U.S. BUREAU OF RECLAMATION
MID-PACIFIC REGION
NORTHERN CALIFORNIA AREA OFFICE
TRINITY RIVER RESTORATION PROGRAM
WEAVERVILLE, CALIFORNIA

BUREAU OF LAND MANAGEMENT
REDDING FIELD OFFICE
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FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, as amended, and with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), the Trinity River Restoration Program office of the U.S. Bureau of Reclamation and the Bureau of Land Management, Redding Field Office, have found that the Proposed Project, supported by the analysis disclosed in the Final Environmental Assessment/Initial Study for the Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45–107.0) will result in no significant impacts on the human environment considering the context and intensity of impacts.

Supporting documentation in the EA portion of the EA/IS was prepared to meet the requirements of NEPA. For the purposes of NEPA, the EA is tiered to the *Trinity River Mainstem Fishery Restoration Program Environmental Impact Statement* and incorporates by reference the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Final Master Environmental Impact Report*.

Recommended by:

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5/12/16
Date

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5/12/16
Date
FONSI No. DOI-BLM-CA-N060-2015-057-EA

FINDING OF NO SIGNIFICANT IMPACT
Trinity River Channel Rehabilitation Site
Bucktail (River Mile 105.45-107.0)

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BACKGROUND AND NEED

The Bureau of Reclamation (Reclamation) completed the Trinity River Division (TRD) of the Central Valley Project (CVP) in 1964, blocking passage of salmonids and lamprey to habitat upstream of Lewiston Dam and restricting anadromous fish to habitat downstream. The TRD also eliminated coarse sediment transport from over 700 square miles of the upper watershed. Trans-basin diversions from Lewiston Lake diminished annual flows by up to 90 percent and altered the hydrologic regime of the Trinity River for a 40-mile reach downstream. The consequences of diminished flows included encroachment of riparian vegetation, establishment of riparian berms, and changes in alluvial processes at various locations along the river as far downstream as the North Fork Trinity River. These geomorphic changes resulted in a decrease in the diversity of species and age classes of riparian vegetation along the river, impaired floodplain function, and adversely affected fish habitat.

In 1994, the U.S. Fish and Wildlife Service (USFWS) as the federal lead agency and Trinity County as the California Environmental Quality Act (CEQA) lead agency began the National Environmental Policy Act (NEPA) process for developing the Trinity River Mainstem Fishery Restoration Environmental Impact Statement (EIS)/Environmental Impact Report (EIR). The 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) (December 19, 2000; USDI 2000) directed Reclamation and the USFWS to

implement the Flow Evaluation Alternative, coupled with additional watershed protection efforts (described in the Mechanical Restoration Alternative), as the Preferred Alternative identified in the FEIS/EIR to restore the Trinity River's anadromous fishery. Through the Trinity River Restoration Program (TRRP), the ROD directed Reclamation to restore the Trinity River fishery by implementing a combination of higher releases from Lewiston Dam (up to 11,000 cubic feet per second [cfs]), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an Adaptive Environmental Assessment and Management Program. As a project-level NEPA document, the FEIS/EIR provides guidance for policy decisions associated with managing Trinity River flows, and as a programmatic NEPA document, it provides first-tier support of related mechanical restoration and sediment management actions. The 2009 Master EIR provides more specific analysis of non-flow elements of the TRRP and was incorporated by reference in the NEPA document for the Proposed Project to support NEPA decisions required by Reclamation and the Bureau of Land Management (BLM).

The TRRP, acting under the guidance of the Trinity Management Council (TMC), provides the overall program direction required to implement the 2000 ROD. TMC member agencies include Reclamation, USFWS, National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS), the Hoopa Valley Tribe (HVT), the Yurok Tribe (YT), the California Natural Resources Agency represented by the California Department of Fish and Wildlife (CDFW) and the California Department of Water Resources (DWR), and Trinity County. In addition to providing technical expertise for the design and review of the rehabilitation sites, the TRRP provides technical and administrative support to the TMC related to both scientific evaluation of restoration progress and management implementation.

The TRRP is responsible for the overall implementation of the ROD, and although the Bucktail site was not a discrete location identified in the original list of 43 sites included in the ROD, the TRRP, through adaptive management, identified it as a critical location to restore fluvial processes. The Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45–107.0) (Proposed Project) includes reducing riparian encroachment, placement of large woody debris (LWD, physical alteration of alluvial features (e.g., floodplains and side channels), construction of hydraulic structures (wood and log features), and removal/replacement of riparian vegetation at strategic locations. Extensive revegetation of native riparian vegetation areas (woody and wetland species) and management of upland mixed conifer habitats to mimic historic conditions is included in the Proposed Project. These rehabilitation activities would increase habitat suitability and availability for salmonids and other native fish and wildlife species during a wide range of river flow conditions.

PROPOSED PROJECT

The Proposed Project includes work at the Bucktail site, located in part on lands managed by the BLM Redding Field Office. Construction activities at the site are anticipated to begin in 2016.

The project area is located on the *Lewiston, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle, in Township 33 North, Range 9 West, Sections 23 and 24 Mount Diablo Base and Meridian (MDB&M). The river elevation at the Bucktail site is about 1,750 feet above mean sea level.

The Bucktail site encompasses 110.4 acres. It begins immediately upstream of Trinity County's Bucktail Bridge and extends upstream on both sides of the Trinity River about 1.5 miles. More than 60 percent of the land within the Bucktail site is privately owned, and BLM manages several large parcels of public

land within the project area. Land ownership and the project boundary are shown on Figure 2 of the EA/IS. TRRP staff, with interdisciplinary review from the BLM and TMC technical staff, developed the site boundaries to incorporate the rehabilitation activities described in Chapter 2 of the EA/IS.

The project area for the Bucktail site includes a portion of TRRP's previously constructed Dark Gulch (2008) and Lowden Ranch (2010) rehabilitation sites. Public vehicular access to the Bucktail site is via Browns Mountain Road, north of Old Lewiston Road. This county road also provides access to a paved BLM road leading to the Bucktail Boat Ramp. Pedestrian and equestrian access is available to BLM lands throughout the project area. Access to the portion of the project across the river from and upstream of the boat ramp is across private land and is limited.

The project area encompasses a stretch of the Trinity River that includes several sharp bends, bounded by steep valley walls on the inside of the bends. Evidence of historic dredge activities is visible at several locations throughout the site. Although some mature riparian vegetation occurs on alluvial features, upland vegetation adjacent to the project area is characterized as scattered stands of mixed conifer/hardwood forest with an understory of shrubs and grasses.

Rehabilitation activities directed by the ROD and further described in the EA/IS, in conjunction with annual ROD flow releases, are expected to contribute to the restoration of the Trinity River mainstem fishery. Implementing channel rehabilitation work at the Bucktail site would continue implementation of the ROD and would contribute to the restoration of aquatic habitat in the mainstem Trinity River through the development of properly functioning channel conditions.

The EA/IS for the project considered two alternatives: the No-Project Alternative and the Proposed Project Alternative. After consideration of the environmental commitments and project design features listed in Chapter 2 of the EA/IS, impacts from the Proposed Project would be less than significant pursuant to NEPA. Details concerning these alternatives and other alternatives considered but not carried forward for evaluation are included in Chapter 2 of the EA/IS.

An interdisciplinary team of the TRRP identified discrete activity areas within the boundaries of the Bucktail site. Each activity area was established to meet a suite of specific objectives in conformance with the overall goals and objectives outlined for the TRRP. Activity areas are labeled using an alpha-numeric system based on the type of activity that would occur in a specific place. Riverine activities are labeled with an R followed by the construction site number (e.g., R-1, R-2); upland activities are labeled with a U followed by the construction site number; in-channel work areas are identified with an IC; and construction staging/use areas are identified with a C followed by the construction site number.

The TRRP has developed programmatic objectives for channel rehabilitation projects that are described in Chapter 2 of the EA/IS. Ultimately, the goals of the channel rehabilitation efforts are to provide functional aquatic habitat for all life stages of anadromous salmonids over a range of flow conditions; to provide suitable salmonid rearing habitat, presently believed to be a limiting factor in the system; and to reestablish healthy alluvial river geomorphic processes that will maintain high-quality salmonid habitat at a dynamic equilibrium.

The activities proposed at the Bucktail site are briefly described below; additional details are provided in Chapter 2 of the EA/IS.

IC-1, Point Bar

This area would be a constructed right-bank skeletal bar designed to inundate at 2,500 cfs; it would improve overall channel complexity and direct mainstem flows towards the left bank.

IC-2, Side Channel

This area is a low-flow side channel about 900 feet long that would deliver approximately 5 to 10 percent of the mainstem flow during baseflow conditions. It would provide connectivity between existing floodplain surfaces and a seasonal pond while providing riverine habitat with lower streamflow velocities and shallower depths over a wider range of flows. Constructed riffles within this area would provide adult salmonid spawning areas and productive habitat for benthic macroinvertebrates (BMI) that would increase food resources for fry and juvenile salmonids during critical winter and spring rearing periods.

IC-3, Mainstem Channel Fill

This area would be modified by placement of coarse sediment, large wood, and vegetation to fill in the existing channel such that 70 to 80 percent of flows up to 6,050 cfs are directed into the Area IC-4. The existing channel in this location has a steep gradient with a large cobble substrate. The left bank has several large wood features that were placed as part of the 2008 Dark Gulch Project. Construction of a left bank bar in combination with placement of large wood would result in some flow entering IC-4. As flows increase, surrounding areas would be inundated at flows ranging between 4,500 cfs and 8,000 cfs. IC-3 would increase low-water bank length by incorporating a left bank alcove. Construction of IC-3 would provide slow water refuge within a constructed alcove that would provide fry and juvenile habitat at flows ranging from 300 cfs and 4,500 cfs.

