rank (across entire distribution of the alliance); State Rank = NatureServe State Rank (within California distribution of the alliance); NWPL Classification = National Wetland Plant Inventory (Lichvar et al. 2016) classification; All rankings defined in Attachment A of Appendix F.

Impact Discussion

The proposed project will use heavy equipment to construct the aquatic organism passage (AOP) and meadow restoration. The AOP work includes replacement of the single culvert with multiple culverts set at floodplain elevation, to reduce the backwater effect of high flow from a single culvert. The AOP also includes the placement of rock in approximately 125 ft of channel downstream of the culvert, to provide a transition between the road crossing elevation and downstream channel elevation, eliminating the current “waterfall” at the culvert outlet that inhibits aquatic organism passage. The meadow restoration work requires use of heavy equipment for cut and removal of fill material (native soil) from four areas, creating four off-channel ponds as a result of the borrow sites filling with groundwater. Additional fill will be obtained from grading terrace features down to floodplain elevation in four areas, which will reverse the xeric trend on approximately 5 acres of meadow that are currently transitioning to upland vegetation. The fill material will be used to plug the existing gully. The lower end of the project will require 9 rock riffles to raise the base elevation of the channel, in lieu of gully fill, in its existing alignment. Construction will take place during the low-flow season, typically between August 1 and October 30.

Terrestrial Wildlife Species Impacts

The project will not affect Pacific fisher, Sierra Nevada red fox, bald eagle, or California wolverine because suitable habitat for these species does not occur within the project areas and/or it is not expected that the project will generate any direct, indirect, or cumulative impacts to these species or their habitats.

Although there are willows in the project area, Foster Meadow is not believed to provide high capability habitat for willow flycatcher due to the downcut channel and little standing water to provide insect prey for foraging. Willow flycatcher surveys (avian point counts) were conducted in the project area during 2016 and 2017, but the species was not detected within Foster Meadow or any nearby habitat in these or previous surveys going back to the 1990s. In the short term (during implementation and first summer following implementation), willow and riparian vegetation would be impacted—reduced in density or moved for revegetation. These impacts would occur after the nesting season and, combined with the lack of detection of the species or nesting, are not expected to result in impacts to the willow flycatcher. Similarly, disturbance impacts to foraging would be less than significant and limited to temporary displacement of individuals due to project timing (after nesting period), location outside of the high capability habitat, and lack detection of this species.

There is the potential for the project to result in short-term effects to American marten, great gray owl, pallid bat, Townsend's big-eared bat, and fringed myotis. Potential impacts include disturbance/displacement due to construction noise and equipment use in the meadow. The likelihood of effects is very low for nocturnal foragers such as the great gray owl and bat species, due to the timing of construction (day) versus foraging (night). Additionally, there is expected to be sufficient undisturbed area in the meadow for diurnal species for dispersal during the construction period. Construction activities could also result in short-term disturbance to insect populations; however, these reductions are not likely to have significant effects on foraging by bat species due to timing of construction (late fall), after insect populations have peaked. Construction disturbance could affect and temporarily displace individuals of American marten, but not affect denning due to timing of project activities, late summer-early fall, and crucial denning being winter-spring. Overall, impacts to American marten, great gray owl, pallid bat, Townsend's big-eared bat, and fringed myotis would be less than significant.

The proposed project has the potential to result in short-term effects to western bumblebee and Morrison bumblebee. Grading and transplanting of vegetation would result in removal of some flowering plants used for foraging. These impacts are not expected to affect a large number of western bumblebees or Morrison bumblebees, as neither species has been detected on site, and if present are likely in low numbers. Should either species be present, the timing of the project is after the bee populations peak, most of the plant flowering has completed, and only queens would be expected to be in the meadow in any number at that time. For these reasons, only a few individuals would potentially be impacted and displaced to forage outside of the area of treatment. Therefore, impacts to western and Morrison bumblebee would be less than significant.

Over the long-term, the quality and quantity of meadow and riparian vegetation would improve, increasing prey for great gray owl; enhancing foraging of aquatic insects for willow flycatcher, fringed myotis, and pallid and Townsend's big-eared bats; and improving quality and quantity of flowering forage species for western and Morrison bumblebees. Willow density and area along the channel and availability of standing water is also expected to increase, providing enhanced nesting and foraging habitat for potential willow flycatcher colonization.

California spotted owl and northern goshawk

The area surrounding Foster Meadow has been surveyed for California spotted owl and northern goshawk periodically since 1989. Protocol surveys for both of these species were conducted from 2010 through 2013 for the Foster Firs Forest Health and Fuels Reduction Project. California spotted owl pairs, but no nesting activities, were detected adjacent to Foster Meadow during the 2010 and 2012 surveys. Northern goshawk was last detected and reproductive during 2007 surveys, but was not detected in recent surveys. Based on these survey results, it is assumed that California spotted owl and northern goshawk occupy the project area. The project would not affect habitat suitability for these species; project activities will be centered in the meadow. The removal of 11 trees from the margins of the meadow for fill material would not result in a change in canopy closure or removal of nesting or denning trees and snags within the suitable habitat adjacent to the meadow.

Equipment use could disturb individuals of California spotted owl and northern goshawk, resulting in temporary displacement to adjacent suitable habitat. Should disturbance occur, it would be unlikely to affect more than one or two individuals, due to the small scale of the project and timing of the project. There are two goshawk and one spotted owl protected Activity Centers (PACs) immediately adjacent to the project area. The late summer/early fall implementation window for the project would generally not coincide with the reproductive period for these species. However, the project incorporates the following design criteria (mitigation measures) to reduce or remove the potential for impacting reproduction for either spotted owl or northern goshawk:

- The ENF 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.
- The District Biologist will be on site during project construction and has the authority to adjust the project to protect Threatened, Endangered and Sensitive species.

These mitigation measures ensure that potential disturbance impacts to California spotted owl and northern goshawk would be less than significant

Aquatic Wildlife Species Impacts

The project would not affect foothill yellow-legged frog, western pond turtle, hardhead minnow, pacific lamprey, Yosemite toad (or critical habitat), delta smelt, or steelhead (northern California DPS), as the habitat for these species is not located within the project area or is located far enough downstream that there would be no measurable effects to the species or habitat.

The project has the potential to result in short-term effects to the southern long-toed salamander (SLTS). Although no focused surveys were conducted for SLTS in the Foster Meadow project area, the species is typically detected during surveys for Sierra Nevada yellow-legged frogs or other listed amphibian species. In the seven surveys for Sierra Nevada yellow-legged frog from 1993-2016, no adult or larval SLTS were detected within the project area (J. Chow, pers. comm. 2018). If individuals of SLTS

are present, they are likely in low numbers. The project would not have the potential for crushing or trampling of breeding adults because construction activities would occur during the fall low-flow period, after breeding migrations have completed. Further, cut and fill activities would not result in significant direct impacts to larvae due to the lack of suitable ponds for breeding within the meadow and presence of predatory trout within channel pools. Potential direct effects to SLTS could result from construction disturbance of subterranean adults. There is the potential to dig up subterranean adults while grading or excavating fill material in the meadow and upland sites. However, due to the low likelihood of occupancy, relatively small area of grading and excavating (5.6 acres of the 27-acre project area), overall impacts from project implementation to this species would be less than significant.

Sierra Nevada yellow-legged frog

The Sierra Nevada yellow-legged frog (SNYLF) occurs within the elevation range of the project, and the meadow contains suitable habitat. The US Forest Service and California Department of Fish and Wildlife (CDFW) personnel conducted seven Visual Encounter Surveys (VES) within potential SNYLF habitat in the project boundary during the field seasons of 1993 to 2016. No surveys have detected SNYLF within the project boundary or the proposed action area. There is an established predatory fish population throughout the meadow (non-native eastern brook trout), indicating low potential for SNYLF presence.

The Eldorado National Forest, along with additional Sierra Nevada National Forests, has consulted programmatically on management activities, including its meadow restoration program. This Programmatic Consultation resulted in the “Programmatic Biological Opinion on Nine Forest Programs on Nine National Forests in the Sierra Nevada of California for the Endangered Sierra Nevada Yellow-legged Frog, Endangered Northern Distinct Population Segment of the Mountain Yellow-legged Frog, and Threatened Yosemite Toad” dated December 19, 2014 (Programmatic BO). Consultation for the Foster Meadow Restoration Project was initiated December 19, 2017 and completed February 8, 2018 in a letter (USFWS Reference Number 08ESMF00-2018-F-1047) appending a batch of five projects, including the Foster Meadow Restoration Project, to the Programmatic Biological Opinion.

Although SNYLF are not known to occupy Foster Meadow, the area does contain potentially suitable aquatic habitat. Sedimentation, disturbance, injury/mortality and potential short-term loss of refugia/habitat are the greatest direct and/or indirect effects that may occur to SNYLF or their suitable habitat through meadow restoration activities. The short term negative impacts and risks are likely outweighed by positive benefits to suitable habitat in this project area. Overall, the actions of the Foster Meadow Restoration Project will ultimately benefit SNYLF through the increase of wetland habitat via raising the water table, creation of potential breeding habitat from ponds, an increase in pool depth through sediment reduction and the improvement of aquatic organism passage at the Forest Road 9N14 crossing.

It was determined that the Foster Meadow Restoration Project may affect, and is likely to adversely affect the SNYLF, as consistent with the Programmatic BO. The proposed action implements standards and guidelines and Best Management Practices (BMPs) that will minimize potential project level effects. In addition, project-specific mitigation measures/design criteria were developed that either minimize the intensity and duration of project activities or exclude such from occurring within suitable SNYLF habitat or within a proportion of habitat (see mitigation measures). The Foster Meadow Restoration Project has been designed to implement all of the Conservation Measures and Terms and Conditions described in the Programmatic Biological Opinion. By implementing these BMPs, mitigation measures/design criteria, and Conservation Measures and Terms and Conditions, the project would have a less-than-significant impact to SNYLF.

Critical habitat for SNYLF is not located within the Foster Meadow project boundary, and therefore, will not be impacted by the proposed project.

Botanical Species Impacts

There are no listed species known from the project area, so direct and indirect effects are not expected. The project area was surveyed for sensitive and invasive plants in 2009 and 2016. No Forest Sensitive species were detected in these or past surveys of the project area. Survey coverage of the meadow was complete, but it is always possible for a Sensitive plant population to be overlooked during past surveys. If this were the case undetected individuals could be crushed, uprooted, or destroyed during the construction of plugs or excavation of borrow material within the meadow. Additionally, any undetected Sensitive species occurring in the meadow could be impacted following project implementation by altered microsite and hydrologic conditions. But, given the limited area of the project footprint there is a low likelihood that Sensitive plant populations have gone undetected within the meadow. Any new occurrences of sensitive plants identified within the project area would be flagged and avoided when necessary. For the USFS watchlist species *Botrychium simplex*, known occurrences will be flagged for avoidance during project implementation.

Soil disturbances can provide opportunities for the introduction and proliferation of invasive species. These species have the potential to quickly outcompete native plants, including Sensitive plants, for sunlight, water, and nutrients. These species can also form dense monocultures which can alter habitat for Sensitive plant species. Seeds of these species can be carried into Sensitive plant areas on equipment, vehicles, and on workers boots and clothing. The magnitude of this impact is difficult to predict since it is contingent on the introduction of a noxious weed species into an area, an event which may or may not occur. The project incorporates mitigation measures/design criteria to minimize the likelihood of project activities enhancing or spreading invasive species into the proposed project area.