IC-4, Mainstem Channel Relocation

This area would be modified by construction of a split flow channel intended to capture 70 to 80 percent of flows up to 6,050 cfs. The modifications would involve excavation of the constructed 2008 side channel, which would become the new mainstem channel and increase channel length, complexity, and sinuosity, while reducing the slope of the channel. Placement of large wood would direct additional flow into IC-4 when flows are greater than 6,050 cfs. As flows increase, surrounding areas are would be inundated at flows ranging between 4,500 cfs and 8,000 cfs. Area IC-4 and surrounding areas would provide shallow depths and slow velocities across a wider range of streamflows than the existing mainstem channel configuration. Increasing the mainstem channel length and reducing the slope would improve adult spawning opportunities. In addition, by increasing channel sinuosity and complexity, this feature would provide fry and juvenile rearing opportunities at a wide range of flows.

IC-5, Mainstem Channel Splitflow

This area is located along the back side of the original feathered edge site constructed by Reclamation in 1993. As part of the 2008 Dark Gulch Project, coarse sediment was placed on the existing bar as a source of spawning gravel. This area would be re-contoured to expedite mobility and transport downstream of the remaining coarse sediment associated with the 2008 high flow recruitment pile. Re-contouring the existing bar would allow flows of 2,500 cfs to inundate the bar completely, and flows of or in excess of 6,050 cfs would mobilize and redeposit coarse sediment downstream. This feature would increase off-channel fry and juvenile rearing opportunities at a wide range of flows over existing conditions.

IC-6, Side Channel

This area would function as a 300 cfs side channel designed to drain areas R-1, IC-2, and W-1. At the inflow to IC- 6, a beaver dam analog (BDA-1) would be designed to provide variable backwater elevations into the seasonal wetland and areas R-1 and IC-2. The constructed side channel would increase low water bank length and provide an outlet to the seasonal wetlands fed by IC-2. As necessary, coarse sediment, between ¼ inch and 5 inches, would be placed in this area to provide a suitable medium for BMI production and salmonid spawning. The constructed channel would have 5 to 10 percent of summer/winter baseflows (15-45 cfs), providing lower streamflow velocities and shallower depths over a wider range of flows. This side channel would increase the inundated area for groundwater recharge, providing more suitable areas for wetland and riparian establishment.

IC-7, Side Channel

This area would be a side channel designed to capture approximately 5 to 10 percent of summer/winter baseflows (15-45 cfs) and provide low-velocity, shallow-water rearing habitat for fry and juvenile salmonids over a wide range of flows. A large wood structure would be placed to maintain entrance conditions and meter flow into the side channel. Overall, this area would increase bank length at baseflows and provide improved surface and groundwater connectivity between constructed floodplains R-3 and R-4.

IC-8, Point Bar

In this area, approximately 1,850 cubic yards of coarse sediment would be added to the left bank, thereby immediately increasing coarse sediment storage by creating a self-sustaining point bar with an alcove at the downstream end. This would increase low water bank length, sinuosity, and expansion and contraction zones. The top of the point bar would be completely inundated at 4,500 cfs, providing shallow depths and slow velocities across a wider range of flows. In addition, an alcove has been incorporated into the design of the bar on the downstream end. The point bar and alcove would provide slow, shallow rearing habitat for flows ranging from 300 cfs to 2,500 cfs. A pool on the outside of the bend along the right bank bedrock would be maintained to preserve adult holding opportunities.

R-1, Floodplain

This area would provide slow, shallow rearing habitat by reducing the floodplain elevation to ensure inundation during flows ranging between 1,500 cfs and 4,500 cfs. A beaver dam structure located at the entrance to IC-6 would back the water up into area R-1 to help portions of R-1 function as a seasonal wetland. Construction of R-1 would result in shallow depths and slow velocities across a wider range of streamflows than those currently provided.

R-2, Upland Planting

This area would be lowered to provide slow, shallow rearing habitat during inundation flows ranging between 1,500 cfs and 4,500 cfs. At flows of 300 cfs, area IC-2 would provide water for area R-2. A beaver dam structure located at the entrance to IC-6 would back the water up into area R-2 to improve planting and natural recruitment success. Construction of area R-2 would result in shallow depths and slow velocities across a wider range of streamflows than those currently provided.

R-3, Floodplain

This area would be lowered to enable a functional floodplain subject to inundation at flows ranging between 1,000 cfs and 4,500 cfs to provide slow, shallow rearing habitat. It would provide areas with shallow depths and slow velocities across a wider range of streamflows than those currently adjacent to the mainstem channel.

R-4, Floodplain

This area would be lowered to enable a functional floodplain subject to inundation at flows ranging between 1,000 cfs and 4,500 cfs, providing bank complexity and surfaces that would initiate floodplain deposition. The proposed constructed surfaces would provide slow, shallow rearing habitat.

R-5, Floodplain

This area would be constructed to enable connectivity of an old settling pond with the main channel at flows of 4,500 cfs. The area would provide slow, shallow rearing habitat at streamflows ranging from 1,500 cfs to the maximum fisheries flow of 11,000 cfs.

R-6, Backwater

This area would be constructed as a backwater at flows ranging between 450 cfs and 2,500 cfs.

Wood Habitat Structures

Wood habitat structures would be distributed throughout constructed side and mainstem channels. Wood would be buried into constructed banks and bars without piles or boulder ballast, making it available for transport downstream. Some angled piles may be used to allow time for vegetation to grow into place and secure habitat structures. Large boulders may be used in combination with wood for additional complexity. These structures would create areas of local scour and deposition and would provide immediate cover, depth, and velocity refugia for all salmonid life stages over flows of 300 cfs.

ELJ-1, Engineered Log Jam

Construction of ELJ-1 would incorporate large wood and coarse sediment into existing vegetation along the left bank to form a large wood jam at the upstream end of IC-3. Wood placement combined with coarse sediment and vegetation would meet the design objective of directing 70 to 80 percent of flows up to 6,050 cfs into the newly constructed channel (IC-4). Some wood posts would be used to pin the structure in place. The structure is designed to withstand forces exerted by the maximum fisheries flow of approximately 11,000 cfs while enhancing channel complexity and providing opportunities for scour pools to develop upstream of this feature. Over time, ELJ-1 would create holding habitat for adult salmonids through the creation of local scour and capture of woody material mobilized by high flows. It would also provide adequate summer rearing habitat for juvenile salmonids, enhanced hydraulic and escape cover along the channel margin, a reduction in the distance to cover from adjacent spawning areas, and increased salmonid habitat for all life stages at a wide range of flows.

ELJ-2, Engineered Log Jam

Construction of ELJ-2 would occur at the head of the split flow medial bar constructed in 2008. It would maintain a split flow channel when streamflow is greater than 6,050 cfs. ELJ-2 would increase the complexity of the stream bank and provide cover and refugia habitat for juvenile salmonids during all flows. Smaller wood would be placed along the wetted perimeter of the larger wood placements to reduce velocities and provide additional cover for fish. The increase in channel complexity would create refugia for juvenile salmonids. The scour pool and cover provided by this structure would create summer rearing, feeding, and holding habitat.

ELJ-3, Engineered Log Jam

Construction of ELJ-3 would result in a 95/5 percent flow split between the mainstem channel and the low-flow side channel at IC-7. Incorporating large wood into existing vegetation between IC-7 and IC-8 would result in a stable hard-point along the left bank of the channel. It is intended to meter flows into IC-7 such that at a flow of 300 cfs, 5 to 10 percent (15 cfs to 30 cfs) enters the side channel. Flows in excess of 6,050 cfs are expected to inundate the entire site. Construction of this feature would increase the diversity of aquatic habitats by creating connection to off-channel habitats, side channels, and floodplains. This feature would increase the complexity of the stream bank and increase salmonid habitat for all life stages at a wide range of flows.

W-1

This area would be revegetated with emergent wetland and sedge wetland vegetation from local sources. The vegetation would include mugwort, torrent sedge, common rush, spreading rush, scouring rush, basket sedge, and small-fruited bulrush.

BDA-1, Beaver Dam Analog

Construction of a beaver dam analog at the upstream end of IC-6 would allow an adaptive approach to raising water surface elevations at various flows to backwater area R-1. This feature would consist of buried posts that provide a framework for willow cuttings to be woven between the posts. The beaver dam analog would regulate water depth in the wetland upstream. It would be maintained to allow high winter and spring flows to pass, while reducing the likelihood of sediment deposition behind the feature. During periods of high flow, fine sediment is expected to deposit on the floodplain and seasonal wetland surfaces. During summer and winter baseflows, it would back water up into area R-1 creating seasonal wetland habitat. During backwater periods, it would provide winter and summer rearing habitat for fry and juvenile salmonids. An adaptive approach would be necessary to successfully achieve riparian and wetland plant success as well as encourage fine sediment deposition outside the low flow channel thalweg.

X-1, River Crossings

One temporary crossing would provide access across the river in the upper reaches of the project area. The temporary crossing would be a constructed ford to facilitate access for construction-related traffic. If required, temporary bridges would be used when crossings are needed outside the summer (July 15-September 15) in-channel work window. All temporary crossings would be designed and constructed to

meet the requirements for heavy equipment, such as trucks, excavators, and scrapers. All temporary crossings would be constructed in a manner that does not impede navigability at the site.