Sensitive Natural Communities

The proposed project is a meadow restoration project that would restore channel-floodplain connectivity in Foster Meadow, improving the condition of wetland plant communities on approximately 23 acres and expanding total acreage of wetlands by approximately one acre. The meadow is currently in a xeric trend, and sensitive natural communities that may potentially occur in the meadow would expect to benefit from the project via the restored hydrologic regime. Potential impacts to sensitive natural communities that may occur in the project area could result from removal of vegetation during grading of meadow terraces or excavation of borrow ponds, or burial of vegetation when filling the incised channel. The following project components will ensure that potential impacts to sensitive natural communities would be less than significant:

1. The project includes a substantial re-vegetation component. In 2017, 80 lbs of seed were collected in Foster Meadow for the proposed project. Seed was collected from 30 native plant species (see Table 3, Appendix F), including 6 of the 10 species that may be present on site as a sensitive natural community. This seed will be spread on all fill surfaces upon project completion. In the spring following project construction, additional seeding of disturbed areas in the meadow and on graded terraces will take place.
2. Transplanting of native vegetation: Sod mats, willow wads, and other meadow vegetation from fill and borrow sites will be transplanted to plug edges, terraces, and key locations on the remnant channel. This action will preserve any sod-forming native species, as well as the soil seed bank, including those for annual species that may co-occur with perennial species.
3. Supplemental native planting: In addition to willow staking, there will be hand-planting of

container stock from locally-sourced material. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs (species to-be-determined, but based on site availability).

Additionally, the design criteria/mitigation measures for botanical species would protect the introduction or spread of invasive species into sensitive natural communities.

Fens

The Foster Meadow project area includes two fens. There would be no impact to fens under the proposed project. The fens would be flagged prior to project implementation for avoidance, and crews conducting restoration work at Foster Meadow would be informed of the fen locations.

Mitigation Measures:

Terrestrial Wildlife

4a. The ENF 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.

4b. The District Biologist will be on site during project construction and has the authority to adjust the project to protect Threatened, Endangered and Sensitive species.

Aquatic Wildlife

4c. The project activities will conform to the conservation measures and terms and conditions requirements in the Biological Opinion (USFWS 12/19/2014), and subsequent letter which appends this and other projects to that document (USFWS 02/08/2018).

4d. Visual Encounter surveys will be conducted for Sierra Nevada yellow-legged frogs by a qualified Forest Service biologist within 24 hours of construction at the Foster Meadow Road 9N14 stream crossing and within the entire Foster Meadow project area.

4e. If the Sierra Nevada yellow-legged frog are found within the project area during project implementation, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in the 2014 Programmatic Biological Opinion issued by the US Fish and Wildlife Service.

4f. Existing waterholes and other aquatic sites including ponds, lakes and streams used for water drafting would be surveyed for Aquatic TES species and flow levels taken prior to use. In the event 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. Dufrene Pond, a nearby manmade pond designated for drafting, contains a small breeding population of SNYLF and will **not** be used for drafting water for dust abatement or other construction needs.

4g. 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.

Botanical Species

Management of botanical resources, special habitats, and noxious weeds would follow the standards and guidelines in the Sierra Nevada Forest Amendment Record of Decision (SNFPA ROD 2004). Specific design criteria and protection measures for the Foster Meadow project include:

4h. Any new occurrences of sensitive plants identified within the project area would be flagged and avoided when necessary.

4i. A watchlist species, *Botrychium simplex*, occurs within Foster meadow. All known occurrences will be flagged for avoidance during project implementation. Should any new threatened, endangered, sensitive (TES) or watchlist species be located during the proposed project, available steps will be taken to evaluate and mitigate effects.

4j. Fens within Foster Meadow would be flagged prior to project implementation for avoidance. Crews conducting restoration work at Foster Meadow would be informed of the location of the fen.

4k. 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.

4l. Infestations of invasive plants that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest botanist. Rock for riffle construction would be weed free.

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

4n. Any seed used for restoration or erosion control would be from a locally collected source (ENF, Seed, Mulch and Fertilizer Prescription, 2000).

5. Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

In accordance with the provisions of the "*Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region (Regional PA 2013)*", a review of the Forest's heritage resource files revealed that the Area of Potential Effect (APE) of the proposed project has been previously adequately inventoried to current professional standards through the following report (*note that this report is administratively confidential, and is not available for public review*):

- R1981050300014 Foster TS, Brown
Complete (20-40m); Survey date: 09/11/2008

A total of five historical and/or archaeological sites were identified within the heritage resources analysis area, but outside of the project area. One site is in proximity to the project area and must be avoided.

Impact Discussion

The USFS has made a determination that there would be "*No Adverse Effect to Historic Properties*" by implementation of the proposed project, and that management measures, other than avoidance, are not required to protect historic properties (Stipulation 7.8(b) (1)). Although no further inventory of these areas is required, this does not fully eliminate the chance of discovering unrecorded sites or subsurface remains within the project boundary. If project ground disturbance should expose a cultural deposit, disturbance activities will be suspended until a qualified archaeologist can examine the area, evaluate the material, and adequate protection measures are incorporated. In the event that human remains are uncovered during project activity, project managers must stop work and contact Eldorado National Forest. Existing law requires that the County coroner be contacted, as well. If the remains are determined to be of Native American origin, both the Native American Heritage Commission and any

identified descendants shall be notified (Health and Safety Code 7050.5, Public Resources Code Section 5097.94 and 5097.98).

Mitigation Measures:

5a. One historical site 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 this location, and no ground disturbing activities will occur within the flagged area. The flagging will be removed post project implementation.

6. Energy

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Foster Meadow is in a natural setting, part of and surrounded by forest lands administered by the El Dorado National Forest, Amador Ranger District. No electrical services are located in the project area. Energy consumption in the project area is limited to fuel use associated with dispersed recreation (e.g., vehicles traveling to/through project area, snowmobiles, etc.)

El Dorado County has an Energy Conservation Policy that was adopted on June 5, 2001. The purpose of the policy is to identify conservation and cost-saving measures related to energy consumption and provide a strategy for potential electrical blackouts. The policy addresses heating, cooling, lighting, and appliance use, but does not provide direction on the use of fuels. The Public Health, Safety and Noise Element of the County's General Plan establishes the objective to reduce construction related, short-term emissions by adopting regulations which minimize their adverse effects, using the El Dorado County Air Quality Management (AQMD) Guide to Air Quality Assessment to evaluate impacts under CEQA [El Dorado County 2015a]. Efforts to reduce emissions also reduce energy consumption; therefore the impact analysis for Air Quality also will address impacts to energy resources.