U-1, Upland Storage

This area would be located on an elevated terrace in the center of the site. It would serve as the primary contractor use area and provide a location above the 100-year floodplain to stockpile coarse sediment for future local coarse sediment augmentation. Post-project, upland plantings and wood habitat piles would be used to rehabilitate and revegetate portions of the site increase habitat complexity for a variety of avian, reptilian, and mammalian species.

U-2, Plantings

This area would be used as a disposal site. The existing swale would be filled in with alluvial material excavated from other activity areas to confine flows to the mainstem channel between about 7,000 and 11,800 cfs. This added confinement should promote mainstem scour, channel migration, and complexity into the future. In addition, fill placement at this area reduces the risk that the existing Bucktail Boat Ramp road would be damaged during high flow events. Following construction, this area would be planted with upland vegetation, creating more complex upland woodland that over time may be recruited by a migrating channel, increasing the large wood supply to the Trinity River. Successful upland plantings would provide complex upland habitat for a variety of mammalian, reptilian, and avian species.

U-3, Storage

This area would be located on top of an existing tailings pile and 2008 spoils area and provide a location to stockpile coarse sediment above the 100-year floodplain for future TRRP gravel augmentation efforts. Post-project, native grasses would be planted on top of the graded surface to provide grasslands habitat for a variety of mammalian, reptilian, and avian species.

C-1, C-2, C-3, C-4, C-5, C-10, C-11, C-12, and C-13, Contractor Use Areas

These areas would be used for construction access, staging, stockpiling, mobilization, gravel processing, and other necessary construction activities during implementation. No earthwork is proposed for the floodplain associated with C-1. Post-project, this floodplain feature would be planted with willow trenches to increase roughness and improve off-channel refugia for juvenile salmonids when flows are in excess of 2,000 cfs. No earthwork would occur at C-2, an area that is subject to inundation between 6,000 and 8,500 cfs. This area would be planted with upland vegetation, creating more complex upland habitat for a variety of mammalian, reptilian, and avian species that over time may be recruited by a migrating channel, increasing the large wood supply to the Trinity River.

C-6, C-7, C-8, and C-9, Access Roads

One existing, paved access road (C-7) and three temporary access roads would be used for project purposes. Because scrapers would likely be used for excavation of channels and floodplains, these roads would be essential for safety and efficiency. Post-project, the access roads would be returned to pre-construction condition, decommissioned, or left as improved, according to landowner approval.

REVEGETATION

Revegetation activities consist of site layout, preparing planting areas, planting a mixture of upland and riparian plant species, and some degree of irrigation. If irrigation is required, equipment would include pumps, tanks, and lines. Maintenance of revegetated areas may include measures such as weeding, mulching, browse protection, and in-planting.

The grading plan avoids removing patches of existing riparian vegetation within the site that currently provide cover and would provide a readily available seed source immediately after construction. Efforts would be made to minimally impact riparian vegetation along the left bank side channels since high-quality vegetation conditions currently exist in these locations. The banks of constructed side channel would be planted with riparian plant species to provide cover for wildlife and fish, shade the channel, speed riparian vegetation recovery, and increase woody plant and age class diversity. Wetland species would be planted in areas appropriate for an individual species' tolerance to varying lengths of inundation. Planted material may be collected from local stocks or nursery grown native species. Their sizes may vary by plant species.

The TRRP anticipates that most planting areas would not require watering post project. However, given recent drought years, some intermittent watering of planted areas during dry conditions may increase plant survival. If this subsequent irrigation is needed, gasoline pumps and hoses would be brought into the site, probably via river rafts. Equipment would be used to water plants as needed, stored on site for use during dry periods, or brought in as water demands require. Any irrigation measures would be temporary and would assist the plants in establishing their roots and in long-term survival. Revegetation maintenance measures would be undertaken to meet permit and/or and land owner/agency requirements; most of the maintenance measures are expected to occur within the first three years post-construction.

PROPOSED PROJECT SUMMARY

Overall, the activities proposed for the Bucktail site are intended to emphasize reconnecting the river's floodplain with the river, expanding side-channel habitat, and enhancing the bed and banks of the Trinity River to promote well-distributed aquatic habitat (wetted edge habitat) over a range of flows. Collectively, these activities are intended to enhance aquatic habitat for anadromous fish under a range of flow conditions.

The Proposed Project meets the requirements of the 2000 ROD, the Endangered Species Act (ESA), the Clean Water Act, NEPA, the Clean Air Act, the Wild and Scenic Rivers Act, the National Historic Preservation Act, and the BLM Redding Resource Management Plan (RMP), as amended. The Riparian Revegetation Management Plan, prepared in cooperation with the CDFW, U.S. Army Corps of Engineers (Corps), and the Regional Water Quality Control Board – North Coast Region (Regional Water Board), will be followed to ensure that riparian habitat (e.g., riparian vegetation) is restored in a manner (species and size classes) that supports the TRRP objective of restoring the form and function of an alluvial river over time. Implementation of the Riparian Revegetation Management Plan will also ensure that the State of California's requirement of "no net-loss of riparian habitat" is met through a 1:1 replacement of affected riparian habitat over time. Project monitoring requirements will allow critical evaluation in order to adjust future rehabilitation plans to incorporate those practices that perform best in the field. A comprehensive discussion of these monitoring requirements are provided as Appendix B to the EA/IS.

FINDINGS

The No-Project Alternative and Proposed Project Alternative were evaluated in the EA/IS with respect to their impacts in the following issue areas: land use, geomorphic environment, water resources, water quality, fishery resources, vegetation, wildlife, wetlands, recreation, socioeconomics, cultural resources, air quality, visual resources, hazards and hazardous materials, noise, public services and utilities/energy, transportation/traffic circulation, environmental justice, and tribal trust. Based on the following summary of the implementation effects of the Proposed Project (as discussed fully in the EA/IS), there would be no significant impacts to the quality of the human environment.

Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

Land Use

The Proposed Project is located in Trinity County, California and would be consistent with Trinity County's General Plan and Zoning Ordinance, which provides development standards for land in Trinity County, including areas located within the Trinity River floodplain. Short-term land use impacts resulting from the Proposed Project would be minimal because of project design criteria that require maintenance of public and private access to the Trinity River, adjacent residents, and businesses. Additionally, project implementation would not prevent existing land uses from continuing or impede future land uses. Therefore, impacts on land use would be less than significant.

Geology, Fluvial Geomorphology, and Soils

Implementation of the Proposed Project, including the environmental commitments and project design features listed in Chapter 2 of the EA/IS, would be consistent with the 10 healthy river attributes described in the Trinity River Flow Evaluation Study, the basis for the TRRP efforts to restore and enhance native fish and wildlife populations. It is also consistent with the Aquatic Conservation Strategy, as outlined in the BLM RMP. Project construction activities and disturbance would increase the potential for short-term wind and water erosion. However, project implementation would include project design features such as sediment and erosion control measures to reduce and avoid potential short-term construction impacts on soils. Therefore, impacts on these resources would be less than significant.

Water Resources

Based on the Corps' Hydraulic Engineering Center River Analysis System (HEC-RAS) model, implementation of the Proposed Project, including excavation or placement of alluvial materials in the 100-year floodplain and low-flow channel, would not increase the base flood elevation of the Trinity River. Additionally, project implementation would not result in significant risk of injury, death, or loss involving flooding or erosional processes. The proposed activities are expected to have minimal, if any, effects on groundwater elevations or groundwater quality. Therefore, impacts on water resources would be less than significant.

Water Quality

Implementation of the Proposed Project, including construction activities in and adjacent to the low-flow channel, could temporarily increase turbidity and total suspended solids in the water column. It could

also result in a spill of hazardous materials (e.g., grease, solvents) into the Trinity River. Construction activities would be staged and timed to minimize potential water quality effects, and appropriate project design features, such as placing clean rock berms around work areas and isolating them from the river, would be implemented to avoid and reduce water quality impacts. Therefore, impacts on water quality would be less than significant.

Fisheries Resources

To comply with Section 7 of the ESA, Reclamation initiated informal consultation with the National Marine Fisheries Service (NMFS) concerning project effects on the federally and state-listed (threatened) Southern Oregon/Northern California Coast (SONCC) evolutionarily significant unit (ESU) of coho salmon. NMFS affirmed that certain non-flow measures, including the mechanical rehabilitation and sediment management projects identified in the ROD, were considered in its 2000 Biological Opinion issued in response to the FEIS/EIR. In that Biological Opinion, NMFS identified implementation of mechanical rehabilitation projects as reasonable and prudent measures to minimize TRD effects on SONCC ESU coho salmon. Subsequent to the ROD, NMFS provided the TRRP with documentation necessary to ensure that the 2000 Biological Opinion did in fact consider the types of activities associated with the Proposed Project.

Reclamation recently began to engage in informal technical consultation with NMFS in order to update the 2000 Biological Opinion. In support of a formal re-consultation under Section 7 of the ESA and to obtain an updated Biological Opinion, Reclamation is currently preparing a new Biological Assessment that focuses on advances in and changes to actions associated with the TRRP Implementation Program since 2000 (i.e., the rationale for the continuing adaptation of techniques for channel rehabilitation and fine and coarse sediment management since program inception) that will be used by the NMFS as the information basis for writing a new Biological Opinion. While the reinitiated Section 7 consultation is underway, the 2000 Biological Opinion remains in effect for the Proposed Project. Reclamation will continue to coordinate with NMFS as it implements the terms and conditions of the 2000 Biological Opinion.

Temporary construction impacts on fish-rearing habitat will be minimized through implementation of environmental commitments and project design features; in the long term, changes to physical rearing habitat associated with project implementation are expected to be beneficial. Collective improvements in fluvial channel dynamics contributed by the Proposed Project, in conjunction with future channel rehabilitation projects throughout the Trinity River between Lewiston Dam and the North Fork Trinity River, are ultimately expected to improve spawning and rearing habitat for all life stages of anadromous salmonids. Because effects would be generally localized and because the Proposed Project includes commitments and features to avoid and minimize adverse impacts on fish, effects to fisheries resources would be less than significant.

Vegetation, Wildlife, and Wetlands

Construction activities associated with the Proposed Project would result in a temporary loss of riparian vegetation and waters of the U.S. However, in the long term, floodplain function and riverine processes would be restored by revegetation of alluvial features, particularly floodplains. Upland features (i.e., terraces) would also be restored, primarily by converting old dredge tailing deposits into productive wildlife habitat. Overall, the Proposed Project would increase structural and species diversity, and would

speed reestablishment of native riparian and upland vegetation. Long-term changes in river inundation periods are expected to increase both seasonal and perennial riparian habitats as well as offset impacts to wetlands and other waters. Construction activities associated with the Proposed Project would result in the loss of waters of the U.S., including wetlands. The project is designed to enhance the functions and services of the aquatic system, including wetlands and other waters.

The Proposed Project was planned to directly benefit riparian and upland habitat and function and has the potential to affect wildlife, including special-status wildlife species (designated BLM or USFS sensitive species or federally listed threatened and endangered species). Specific environmental commitments and project design features are included in the Proposed Project to ensure that activities occur in a manner that addresses potential impacts to special-status species, including avian and amphibian species. Habitat for the northern spotted owl (*Strix occidentalis caurina*) is present in the project area. During development of the Master EIR/EA/IS, Reclamation conducted informal consultation with the USFWS concerning effects to the ESA-listed northern spotted owl. Based on the consultation, known lack of suitable habitat and nests in the area, and Trinity River bird distribution data, Reclamation determined that there would be no effect on the northern spotted owl. The Bucktail project area was specifically evaluated for northern spotted owl habitat and was considered unsuitable. The project area does not encompass or occur within designated critical habitat for the northern spotted owl; therefore, there would be no effect to northern spotted owl or its designated critical habitat.

Suitable den habitat for the Pacific fisher is not present in the project area, but the Trinity River riparian corridor and adjoining upland habitat do provide dispersal and foraging habitat for the Pacific fisher. While the Proposed Project has the potential to temporarily reduce habitat suitability for fisher, the Project would ultimately result in an increase in habitat and an increase in habitat quality for this species.

The Proposed Project, including the environmental commitments and project design features listed in Chapter 2 of the EA/IS, combined with riparian revegetation measures, would ensure that the Proposed Project will not result in significant impacts to vegetation, wildlife, and wetlands.

Recreation

Congress designated the Trinity River as a National Wild and Scenic River in 1981. Implementation of the Proposed Project would result in a long-term benefit to the form and function of the Trinity River relative to the values existed on the date of designation, thereby enhancing the Outstandingly Remarkable Values for which it was designated as a Wild and Scenic River, including its anadromous fishery. Implementation of the Proposed Project would alter the riverine environment; however, construction activities would not permanently affect the scenic or recreational values of the Trinity River for which it was designated.

Although the Proposed Project could result in limited temporary interruptions of public access and use, river access would continue to be available on a limited scale throughout the construction period. The Rush Creek Day Use Area and Boat Ramp, as well as several other public and private access points in the vicinity, will be available for use. Potential disruptions to recreational activities within the project area would be temporary and minimal. Construction of the Proposed Project could affect the safety of recreational users, so signage will be employed to notify river users to be cautious of heavy equipment in the river corridor. Construction activities associated with the Proposed Project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity; however, increases in turbidity are expected to be localized and of short duration.

Socioeconomics, Population, and Housing

The Proposed Project could directly generate short-term income growth through the payment of wages and salaries, but would result in little long-term increased economic activity. Because of the limited size and duration of the project, impacts on socioeconomic conditions, population, or housing would be negligible.

Cultural Resources

Implementing the Proposed Project has been found to have no adverse effect on historic properties pursuant to Section 106 of the National Historic Preservation Act (NHPA), as implemented through the TRRP Programmatic Agreement [PA; Section 106 alternative program pursuant to 36 CFR § 800.14(b)]: *Programmatic Agreement Among the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Hoopa Valley Tribe, California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Implementation of the Trinity River Mainstem Fishery Restoration*, executed on August 31, 2000, and in effect until August 31, 2020. All known cultural resources have been recorded and documented, as described in Chapter 3 of the EA/IS. Reclamation, with concurrence from BLM, has made the determination that none of these cultural resources are eligible for inclusion in the NRHP.

The lack of cultural resources within the APE resulted in a finding of no adverse effect to historic properties from the Proposed Project. Implementation of the Proposed Project would have no significant effect to cultural resources.

Air Quality

Construction activities would generate short-term and localized fugitive dust, gas and diesel emissions, and smoke that could affect air quality. Reclamation would implement project design features, including requiring provisions in construction contract documents, that minimize construction-related impacts on air quality in order to minimize impacts to air quality.

Visual Resources

Potential impacts of project activities on visual resources would include changes brought about by the removal of vegetation, construction of inundated surfaces, creation of access roads, and the presence of equipment in the project area. These activities could result in temporary degradation and/or obstruction of a scenic view from key observation areas. Over the long-term, implementation of the Proposed Project is expected to complement the visual resources and aesthetic values of the project area by restoring the function and form typical of an alluvial river. The design of the Proposed Project incorporates the diversity of the landscape and vegetation types in the project vicinity into the character of the rehabilitated riverine and upland areas. Retention of existing topographic features as well as natural revegetation and manual planting would lessen the degree of visual impacts and improve the aesthetic quality of the affected reach of the Trinity River.

Hazardous Materials

Activities associated with the Proposed Project would use potentially hazardous materials (e.g., oil and fuels) associated with the operation of vehicles and construction equipment during implementation.

Implementation of best management practices would minimize the potential for any project-related hazardous materials to become a public hazard. These practices would ensure that impacts with respect to hazardous materials would be less than significant.

Noise

During the construction phase of the Proposed Project, noise from construction activities would temporarily dominate the noise environment in the project area. Construction noise would be temporary and is expected to occur primarily between the months of July and December. To minimize potential noise impacts, construction activities would be scheduled between 7:00 a.m. and 7:00 p.m. Monday through Saturday. During working hours, Reclamation would ensure that the contractor operates all equipment to minimize noise impacts to nearby sensitive receptors (recreationists along the river, etc.). Noise impacts resulting from implementation of the Proposed Project would be temporary and minimal.

Public Services and Utilities/Energy

The Proposed Project would not disrupt electrical or telephone service within or adjacent to the project area. Implementation of the Proposed Project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities. Traffic control associated with project activities would be implemented, and is not expected to cause more than minimal disruptions to public services, if any. Access for mobilization and demobilization of heavy equipment, however, may require a higher level of traffic control for local roadways and may disrupt traffic flow and circulation before, during, and after construction. Disruptions resulting from mobilization and demobilization of heavy equipment are expected to be minimal and of short duration.

Transportation/Traffic Circulation

Construction activities associated with the Proposed Project would increase truck and worker vehicle trips leading to and from the project area. Throughout construction, the amount of daily construction equipment traffic would be limited by staging the construction equipment and vehicles in the project area boundary for the duration of work. Impacts related to short-term increases in vehicle trips would be minimal. Use of area roads by project-related trucks and heavy equipment would increase wear and tear on the local roadways. Traffic safety hazards could arise for motorists, bicyclists, pedestrians, and equestrians in the vicinity of the construction access routes as a result of the movement of project-related trucks and heavy construction equipment. The contractor would be required to implement a traffic control plan during construction to maximize public safety and maintain traffic flow. Impacts to transportation and traffic circulation would be minimal to moderate, but temporary and insignificant.

Tribal Trust

TRRP's overarching goals of restoring, enhancing, and conserving the natural production of anadromous fisheries, native plant communities, associated wildlife resources, and overall health of the Trinity River basin are consistent with federal Tribal Trust responsibilities. The primary TRRP goals originate partly from the federal government's trust responsibility to protect fishing rights for ceremonial, subsistence, and commercial purposes of the region's Indian tribes. Under the Proposed Project, the Trinity River would continue to support tribal trust assets. Several short-term impacts would occur that would affect Tribal Trust assets, including geology, fluvial geomorphology, and soils; water quality; fishery resources;

and vegetation, wildlife, and wetlands. These impacts are generally associated with construction activities that would temporarily affect resources in the project area. Potential impacts on Tribal Trust assets would be minimized by project design criteria implemented to protect Tribal Trust assets. The impacts that would occur to Tribal Trust assets would be less than significant.

Environmental Justice

There is no evidence to suggest that the Proposed Project would cause a disproportionately high adverse human health or environmental effect on minority and low-income populations compared to other area residents. No disproportionate or specific health risks or other impacts to low-income or minority groups would be associated with the Proposed Project.

SUMMARY

Implementation of the Proposed Project is expected to contribute to the long-term environmental quality and sustainability of the Trinity River ecosystem with no significant adverse impacts to the environment.

FINDING OF NO SIGNIFICANT IMPACT IN ACCORDANCE WITH 40 CFR 1508.27

After considering the environmental effects described for the Proposed Project in the Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.45-107.00) EA/IS, it has been determined that implementation of the Proposed Project will not have significant environmental impacts beyond those already addressed in the EA, is in conformance with the Resource Management Plan, and will not have a significant effect on the quality of the human environment considering the context and intensity of impacts. Therefore, an EIS is not needed and will not be prepared.