Impact Discussion

The Project is a restoration activity that would not create an additional source of energy demand. Energy consumption would occur during Project construction through the operation of heavy equipment for grading and fill activities. There would be no unusual equipment operation that would result in energy consumption that is wasteful, inefficient, or unnecessary during Project construction. All equipment will be provided through equipment contractors and rental fleets, which are required to meet California Air Resources Board (emissions) standards for diesel equipment. Further, each piece of equipment has a dedicated function during construction—e.g., excavating, grading, placing rock,

transplanting vegetation, or scarifying completed surfaces for seed planting. All equipment not required for a task will be turned off.

The Air Quality analysis concluded that projected fuel consumption during Project construction would be well below 337 gal/day, the most conservative significance threshold to protect against CO and PM10 exhaust impacts in the El Dorado County AQMD CEQA Guide. By extension, fuel consumption is neither wasteful nor unnecessary. Overall, there would be no impact to energy resources under the proposed Project.

Mitigation Measures: No mitigation required.

7. Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Foster Meadow is located on the Middle Fork Cosumnes River. The project area is not located along or near an earthquake fault delineated on the Alquist-Priolo Earthquake Fault Zoning map, nor does it occur on a geologic unit or soil that is unstable, or would become unstable as a result of the proposed activities. Foster Meadow lies within the Sierra Nevada geomorphic province with outcrops of Permian to Neogene granodiorite and quartz monzonite to the north of the meadow that are in contact with Neogene andesite and rhyolite deposits south of the meadow (Rust et al. 2019). All rock units are of igneous origin and have no potential to contain paleontological resources (SVP 2010).

A Custom Soil Resource Report for Foster Meadow and the surrounding area was obtained from the USDA Natural Resource Conservation Service Web Soil Survey application. The main meadow portion of the project area is comprised of an undifferentiated group of Aquepts and Umbrepts, 0 to 15 percent slopes soils, with parent material of alluvium derived from igneous rock. The landform setting for this soil type is drainageways. The remainder of the project area is Waca cobbly sandy loam, 5 to 30 percent slopes, and Waca-Windy complex, 5 to 30 percent slopes, both the Waca cobbly loam and Waca-Windy complex are in a mountain landform setting with parent material of Lahar from andesite. The soils in and around the project area are not classified as expansive soils. The Waca cobbly loam and Waca-Windy complex soils are classified as susceptible to erosion.

Impact Discussion

Although some soils in the project area are susceptible to erosion, the project would not result in erosion or loss of topsoil. The objective of the project is to restore floodplain function and reduce ongoing soil erosion from the incised channel and expanding gullies. The design concept for the project is to implement near-complete gully fill. The fill material would be excavated from four small borrow ponds along the margins of the meadow and grading four areas of in-meadow terrace totaling 4.9 acres down to the design floodplain elevation. A total of 22,533 yds³ of fill would be placed in 7 total plugs, totaling 3.1 acres, to eliminate the existing gullies as a conduit for flow.

Restoring floodplain function would have a long term beneficial effect on soils by reducing erosion, increasing the frequency of floodplain sediment deposition, and retaining moisture. Prior to the establishment of vegetation, there is a short term potential for negative impacts from soil erosion on newly disturbed areas, in the event of significant storms. The design criteria/mitigation measures described below are designed to ensure that soil resources remain on-site.

Mitigation Measures: Standard mitigation measures have been developed under consultation with soil scientists and engineers as an integral component of meadow floodplain restoration. These mitigation measures have been monitored and refined based on previous projects of this type (e.g., Last Chance Creek, 2002-5; Red Clover/McReynolds, 2006; Long Valley Creek, 2008).

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-rippled 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 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 minimize 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, terraces 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.
- During the spring and summer following project completion, locally collected seeds would be dispersed into terrace cuts, plugs, and other heavily disturbed areas.
- Container stock from locally-sourced material would be hand planted in the spring and summer in key locations. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplanted

seedlings. 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. Currently, the project area is not grazed and the allotment will not be re-opened, so this mitigation requires no further action.

8. Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is located in a natural setting in the El Dorado National Forest. Ongoing greenhouse gas (GHG) emissions in this area are from normal ecosystem function, emissions from vehicular traffic on State Highway 88, and emissions from vehicles engaged in dispersed recreation. Intermittent sources of greenhouse gas emissions occur from forest management activities and wildfire.

The project area is a meadow ecosystem in a degraded state, with incised (downcut) channels that have resulted in a loss of floodplain connectivity and drying of the meadow. Carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄) are GHGs associated with meadows, and fluxes in the emission of these GHGs can be dependent on soil moisture content (Blankinship and Hart 2014). Functional meadows are considered to be net reservoirs for greenhouse gases; however, there are a number of active research projects across the state that are attempting to quantify the net flux of GHGs in restored and degraded meadows. Currently, there is a statewide effort to restore wetlands and mountain meadows as a climate change adaptation strategy through increased carbon sequestration that includes quantitative research on GHG fluxes (CDFW 2017).

Impact Discussion

The proposed project would restore the hydrologic function of Foster Meadow, which is expected to provide a long-term reduction in GHG emissions from the project area, although with current data gaps it is not possible to accurately quantify this benefit. Construction of the project would generate temporary and one-time GHG emissions by on-site construction equipment and travel to the work site

during the 5-week construction period. The GHGs emitted during construction would come from diesel fuel combustion from off-road construction equipment and diesel or gasoline combustion from on-road vehicles. The primary GHG generated from these processes would be carbon dioxide (CO₂), with smaller amounts of emissions of methane (CH₄) and nitrous oxide (N₂O). Construction emissions would permanently cease at the end of the Project. Over the long-term, these temporary emissions would be offset by the restoration of meadow hydrology and re-establishment of meadow vegetation. Thus, while the project would have an incremental, short-term, and one-time contribution to GHG emissions within the context of the county and region, the individual impact is considered less than significant.

The proposed project would not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases.

Mitigation Measures: No mitigation required.

9. Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project area is in a natural setting. There are no known hazards, nor hazardous materials, in the project area. The project is located within the Federal Fire Protection Responsibility area, and the forest surrounding the meadow was thinned from 2012 through 2014 under the Lost Horse Fuels Reduction Project to promote fuel reduction and forest health in the surrounding forest. Further, the project lies in the “*non-very high fire hazard severity zone*”, pursuant to the California Department of Forestry and Fire Protection’s (CALFIRE) Fire Resource Assessment Program Fire Hazard Severity Zone Map for El Dorado County (CALFIRE 2009).

Impact Discussion

There are no hazardous materials that will be transported or disposed of as part of this project. There is no risk of accidental release of hazardous substances associated with this project, other than those normally associated with use of any equipment with an internal combustion engine. The heavy equipment used to construct the project will be fueled with diesel fuel. Re-fueling and equipment maintenance will be conducted outside of the riparian/floodplain area, and hazardous material cleanup supplies will be kept onsite during construction in the event of an accidental spill or leak. In addition, contracting specifications will ensure equipment is in good working condition prior to mobilization to the project area.

While the project area is located in a meadow and outside of identified very fire hazard severity zones, portions of the meadow are expected to be dry, with a risk for wildfire associated with the use of any internal combustion engine. A trash pump and/or water truck will be on site to assist with vegetation transplants and dust control, as well as to reduce the risk of wildfire.

Mitigation Measures:

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.

10. Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The discussion provided in this section is summarized from the Hydrology Report for the Foster Meadow Restoration Project, provided in Appendix G.

Foster Meadow sits at approximately 6,800 ft at the headwaters of the Middle Fork Cosumnes River. The watershed area above the project area is approximately 354 acres (0.55 square miles) from the top

of the project at the Forest Highway 54 crossing and 1,031 acres (1.6 square miles) from the bottom of the project. As a result of the elevation, most of the precipitation occurs in the form of snow between October and April, although thunderstorms can contribute rain in the summer. The hydrology of Foster Meadow and the headwaters of the Middle Fork Cosumnes River is dominated by snowmelt in late spring and early summer. As a result, the flow of the Middle Fork Cosumnes River in Foster Meadow is low and frequently intermittent in late summer and early fall.

Foster Meadow has not been formally surveyed using the USFS Proper Functioning Condition Survey protocol. Based on qualitative information about site conditions, the meadow would be classified as *Non-Functional* because of a) erosional features in the western portion of the meadow, which includes numerous headcuts and incised channels, b) segments of the Middle Fork Cosumnes River where the channel is actively eroding laterally, and c) the disruption of surface and subsurface flow through the meadow where Forest Road 54 cuts across the eastern edge of the meadow. The result is that much of the meadow is wet immediately following late spring/early summer snowmelt and then dries out fairly quickly as the summer progresses. The meadow has not been grazed for more than 15 years, and is not expected to return to an active grazing allotment.

Impact Discussion

There are no structures, including levees and dams, associated with the project. The project also would not create a risk of inundation by tsunami, seiche, or mudflow. The project is expected to improve groundwater supplies and water quality due to restored function of the floodplain. Treatment of the incised channels would reconnect the Middle Fork Cosumnes River to the floodplain in Foster Meadow. Flood flows would more frequently spill onto the floodplain, which is expected to increase groundwater recharge into the shallow floodplain aquifer. Groundwater recharge would generally occur in conjunction with precipitation and snowmelt with negligible effects on any downstream uses. Typically, in functional and restored meadows, the floodplain aquifer continues to drain (albeit, more slowly than in the degraded condition) through the summer, and provides groundwater recharge to the channel, until surface and subsurface inflows to the meadow resume in fall.

The project would have a negligible overall effect on water supply in the Middle Fork Cosumnes River watershed. The improved vegetative vigor on the floodplain is expected to improve infiltration by improving soil porosity, and would filter out sediments entrained in overland flow. Water quality is expected to improve via improved filtration and fine soil deposition on the floodplain, and reduced water temperatures. Water temperatures would be reduced via improved exchange between cooler groundwater and surface water.

The project could potentially result in short-term, temporary impacts to the water quality of the Middle Fork Cosumnes River during construction, due to earth-moving activities. The impacts would be minimized through the permitting process for the project and implementation of Best Management Practices (BMPs).

Coverage under two permits will ensure that water quality standards are protected. The project will need to obtain a Clean Water Act Section 404 permit from the US Army Corps of Engineers. Although the permit has not yet been obtained, 404 permits for meadow restoration projects typically limit the total area of ground disturbance and contain requirements for erosion control. The project will also be required to obtain a Section 401 Water Quality Certification from the Central Valley Regional Water Quality Control Board. Although this permit has not yet been obtained, 401 permits for meadow restoration projects typically require water quality monitoring and measures to ensure that water

quality standards are met. The BMPs that would minimize sedimentation in the first year after construction are described under mitigation measures, below. Additional measures are described in Section 6, Geology and Soils.

Mitigation Measures:

10a. Construction activities in Foster Meadow would occur during the time of year when the flow of the Middle Fork Cosumnes River is at its lowest. This typically occurs between August 1 and October 30.

10b. Required permits would be obtained including, at the least, the 404 permit from the U.S. Army Corps of Engineers and the 401 Permit from the Central Regional Valley Water Board.

10c. Construction would be supervised on-site by at least one person who has worked on at least one previous pond and plug project.

10d. Watershed mitigation measures also would include the use of Best Management Practices (BMPs) to protect water quality. The following management requirements from the U.S. Forest Service Region 5 *Water Quality Management Handbook* (USDA-Forest Service 2011) would be applied to prevent impacts to on-site and downstream water quality during implementation:

- **BMP 1.18 Meadow Protection** – The objective of this BMP is to avoid damage to ground cover, soil, and the hydrologic function of meadows.
- **BMP 2.5 Water Source Development and Utilization** - The objective of this BMP applies to dust abatement and other management activities requiring the use of water while protecting and maintaining water quality. Water may be needed to assist in construction of structures. Approved drafting sites designated by the District hydrologist would be utilized.
- **BMP 2.8 Stream Crossings** – This BMP minimizes water, aquatic and riparian resource disturbances and related sediment production when constructing, reconstructing, or maintaining temporary and permanent water crossings.
- **BMP 2.11 Equipment Refueling and Servicing** - This BMP prevents pollutants such as fuels, lubricants, bitumens and other harmful materials from being discharged into or near rivers, streams and impoundments, or into natural or man-made channels. 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.
- **BMP 2.13 Erosion Control Plan** - The requirements of this BMP are met through: 1) the Design Features for hydrology and soil resources that are in the proposed action, 2) the erosion control measures and monitoring that will be contained in the 404 permit (U.S. Army Corps of Engineers) and 401 Permit (State Water Quality Control Board, and 3) other applicable BMP's in the 2011 WQMH as listed in this section.
- **BMP 5.3 Tractor Operation Limitation in Wetlands & Meadows** – The objective of this BMP is to limit turbidity and sediment production resulting from compaction, rutting, run-off concentration, and subsequent erosion by excluding the use of mechanical equipment in wetlands and meadows except for the purpose of restoring wetland meadow and meadow function.
- **BMP 7.1 Watershed Restoration** - The objective of this BMP is to repair degraded watershed conditions and improve water quality and soil stability. Restoration measures described herein reflect state-of-the-art techniques and have been chosen to custom fit the unique hydrologic, physical, biological and climatic characteristics of Foster Meadow. The proposed design for restoration of Foster Meadow restores the meadow condition and hydrologic function to the watershed as described in this document.

- **BMP 7.4 Forest and Hazardous Substance Spill Prevention Control and Countermeasure (SPCC) Plan** - The objective of this BMP is to prevent contamination of waters from accidental spills. BMP 7.4 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.
 - **BMP 7.6 Water Quality Monitoring** - The objective of this BMP is to collect representative water data to determine base line conditions for comparison to established water quality standards, which are related to beneficial uses for that particular watershed. This BMP is implemented through establishment of Stream Condition Inventory (SCI) site prior to project implementation to establish a pre-project condition, and through the requirements of the 401 Water Quality Certification that will be obtained for the project..
- BMP 7.8 Cumulative Off-site Watershed Effect** - This BMP serves to protect the identified beneficial uses of water from the combined effects of multiple management activities. Beneficial uses and effects have been documented in the Hydrology Report. Impacts of past and present activities including impacts of the proposed future management activities were considered in the evaluation of the analysis area, and summarized in the attached hydrology report.

11. Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project site is on lands administered by the USDA-Forest Service, El Dorado National Forest and is used primarily for dispersed recreation (e.g., fishing, hunting, camping, and occasional winter use). The project area is not grazed and will not be in an active grazing allotment for the foreseeable future. Timber harvest, fuel reduction projects, and plantation management have and continue to take place adjacent to and in the vicinity of the meadow.

Impact Discussion

The proposed project would not alter any existing land uses. There are no other known plans for the project area. There is no established community in, or close, to the project sites. There would be no impacts to land use and planning under the proposed project.

Mitigation Measures:

No mitigation required.

12. Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project area is outside of the important mineral resource areas mapped in the 2004 El Dorado County General Plan, and there are no other mineral resources in the project area.

Impact Discussion

There are no mineral resources in the project area, therefore, there would be no impact to mineral resources under the proposed project.

Mitigation Measures: No mitigation required.

13. Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is within a natural landscape, with noise coming from natural sources (e.g., bird song), vehicles passing on nearby USFS roads, and timber management activities (e.g., equipment associated with timber harvesting). Although the project is approximately one mile north of State Highway 88, noise from highway traffic is not distinctly audible at the meadow. There are no noise-sensitive developments (e.g., hospitals, schools, churches, residential developments) located near the meadow.

The El Dorado County General Plan establishes limits for maximum allowable noise exposure for construction noise sources in rural regions, with specific limits for Rural Land, Natural Resources, Open Space, and Agricultural Lands. However, the limits shall not apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends, and on federally-recognized holidays (El Dorado County 2004).

Impact Discussion

The restoration project will require construction with heavy equipment, which will create temporary noise for approximately five weeks. Construction activities will be conducted in the late summer/early fall during daylight hours of the work week (Monday-Thursday, 7:00 AM – 5:30 PM). Because project construction will occur in the exemption hours for project construction, there would be no impact from project-related construction noise.

Mitigation Measures: No mitigation required.

14. Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

There is no housing near the project site. The Foster Meadow restoration project is located in a remote location, and would not cause direct or indirect population growth, nor would it displace existing housing or people.

Mitigation Measures: No mitigation required.

15. Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

No public services are available in the area. The project is a restoration project in a natural setting, and would not affect populations or public services.

Mitigation Measures: No mitigation required.

16. Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The project is located on public National Forest land, and is occasionally used for dispersed recreation such as fishing, hunting, camping, and OHV touring. The meadow is accessible by foot, with FS 09N14H as the nearest road. The project does not include recreational facilities, nor would it lead to a need for recreational facilities. The project is not expected to increase recreational use of the area, because the primary character of the area, open meadow, would not change.

Mitigation Measures: No mitigation required.

17. Transportation/Traffic

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The surrounding area is occasionally used for dispersed recreation such as fishing, hunting, camping, and OHV touring. The meadow is accessible by foot, with FS 09N14H as the nearest road, which is not a primary route to any destination. The project would not affect the existing capacity of the transportation system near Foster Meadow. The project would not change the nature of travel in the area, and therefore would not increase hazardous conditions, nor affect emergency access. There are no alternative transportation plans that affect the project area because of its natural setting and low use.

Mitigation Measures: No mitigation required.

18. Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting and Impact Discussion

Evaluation of tribal cultural resources based on previous historical/archaeological inventories is provided in Section 5 of this checklist (Cultural Resources). A total of five historical and/or archaeological sites were identified within the heritage resources analysis area, but outside of the project area. The sites were not evaluated for local register or California Register of Historical Resources eligibility. One historical site with post-aboriginal use is in proximity to the project area and must be avoided. Avoidance of this site will ensure that potential impacts to tribal cultural resources would be less-than-significant (Mitigation Measure 18a).

The Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands file for information on Native American cultural resources in the study area and to request a list of Native American contacts in the vicinity of the project site. In the response letter dated March 26, 2019, the NAHC reported that there were no known Sacred Sites in the project area or immediate vicinity.