This finding is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR '1508.27), both with regard to the context and to the intensity of the impacts described in the EA or as articulated in the letters of comment.

I have considered the potential intensity/severity of the impacts anticipated from the project decision relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

1) There will be no significant effects, beneficial or adverse, resulting from implementation of this project. The finding is not biased by the beneficial effects of the action. The construction of the Proposed Project at the Bucktail site is expected to provide localized improvements in aquatic and riparian habitats currently present at the site. The Proposed Project will assist in meeting long-term needs to enhance fish habitat and provide properly functioning river conditions. Viewed within the context of a healthy Trinity River, and against implementing the larger river restoration program required under the ROD, this project will not result in any significant impacts.

2) Public health and safety are not significantly affected by the project. Due to the limited duration of the Project and implementation of public safeguards, public safety will not be at risk. Standard Reclamation practices for notifying the public of heavy equipment activities will be implemented during construction activities.

3) There will be no significant adverse effects on prime farmlands, park lands, floodplains, wetlands, historic or cultural resources, scenic rivers, ecologically critical areas, civil rights, women, or minority groups. Although there will be no significant adverse effects in these areas, the Proposed Project will result in a minor amount of disturbance to river attributes while enhancing the outstandingly remarkable value—the anadromous fishery—for which the river was designated in the Wild and Scenic River system. The Proposed Project is programmatically tiered to the Trinity River Mainstem Fishery Restoration Program EIS, which recommended implementation of the six components of the ROD. The Proposed Project, which involves implementation of a subset of channel rehabilitation actions from the ROD, has no significant impacts within the context of the entire array of ROD restoration components.

4) Based on public participation and the involvement of resource specialists, effects of the Proposed Action on the quality of the human environment are not expected to be highly controversial.

5) The Draft EA/IS was made available for a 30-day public review period when the document was submitted to the California State Clearinghouse on November 18, 2015. The document was circulated to local, state, and federal agencies and to interested organizations and individuals for review and comment on the analysis. The official public review period ran through January 4, 2016. Concurrent with this review period, public notice was provided to solicit additional comments from the public and interested parties. Public notice includes posting on the TRRP website; advertisements in the Trinity Journal and Redding Searchlight newspapers; letters mailed to local landowners; email notices to interest groups; and signage posted at the project site informing the public of the availability of the EA/IS for review.

6) A public open house meeting was held on December 2, 2015, concurrent with the public comment period, to inform residents and stakeholders of proposed activities and to seek comments on the Draft EA/IS. Four comment letters were received on the Draft EA/IS during the public comment period. The federal and state lead agencies have responded to the comments received. The comment letters and responses from the lead agencies are included as Appendix A of the EA/IS. In addition to updating the EA/IS based on public involvement activities that have occurred since the Draft EA/IS was released for public comment and adding the public comments and responses in Appendix A, minor edits and updates were made to the EA/IS. Clarifying language regarding use of the 2009 Master EIR with respect to use by a NEPA lead agency was incorporated as applicable throughout the EA/IS. No other changes were determined to be necessary based on public input.

7) Although the Bucktail site is adjacent to a residential area and popular with recreational users, extensive communication and coordination with the resident and user groups has been ongoing since the first TRRP project was implemented in 2004 (Bucktail Bridge). In 2008 and 2010, respectively, the Dark Gulch and Lowden Ranch projects were implemented and residents and users groups were very involved in both of these TRRP planning processes. With this history in mind, the temporary implementation activities associated with the Proposed Project are expected to have minimal effects on area residents. The public comments were addressed with input from

technical staff from the lead, cooperating, and responsible agencies (see Appendix A of the EA/IS). No highly controversial environmental effects were identified.

8) There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks. The effects of the Proposed Project have been clearly evaluated in the EA/IS. Similar activities have been completed at past channel rehabilitation sites, including portions of the current Bucktail site, and collected data and analyses have determined that no unique or unknown impacts to the human environment have resulted.

9) These actions do not set a precedent for other projects that may be implemented to meet the goals and objectives of the Trinity River Restoration Program. The Trinity River Flow Evaluation Report and, subsequently, the Trinity River Mainstem Fishery Restoration EIS and 2000 ROD collectively evaluated and recommended channel rehabilitation projects on the Trinity River below Lewiston Dam. The environmental effects of future projects will be analyzed based on need dictated by the ROD, but the need will be balanced by any new information collected during implementation of the Proposed Project and other recently implemented projects.

10) There are no known significant cumulative effects from this Proposed Project and other projects implemented or planned on areas separated from the affected area of this Project beyond those assessed. Cumulative impacts are analyzed in Chapter 4 of the EA/IS. While some short-term adverse direct and indirect effects may result from the project, these effects have been analyzed in the EA/IS, and will not lead to significant cumulative effects. Potentially significant long-term project effects from implementation of the ROD were evaluated in the Trinity River Mainstem Fishery Restoration EIS, later supplemented by the 2009 Master EIR and updated in the EA/IS for the Bucktail site. When considered in the context of cumulative watershed effects, the Proposed Project is intended to improve the alluvial processes and function of the mainstem Trinity River and at the same time improve the ability of the Trinity River to mobilize and transport sediment. Cumulative short-term impacts such as soil disturbance and turbidity would occur in response to the Proposed Project, but not to an extent that would cause significant impacts to downstream water quality.

11) **Based on surveys accomplished prior to this decision, this action will not adversely affect sites or structures eligible for the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural, or historic resources.** Reclamation and the BLM work closely with the Hoopa Valley Tribe and the Yurok Tribe as both sit on the TMC, which oversees the TRRP, and both tribes participated in the design of these projects. The Hoopa Valley Tribe is also a signatory to the TRRP PA. Pursuant to the TRRP PA (Stipulation IV), Reclamation has consulted with Indian tribes, Native American organizations, and individuals regarding implementation of the PA and its stipulations to protect tribal interests. Based on environmental commitments and project design features listed in Chapter 2 of the EA/IS, the decision maker has determined that the Proposed Project will not result in the destruction of scientific, cultural, tribal, or historic resources.

12) The Project would not adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. A biological opinion for the Trinity River Mainstem Fishery Restoration EIS and its effects on Southern Oregon/Northern California Coast coho salmon, Sacramento River winter-run chinook salmon, central valley spring-run chinook salmon, and central valley steelhead addressing foreseeable TRRP activities was written in response to a biological assessment that reflected the findings in the Trinity River Mainstem Fishery FEIS/EIR. The opinion was written because Trinity River coho salmon are federally listed as threatened and because the action may affect, and is likely to adversely affect, coho salmon. The opinion describes adverse effects that could result from the channel rehabilitation measures that are included in the preferred alternative described in the EIS. Such adverse effects were determined to be minor and short-lived and less than significant.

    During development of the Master EIR, Reclamation, in coordination with BLM, conducted informal consultation with the USFWS concerning effects to the ESA-listed northern spotted owl. Based on the consultation, known lack of suitable habitat and spotted owl nests in the area, and Trinity River bird distribution data, Reclamation determined that there would be no effect on the northern spotted owl. The Bucktail project area was specifically evaluated for northern spotted owl habitat and was considered unsuitable. The project area does not encompass or occur within designated critical habitat for the northern spotted owl; therefore, there would be no effect to northern spotted owl or its designated critical habitat. Reclamation and the BLM determined that a biological assessment was not required since the Proposed Project would have no effect on the northern spotted owl or its critical habitat.

    No federally or state-listed threatened or endangered plant species occur within or adjacent to the site boundaries defined for the Project.

13) Implementation of the project does not threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment. Implementation of the Proposed Project does not threaten violation of any laws. Its implementation meets requirements under the ROD, the ESA, the Clean Water Act, the Federal Land Protection and Management Act (FLPMA), NEPA, the Clean Air Act, the Wild and Scenic Rivers Act, the National Historic Preservation Act, and BLM's RMP for the Redding Field Office.

    The project described in this finding is fully consistent with BLM's RMP, the FLPMA, and CEQA. The following permits are required to authorize the project:

    - Section 404, Clean Water Act, Nationwide Permit 27 (San Francisco District, Corps);
    - Section 401, Clean Water Act Water Quality Certification (Regional Water Quality Control Board, North Coast Region);
    - Section 10, Endangered Species Act, Incidental Take Permit (NMFS);
    - Encroachment Permits (Trinity County or California Department of Transportation); and
    - Floodplain Development Permit (Trinity County).

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

The Proposed Project to implement the rehabilitation activities, including those specifically under the jurisdiction of BLM, is consistent with the intent of the RMP with respect to resource management conditions. The Proposed Project is also consistent with the direction provided in the BLM's Trinity River Recreation Area Management Plan.

IMPLEMENTATION DATE

The Proposed Project is expected to be constructed beginning in summer 2016, pending environmental clearances. Heavy civil construction will end in-river in September and will be completed by December. Revegetation will take place during construction as possible and in fall and winter months following construction.

CONTACT

For additional information concerning the Proposed Project, contact Brandt Gutermuth, Project Manager, Trinity River Restoration Program, P.O. Box 1300, and 1313 Main Street, Weaverville California, 96093. Phone: (530) 623-1800.

Trinity River Channel Rehabilitation Site Bucktail (River Mile 105.45-107.0)

Environmental Assessment/Initial Study
DOI-BLM-CA-N060-2015-0057-EA and TR-EA0215
State Clearinghouse #2015112039



California Lead Agency for CEQA
North Coast Regional Water Quality Control Board

Project Proponent and Federal Lead Agency for NEPA
Trinity River Restoration Program
U. S. Department of the Interior, Bureau of Reclamation

Federal Co-lead Agency for NEPA
U. S. Department of Interior, Bureau of Land Management

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Acronyms and Abbreviations

AEAM	Adaptive Environmental Assessment and Management
afa	acre feet annually
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
BA	Biological Assessment
Basin Plan	Water Quality Control Plan for the North Coast Region
BDA	Beaver Dam Analog
BFE	base flood elevation
BLM	U.S. Bureau of Land Management
BMI	Benthic Macroinvertebrate
BMP	best management practice
BO	Biological Opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
CHP	California Highway Patrol
CLJ	Constructed Log Jam
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CRHR	California Register of Historic Resources
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
CY	cubic yard
dB	logarithmic decibel
dBA	"A-weighted" decibel scale
dbh	diameter at breast height
DPS	Distinct Population Segment
DSS	Decision Support System
DWR	Department of Water Resources

EA	Environmental Assessment
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ELJ	Engineered Log Jam
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESL	Environmental Study Limit
ESU	Evolutionarily Significant Unit
°F	degrees Fahrenheit
FAC	Facultative Plants
FACU	Facultative Upland Plants
FACW	Facultative Wetland Plants
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
fps	feet per second
GHG	greenhouse gas
GIS	geographic information system
HAP	Hazardous Air Pollutant
HEC-RAS	Hydraulic Engineering Center River Analysis System
HVT	Hoopa Valley Tribe
IAP	Integrated Assessment Plan
IS	Initial Study
KMP	Klamath Mountains Province
KOP	key observation point
LCSD	Lewiston Community Services District
L_{dn}	day-night average sound level
LRMP	Land and Resource Management Plan
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base and Meridian
MFF	maximum fishery flow
mg/L	milligrams per liter
mm	millimeter
MMRP	Mitigation Monitoring and Reporting Program
MoA	Memorandum of Agreement
msl	mean sea level
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection & Repatriation Act
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin

NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NI	No Indicator
NMFS	National Marine Fisheries Service
NOx	nitrogen oxide
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
OBL	Obligate Wetland Plants
OHWM	ordinary high water mark
PA	Programmatic Agreement
PJD	preliminary jurisdiction determination
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter
PRC	Public Resources Code
Proposed Project	Bucktail Rehabilitation Site
Q	flow rate (typically expressed in cfs)
$Q_{1.5}$	1.5-year return interval design flow
Q_{100}	100-year flood flow
Q_s	summer base flow
Reclamation	U.S. Bureau of Reclamation
Regional Water Board	North Coast Regional Water Quality Control Board
RM	River Mile
RMP	Resource Management Plan
ROD	Record of Decision
SAB	Scientific Advisory Board
SHPO	State Historic Preservation Office
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SONCC	Southern Oregon/Northern California Coast
SR	State Route
SRA	shaded riverine aquatic
STNF	Shasta-Trinity National Forest
SWPPP	Storm Water Pollutant Prevention Plan
TAC	Toxic Air Contaminant
TCRCD	Trinity County Resource Conservation District
TMC	Trinity Management Council
TRD	Trinity River Division
TRFEFR	Trinity River Flow Evaluation Final Report
TRGA	Trinity River Guides Association
TRRP	Trinity River Restoration Program
UPL	Obligate Upland Plants
USACE	U.S. Army Corps of Engineers
USC	United States Code

USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFD	volunteer fire department
VRM	Visual Resource Management
WSE	water surface elevation
WSRA	Wild and Scenic Rivers Act
YT	Yurok Tribe

Chapter 1. Introduction and Background

This final Environmental Assessment/Initial Study (EA/IS) for the proposed Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45-107.0) was prepared by the United States Department of the Interior (USDI), Bureau of Reclamation (Reclamation) to meet the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). As the lead agency under NEPA, Reclamation must consider the Finding of No Significant Impact (FONSI)/EA portion of the joint NEPA/CEQA document before signing the FONSI and making implementation decisions.

Reclamation prepared this environmental review document in coordination with the USDI Bureau of Land Management (BLM), a federal land manager at the site and federal co-lead for NEPA review. These federal agencies worked with the California lead agency, the North Coast Regional Water Quality Control Board (Regional Water Board), to analyze the potential impacts of the proposed activities under NEPA (40 Code of Federal Regulations [CFR], Section 1508.9(a)) and CEQA (Association of Environmental Professional 2009) guidelines.

This final EA/IS tiered from previous environmental analysis documents or incorporates them by reference, as described in Section 1.4, Project Chronology and Background.

1.1 Overview

Reclamation proposes to conduct mechanical channel rehabilitation activities on the mainstem Trinity River downstream of Lewiston Dam at the Bucktail Channel Rehabilitation Site or "Bucktail site" at approximately River Mile [RM] 105.45 to 107.0 (Figure 1). In November 2015, Reclamation released the draft EA/IS.

The public comment period for the draft EA/IS closed on January 4, 2016. Four comment letters were received. Appendix A includes copies of the comment letters and responses to the comments.

Analysis of proposed channel rehabilitation activities at the Bucktail site was previously completed in 2014 in the Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8.) Environmental Assessment/Initial Study (Reclamation and Bureau of Land Management [BLM] 2014) but work at the Bucktail site was not completed, and Reclamation prepared a revised environmental document, the November 2015 draft EA/IS.

The proposed work at the Bucktail site includes some activities at the downstream end of the Dark Gulch Rehabilitation Site boundary that were originally completed in 2008 (Reclamation and Trinity County Resource Conservation District [TCRCD] 2008) and the upstream end of the Lowden Ranch Rehabilitation Site boundary that were originally completed in 2010 (North Coast Regional Water Board and Reclamation 2009). These work areas are now included within the Bucktail site boundary. The activities proposed at the Bucktail site are hereinafter referred to as the "Proposed Project" or "Project." Details of the Proposed Project are provided in Chapter 2.

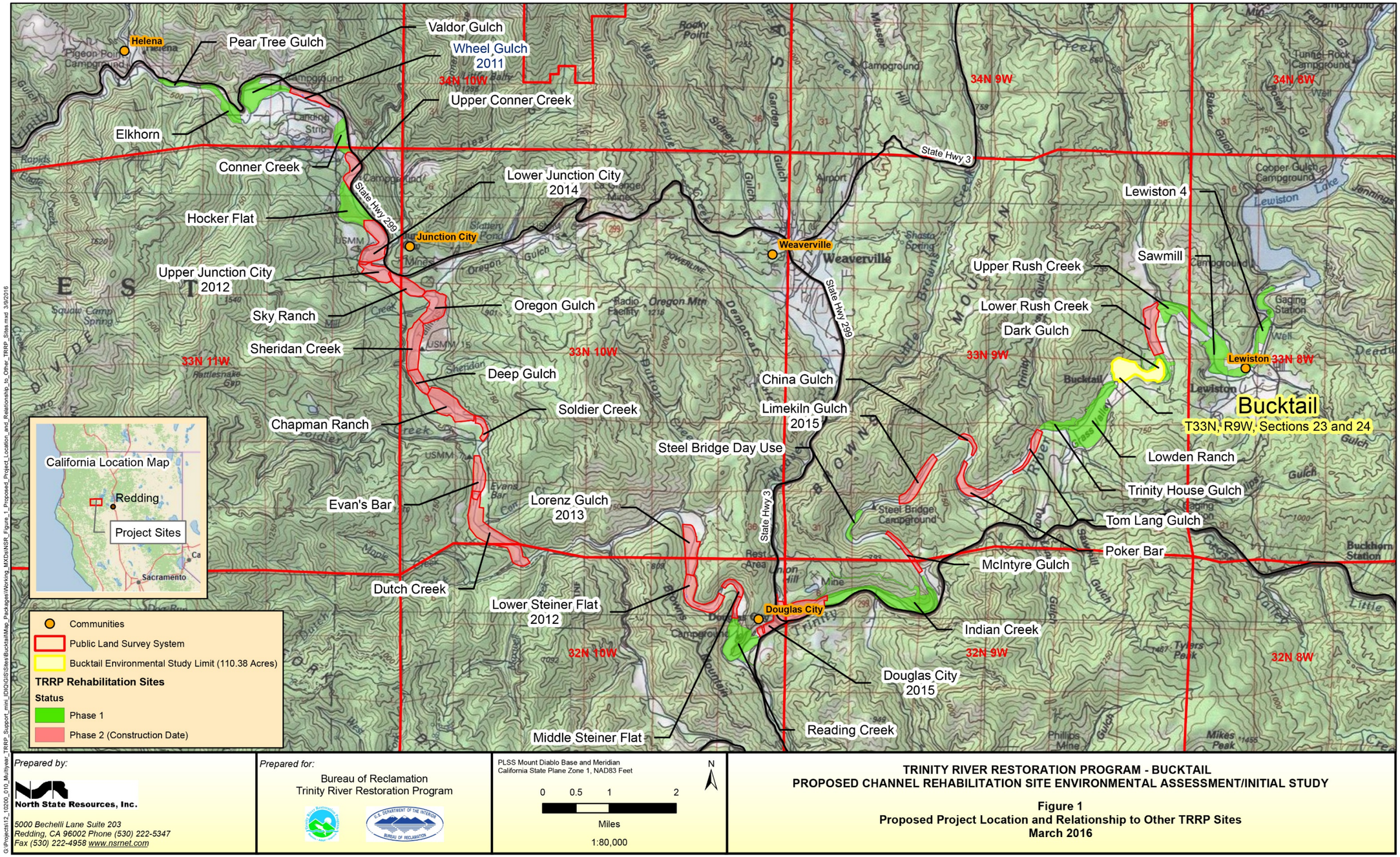
The Proposed Project would be part of TRRP's ongoing work to restore the anadromous fishery of the Trinity River. The proposed channel rehabilitation activities would recreate complex salmon and steelhead habitat, enhance natural river processes for the benefit of wildlife, and provide conditions suitable for reestablishing native riparian vegetation. The fundamental purpose of the TRRP is to restore historic river processes to the Trinity River through implementation of the 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR; U.S Fish and Wildlife Service [USFWS] et al. 2000a). It is the intent of the TRRP to recreate a properly functioning river, albeit on a smaller scale, in order to increase naturally spawning anadromous fish populations to levels that existed prior to construction of the Lewiston and Trinity Dams. The target reach for Trinity River restoration is the approximately 40-mile length of river downstream of Lewiston Dam to the confluence of the North Fork Trinity River.