On May 24, 2019, a consultation letter was sent to a local list of Native American individuals/ organizations that may have knowledge of local cultural resources to solicit tribal input on the project. A representative of the Wilton Rancheria responded via email on June 13, 2019, indicating that the Department of Cultural Preservation has identified resources that may be of significance to the Tribe within the project area and in close proximity. The Tribe requested a meeting to discuss avoidance of the resources and the presence of a cultural monitor. The United Auburn Indian Community (UAIC) also responded to the consultation letter via email on June 21, 2019. The UAIC requested the initiation of consultation, copies of cultural resource assessments and records searches, and incorporation of mitigation measures addressing unanticipated discoveries and worker awareness training. Both tribes were engaged in consultation and the development of mitigation measures 18b (worker awareness training) and 18c (inadvertent discoveries). Incorporation of these mitigation measures will ensure that potential impacts to cultural resources due to excavation/inadvertent discovery will be less than significant. Consultation with the UAIC was officially closed on October 15, 2019 and with the Wilton Rancheria on October 28, 2019.

Mitigation Measures:

18a. One historical site with post-aboriginal use 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 this location, and no ground disturbing activities will occur within the flagged area. The flagging will be removed post project implementation.

18b. A consultant and construction worker tribal cultural resources awareness brochure will be distributed to all personnel involved in project implementation before any stages of project implementation and construction activities begin on the project site. The brochure will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The brochure will also describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project site and will outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The brochure will also underscore the requirement for confidentiality and culturally-appropriate treatment of any find of significance to Native Americans and behaviors, consistent with Native American Tribal values.

18c. 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. The United Auburn Indian Community (UAIC) of the Auburn Rancheria does not consider curation of TCRs to be appropriate or respectful and request that materials not be permanently curated, unless requested by the Tribe.

The types of treatment preferred by UAIC that protects, preserves or restores the integrity of a TCR may include Tribal Monitoring, or recovery of cultural objects, and reburial of cultural objects or cultural soil that is done in a culturally appropriate manner. 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.

19. Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Comply with federal, state, and local management and reduction statutes and				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The project area is within a natural setting with no utilities or service systems. The project is a restoration project that will not affect utilities and service systems.

Mitigation Measures: No mitigation required.

20. Wildfire

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted energy response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is located within the Federal Fire Protection Responsibility area (FFRA) and is in the non-very high fire hazard severity zone (CALFIRE 2009). There are some mapped very high fire hazard severity zone (VHFHSZ) lands near the project area, with one legal section of VHFHSZ land in the State Responsibility Area approximately 0.3 miles from the downstream end of the project. The mapped VHFHSZ lands in FFRA near Foster Meadow were thinned from 2012 through 2014 under the Lost Horse

Fuels Reduction Project to promote fuel reduction and forest health in the surrounding forest. This project was implemented several years after the CALFIRE maps were published.

Impact Discussion

The project is a restoration activity that would not result in land use changes that would affect an energy response or emergency evacuation plan. The project is not within VHFHSZ lands and is a meadow surrounded by recently thinned forest, and therefore is not an area of high slope or other factors that would exacerbate wildfire risks. The project would not require installation of infrastructure that would exacerbate fire risk, and would not result in downstream flooding or landslide risk due to post-fire slope instability or drainage changes. The project will reconnect the stream channel to its floodplain in Foster Meadow, allowing seasonal high flows to spread and slow, thereby reducing peak flood flows downstream of the project area.

Mitigation Measures: No mitigation required.

21. Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Discussion

Overall, implementation of this restoration project is expected to have a long-term, beneficial impact to the environment, improving fish and wildlife habitat, wetland plant communities, and water quality. There would be no cumulative significant impacts caused or created by construction of the restoration

project that would degrade existing natural resources, adversely affect human beings, or have an incremental negative effect in connection with past, current or foreseeable future projects. Best management practices, standard operating procedures, and project-specific mitigation measures described in this initial study would ensure that resources are protected and impacts under the proposed project would be less than significant.

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Mitigation, Monitoring and Reporting Program Summary for the Foster Meadow Restoration Project

This sheet 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, terraces 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.
- During the spring and summer following project completion, locally collected seeds would be dispersed into terrace cuts, plugs, and other heavily disturbed areas.
- Container stock from locally-sourced material would be hand planted in the spring and summer in key locations. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplanted seedlings. 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

Terrestrial Wildlife

4a. The ENF 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.

4b. The District Biologist will be on site during project construction and has the authority to adjust the project to protect Threatened, Endangered and Sensitive species.

Aquatic Wildlife

4c. The project activities will conform to the conservation measures and terms and conditions requirements in the Biological Opinion (USFWS 12/19/2014), and subsequent letter which appends this and other projects to that document (USFWS 02/08/2018).

4d. Visual Encounter surveys will be conducted for Sierra Nevada yellow-legged frogs by a qualified Forest Service biologist within 24 hours of construction at the Foster Meadow Road 9N14 stream crossing and within the entire Foster Meadow project area.

4e. If the Sierra Nevada yellow-legged frog are found within the project area during project implementation, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in the 2014 Programmatic Biological Opinion issued by the US Fish and Wildlife Service.

4f. Existing waterholes and other aquatic sites including ponds, lakes and streams used for water drafting would be surveyed for Aquatic TES species and flow levels taken prior to use. In the event 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. Dufrene Pond, a nearby manmade pond designated for drafting, contains a small breeding population of SNYLF and will **not** be used for drafting water for dust abatement or other construction needs.

4g. 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.

Botanical Species

Management of botanical resources, special habitats, and noxious weeds would follow the standards and guidelines in the Sierra Nevada Forest Amendment Record of Decision (SNFPA ROD 2004). Specific design criteria and protection measures for the Foster Meadow project include:

4h. Any new occurrences of sensitive plants identified within the project area would be flagged and avoided when necessary.

4i. A watchlist species, *Botrychium simplex*, occurs within Foster meadow. All known occurrences will be flagged for avoidance during project implementation. Should any new threatened, endangered, sensitive (TES) or watchlist species be located during the proposed project, available steps will be taken to evaluate and mitigate effects.