For this reach, the ROD outlined six integral components for execution:

- Implementation of a variable annual flow regime according to recommendations provided in the Trinity River Flow Evaluation Report (USFWS and Hoopa Valley Tribe [HVT] 1999),
- Mechanical channel rehabilitation,
- Fine and coarse sediment management,
- Watershed restoration,
- Infrastructure improvement, and
- Adaptive environmental assessment and management.

In general, the TRRP approach to channel rehabilitation is to reconnect the river with its floodplain. This reconnection requires selective removal of terraces and riparian berms (i.e., berms that are anchored with woody vegetation and consolidated sand deposits) that developed after the Lewiston and Trinity Dams were completed and historic peak scouring flows were lost. Along with berm removal, the approach involves physical alteration of floodplains so that they become inundated more frequently, placement of large wood, and removal of riparian vegetation at strategic locations to promote the alluvial processes necessary for the restoration and maintenance of complex riverine habitats.

The TRRP acts under guidance of the Trinity Management Council (TMC), a collaborative board of natural resource managing agencies, tribes, and local government. TMC member agencies include Reclamation, USFWS, National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS), HVT, Yurok Tribe (YT), the California Natural Resources Agency represented by the California Department of Fish and Wildlife (CDFW) and the California Department of Water Resources (DWR), and Trinity County. Technical experts associated with each of these entities participate in the design and review of the rehabilitation sites.


Helena
Pear Tree Gulch
Valdor Gulch
Wheel Gulch
2011
34N 10W
Upper Conner Creek
Elkhorn
Conner Creek
State Hwy 299
Lower Junction City
2014
Hocker Flat
Junction City
Upper Junction City
2012
Sky Ranch
Oregon Gulch
Sheridan Creek
33N 11W
Deep Gulch
Chapman Ranch
Soldier Creek
Evan's Bar
Lorenz Gulch
2013
Dutch Creek
Lower Steiner Flat
2012
Middle Steiner Flat
32N 10W
Weaverville
State Hwy 3
34N 9W
Lewiston 4
Sawmill
Upper Rush Creek
Lower Rush Creek
Dark Gulch
33N 10W
33N 9W
China Gulch
Limekiln Gulch
2015
Steel Bridge Day Use
Douglas City
Douglas City
2015
Indian Creek
32N 9W
Reading Creek
Lewiston 33N 8W
Bucktail
T33N, R9W, Sections 23 and 24
Lowden Ranch
Trinity House Gulch
Tom Lang Gulch
Poker Bar
McIntyre Gulch
34N 8W
32N 8W
California Location Map
Redding
Project Sites
Sacramento
Communities
Public Land Survey System
Bucktail Environmental Study Limit (110.38 Acres)
TRRP Rehabilitation Sites
Status
Phase 1
Phase 2 (Construction Date)
Prepared by:
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Redding, CA 96002 Phone (530) 222-5347
Fax (530) 222-4958 www.nsrnet.com
Prepared for:
Bureau of Reclamation
Trinity River Restoration Program
PLSS Mount Diablo Base and Meridian
California State Plane Zone 1, NAD83 Feet
N
0 0.5 1 2
Miles
1:80,000
TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL
PROPOSED CHANNEL REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY
Figure 1
Proposed Project Location and Relationship to Other TRRP Sites
March 2016

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1.2 Regional Setting

The Trinity River originates in the rugged Salmon-Trinity Mountains of northern California in the northeast corner of Trinity County. The Trinity River Basin encompasses the majority of Trinity County and the easternmost portion of Humboldt County. The mainstem Trinity River flows a total of 170 miles from its headwaters to its confluence with the Klamath River at Weitchpec, on the Yurok Indian Reservation. The Trinity River passes through Trinity County, Humboldt County, the Hoopa Valley Indian Reservation, and the Yurok Indian Reservation. Much of the basin is composed of federal lands managed by the USFS, BLM, and, to a lesser extent, Reclamation. Ownership along the Trinity River corridor is a mixture of public, tribal, and private lands.

The Trinity River flows generally southward until impounded by Trinity Dam and Lewiston Dam. The river drains a watershed of approximately 2,965 square miles; about one-quarter of this area is above Lewiston Dam. From Lewiston Dam, the river flows westward for 112 miles until it enters the Klamath River near the town of Weitchpec, 43.5 miles upstream from the Pacific Ocean. The Klamath River flows northwesterly from its confluence with the Trinity River before entering the Pacific Ocean.

The topography of the Trinity River Basin is predominantly mountainous with a heavily forested basin. Elevations in the watershed range from 8,888 feet above mean sea level (msl) at Sawtooth Mountain in the Trinity Alps to 300 feet above msl at the confluence of the Trinity and Klamath rivers. Land use within the Trinity River Basin is greatly influenced by the large amount of public lands, much of which is used for timber production and other natural resource-related uses. The area's numerous lakes and rivers provide many recreational opportunities, including fishing and boating. Private uses along the Trinity River are generally limited to scattered residential and commercial development. Two scenic byways, State Route (SR) 299 and SR-3, cross the county. SR-299 is the primary travel corridor through Trinity County, connecting the Central Valley with the coastal communities of Humboldt County.

1.3 Project Location

The general setting for the TRRP is within the 40-mile reach of the mainstem Trinity River between Lewiston Dam and the confluence of the North Fork Trinity River. The entire stretch is designated under the National and California State Wild and Scenic River Systems to preserve its Outstandingly Remarkable Values, which include the river's free-flowing condition, anadromous and resident fisheries, outstanding geologic resource values, scenic values, recreational values, cultural and historic values, and the values associated with water quality. The segment of the Trinity River encompassed by the Proposed Project is classified and managed as a "Recreational" reach by the BLM and the Shasta-Trinity National Forest (STNF). Lands under BLM administration are managed in accordance with BLM's Redding Resource Management Plan (RMP). See Section 3.2.1.3, "Relevant Land Use Plan," of this EA, for more details on the BLM's land use management plan.

The Bucktail Rehabilitation Site (RM 105.45-107.0) is a 110.38-acre site that begins approximately at the Bucktail Bridge and extends upstream approximately 1.5 miles to just downstream of RM 107.0. This site is found on the Lewiston, California 7.5-minute U.S. Geological Survey (USGS) quadrangle, in Township 33 North, Range 9 West, Sections 23 and 24 and, Mount Diablo Base and

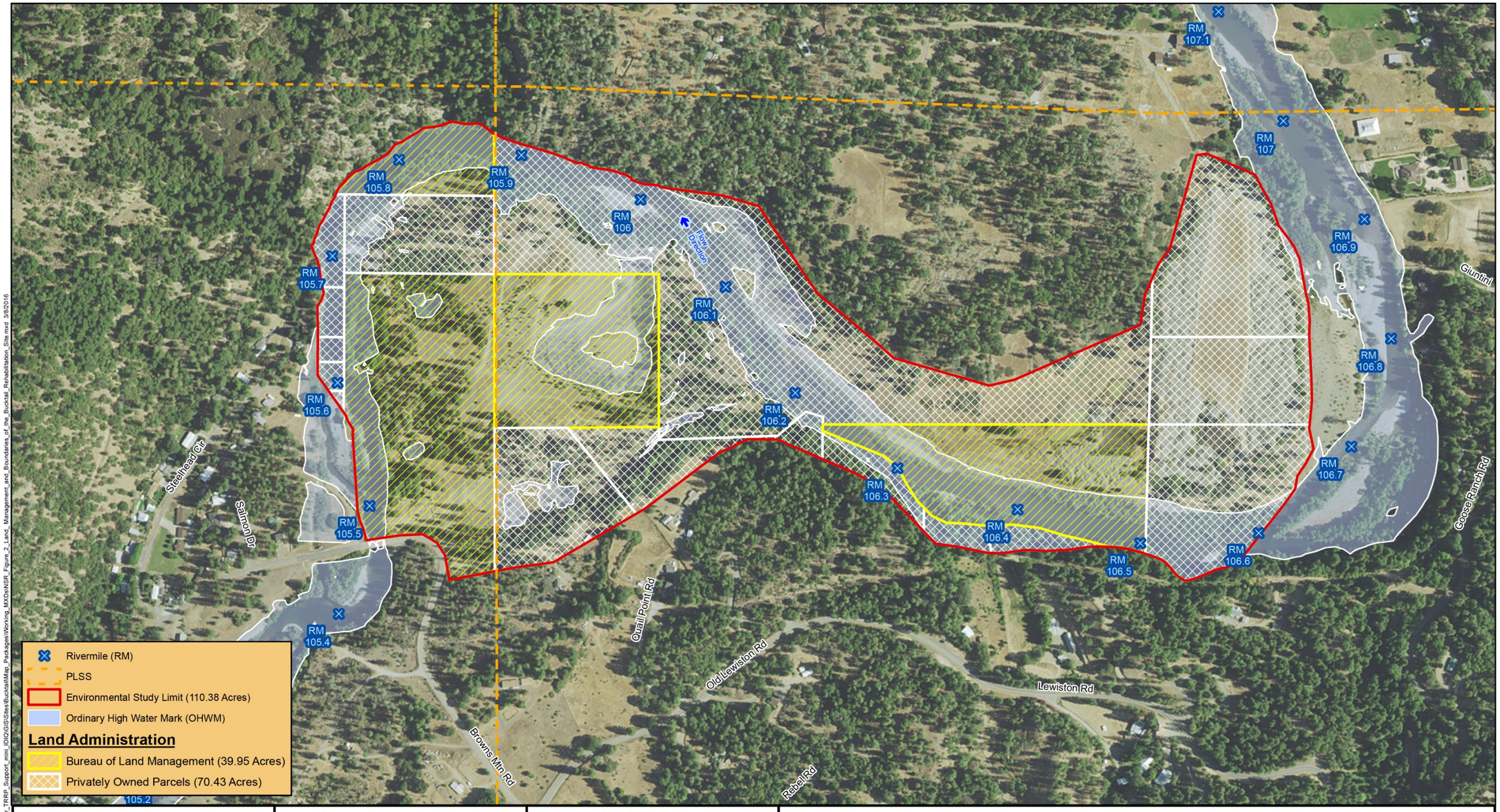
Meridian (MDB&M). The majority of the land within this site is privately owned (70.43 acres) and BLM manages the remainder (39.95 acres).