4j. Fens within Foster Meadow would be flagged prior to project implementation for avoidance. Crews conducting restoration work at Foster Meadow would be informed of the location of the fen.

4k. 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.

4l. Infestations of invasive plants that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest botanist. Rock for riffle construction would be weed free.

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

4n. Any seed used for restoration or erosion control would be from a locally collected source (ENF, Seed, Mulch and Fertilizer Prescription, 2000).

Cultural Resources

5a. One historical site 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 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 adjacent 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 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 minimize 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, will be removed and transplanted to plugs, terraces 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.
- During the spring and summer following project completion, locally collected seeds would be dispersed into terrace cuts, plugs, and other heavily disturbed areas.
- Container stock from locally-sourced material would be hand planted in the spring and summer in key locations. Container stock will consist of rhizomatous species that can quickly colonize the terrace cuts and plugs.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation would consist of 70% survival of willow cuttings and transplanted seedlings. 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. Currently, the project area is not grazed and the allotment will not be re-opened, so this mitigation requires no further action.

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.

Hydrology and Water Quality

10a. Construction activities in Foster Meadow would occur during the time of year when the flow of the Middle Fork Cosumnes River is at its lowest. This typically occurs between August 1 and October 30.

10b. Required permits would be obtained including, at the least, the 404 permit from the U.S. Army Corps of Engineers and the 401 Permit from the Central Regional Valley Water Board.

10c. Construction would be supervised on-site by at least one person who has worked on at least one previous pond and plug project.

10d. Watershed mitigation measures also would include the use of Best Management Practices (BMPs) to protect water quality. The following management requirements from the U.S. Forest Service Region 5 *Water Quality Management Handbook* (USDA 2011) would be applied to prevent impacts to on-site and downstream water quality during implementation:

- **BMP 1.18 Meadow Protection** – The objective of this BMP is to avoid damage to ground cover, soil, and the hydrologic function of meadows.
- **BMP 2.5 Water Source Development and Utilization** - The objective of this BMP applies to dust abatement and other management activities requiring the use of water while protecting and maintaining water quality. Water may be needed to assist in construction of structures. Approved drafting sites designated by the district hydrologist would be utilized.
- **BMP 2.8 Stream Crossings** – This BMP minimizes water, aquatic and riparian resource disturbances and related sediment production when constructing, reconstructing, or maintaining temporary and permanent water crossings.
- **BMP 2.11 Equipment Refueling and Servicing** - This BMP prevents pollutants such as fuels, lubricants, bitumens and other harmful materials from being discharged into or near rivers, streams and impoundments, or into natural or man-made channels. 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.
- **BMP 2.13 Erosion Control Plan** - The requirements of this BMP are met through: 1) the Design Features for hydrology and soil resources that are in the proposed action, 2) the erosion control measures and monitoring that will be contained in the 404 permit (U.S. Army Corps of Engineers) and 401 Permit (State Water Quality Control Board, and 3) other applicable BMP's in the 2011 WQMH as listed in this section.
- **BMP 5.3 Tractor Operation Limitation in Wetlands & Meadows** – The objective of this BMP is to limit turbidity and sediment production resulting from compaction, rutting, run-off concentration, and subsequent erosion by excluding the use of mechanical equipment in wetlands and meadows except for the purpose of restoring wetland meadow and meadow function.
- **BMP 7.1 Watershed Restoration** - The objective of this BMP is to repair degraded watershed conditions and improve water quality and soil stability. Restoration measures described herein reflect state-of-the-art techniques and have been chosen to custom fit the unique hydrologic, physical, biological and climatic characteristics of Foster Meadow. The proposed design for restoration of Foster Meadow restores the meadow condition and hydrologic function to the watershed as described in this document.
- **BMP 7.4 Forest and Hazardous Substance Spill Prevention Control and Countermeasure (SPCC) Plan** - The objective of this BMP is to prevent contamination of waters from accidental spills. BMP 7.4 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.

- **BMP 7.6 Water Quality Monitoring** - The objective of this BMP is to collect representative water data to determine base line conditions for comparison to established water quality standards, which are related to beneficial uses for that particular watershed. This BMP is implemented through establishment of Stream Condition Inventory (SCI) site prior to project implementation to establish a pre-project condition, and through the requirements of the 401 Water Quality Certification that will be obtained for the project..
BMP 7.8 Cumulative Off-site Watershed Effect - This BMP serves to protect the identified beneficial uses of water from the combined effects of multiple management activities. Beneficial uses and effects have been documented in the Hydrology Report. Impacts of past and present activities including impacts of the proposed future management activities were considered in the evaluation of the analysis area, and summarized in the attached hydrology report.

Tribal Cultural Resources

18a. One historical site with post-aboriginal use 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 this location, and no ground disturbing activities will occur within the flagged area. The flagging will be removed post project implementation.

18b. A consultant and construction worker tribal cultural resources awareness brochure will be distributed to all personnel involved in project implementation before any stages of project implementation and construction activities begin on the project site. The brochure will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The brochure will also describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project site and will outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The brochure will also underscore the requirement for confidentiality and culturally-appropriate treatment of any find of significance to Native Americans and behaviors, consistent with Native American Tribal values.

18c. 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. The United Auburn Indian Community (UAIC) of the Auburn Rancheria does not consider curation of TCRs to be appropriate or respectful and request that materials not be permanently curated, unless requested by the Tribe.

The types of treatment preferred by UAIC that protects, preserves or restores the integrity of a TCR may include Tribal Monitoring, or recovery of cultural objects, and reburial of cultural objects or cultural soil that is done in a culturally appropriate manner. 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 Foster 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. 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 Amador 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 ENF 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 Foster 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) and Forest Service Stream Condition Inventory (SCI) conducted once pre- and post-project	Plumas Corporation (CRAM); USFS-ENF (SCI)
Groundwater	4 groundwater wells (approximately 6 to 12 ft in depth) made of 3/4" galvanized perforated pipe, measured monthly*	Plumas Corporation**

Monitoring Parameter	Method	Responsible Party
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 and SCI	Plumas Corporation (CRAM); USFS-ENF (SCI)
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-ENF

*As access permits

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