The river elevation at this site is approximately 1,750 feet above msl. Access to the site is via Browns Mountain Road, off of Old Lewiston Road. The current Bucktail site boundary includes a portion of the previously constructed Dark Gulch and Lowden Ranch rehabilitation sites. The Dark Gulch Rehabilitation Site was designed and constructed by TRRP in 2008, and the Lowden Ranch Rehabilitation Site was constructed in 2010. The Bucktail environmental study limit (ESL) and responsible land managers/owners are shown on Figure 2.

1.4 Project Chronology and Background

Completion of the Trinity and Lewiston Dams in 1964 blocked anadromous fish access to habitat upstream of Lewiston Dam, restricting them to habitat below the dam. Trans-basin diversions from Lewiston Lake to the Sacramento River Basin altered the hydrologic regime of the Trinity River, diminishing annual flows by up to 90 percent. Consequences of diminished flows include encroachment of riparian vegetation, establishment of riparian berms, and fossilization of point bars at various locations along the river as far downstream as the North Fork Trinity River. These geomorphic changes reduced the diversity of riparian age classes and riparian vegetation species, impaired floodplain access, and adversely affected fish habitat.

In 1981, in response to declines in salmon and steelhead populations, the Secretary of the Interior directed the USFWS to initiate a 12-year flow study to determine the effectiveness of flow restoration and other mitigation measures for impacts of the Trinity River Division (TRD) of the Central Valley Project (CVP). Then, in 1984, Congress enacted the Trinity River Fish and Wildlife Program to further promote and support management and fishery restoration actions in the Trinity River Basin. Under this program, along with other actions, nine pilot bank rehabilitation projects between Lewiston Dam and the North Fork Trinity River were implemented between 1991 and 1993. In 1992, Congress enacted the Central Valley Project Improvement Act (CVPIA; PL 102-575). One purpose of the CVPIA (Section 3406(b)(23)) was to protect, restore, and enhance fish, wildlife, and associated habitats in the Trinity River Basin. The act also directed the Secretary of the Interior to finish the 12-year Trinity River Flow Evaluation Report and to develop recommendations "regarding permanent instream fishery flow requirements, TRD operating criteria, and procedures for the restoration and maintenance of the Trinity River fishery." The Trinity River Flow Evaluation Final Report (TRFEFR) was ultimately published in 1999 by the USFWS and the HVT, providing a framework for restoration activities below Lewiston Dam as well as the basis for the preferred alternative in the concurrent programmatic environmental analysis.



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Bureau of Reclamation
Trinity River Restoration Program

PLSS T33N, R09W, Section 23 & 24
California State Plane Zone 1, NAD83 Feet

N

0 150 300 600

Feet

1:4,500

TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL
PROPOSED CHANNEL REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY

Figure 2
Land Management and Boundaries of the Bucktail Rehabilitation Site
March 2016

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In 1994, the USFWS as the NEPA lead agency and Trinity County as the CEQA lead agency began the public process for developing the Trinity River Mainstem Fishery Restoration Environmental Impact Statement (EIS)/EIR. The ROD for the Trinity River FEIS/EIR (December 19, 2000; USDI 2000) directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the Trinity River FEIS/EIR (USFWS et al. 2000a). The ROD set forth prescribed Trinity River flows for five water-year types: extremely wet (815,200 acre-feet annually [afa]), wet (701,000 afa), normal (646,900 afa), dry (452,600 afa), and critically dry (368,600 afa). The flows prescribed by the 2000 ROD are deemed to constitute the "existing [hydrological] environment" for CEQA purposes, and are considered the basis for the environmental analysis under both NEPA and CEQA.

The ROD for the Trinity River FEIS/EIR specified that mechanical channel rehabilitation activities would be implemented on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River. Conceptually, the overall intent of these activities was to selectively remove fossilized berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); revegetate and provide conditions for regrowth/sustenance of native riparian vegetation; and reestablish alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the TRD. Since development of the ROD, the TRRP has included large-scale use of wood (large woody debris [LWD] or large wood) and skeletal bar features to restore habitat and geomorphic form and function within the Trinity River.

The Trinity River FEIS/EIR identified 44 potential channel rehabilitation sites and three potential side-channel sites for consideration by the TRRP (USFWS et al. 2000a). These sites were originally prescribed for rehabilitation in the Trinity River Flow Evaluation Report (USFWS and HVT 1999) and included in the preferred alternative identified in the ROD. Site selection was based on identifying locations where the maximum amount of habitat for native anadromous fishes could be initiated through construction projects, and then enhanced or maintained by a combination of river flows plus coarse sediment augmentation. Consequently, the original sites were chosen based largely on the existence of riparian berms and where channel morphology, sediment supply, and high-flow hydraulics would encourage a dynamic alluvial channel. The ROD prescribed rehabilitation efforts at these sites to be implemented in phases. Early TRRP planning efforts resulted in the identification of two phases, Phase 1 and Phase 2. The Bucktail site encompasses portions of the Dark Gulch and Lowden Ranch sites, both of which were Phase 1 sites. Ultimately, sites at which rehabilitation activities could be implemented were selected using criteria that identified physical features and processes such as channel morphology, sediment supply, and high-flow hydraulics that would encourage a dynamic alluvial channel. Factors such as property ownership, access to the sites, and engineering and economic feasibility were also considered in the site selection process.

In 2002, the TRRP office was opened in Weaverville, California, specifically to implement the components of the ROD. The first accomplishment of the TRRP was to upgrade infrastructure and bridges so that recommended ROD flows of up to 11,000 cubic feet per second (cfs) could be safely passed. Over 100 potable water wells that would have been affected by increased river flows were enhanced, four river crossings (bridges) were improved, one house was moved, and many pieces of infrastructure were upgraded (e.g., decks and outbuildings moved, roads and drives raised) to eliminate the impacts of high flows. This work was done through negotiation with landowners to protect physical structures and maintain human safety. Eminent domain was not used. The first of

the post-ROD channel rehabilitation projects were implemented at sites downstream of Canyon Creek (e.g., Hocker Flat and the Canyon Creek suite), where natural high flows would maintain constructed alluvial features while ROD flows were contested in court. After the ROD was upheld in November 2004 by the United States Court of Appeals for the Ninth Circuit, channel rehabilitation designs focused on modifying alluvial features (e.g., berm removal) at locations where pronounced fossilized riparian berms had developed in response to changes in the flow regime and sediment flux that resulted from construction and operation of the TRD.

In 2005, the first channel rehabilitation project was implemented at Hocker Flat. Although berm removal and reforming alluvial features continue to be emphasized in channel rehabilitation efforts, the restoration of alluvial processes, coupled with the creation of high-value juvenile fish margin and side-channel habitat (low velocity, shallow, and in close proximity to cover; Alvarez et al. 2010), is now emphasized by the TRRP in order to increase habitat for anadromous fish. This approach is consistent with the recognition in the Trinity River FEIS/EIR that the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The Trinity River FEIS/EIR also acknowledged that, in many instances, an entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to result in fluvial processes that will promote the formation and maintenance of complex fish habitat (e.g., alternating channel bars) in both treated and untreated sections of the river.

In 2009, the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Final Master Environmental Impact Report* and *Part 2: Environmental Assessment/Final Environmental Impact Report* (Master EIR – EA/EIR) was prepared by Reclamation and the Regional Water Board for proposed channel rehabilitation and sediment management activities at the Remaining Phase 1 and Phase 2 sites along the Trinity River between Lewiston Dam and the North Fork of the river (Regional Water Board and Reclamation 2009). Reclamation and the Regional Water Board prepared the Master EIR – EA/ EIR in cooperation with the BLM and the STNF, as well as the HVT and YT. The document is divided into two parts.

Part 1 is a Master Environmental Impact Report, which is a programmatic document prepared in part to meet the requirements of CEQA. The purpose of the Master EIR is analogous to the federal Trinity River Mainstem Fisheries Restoration FEIS programmatic document prepared in 2000 and described previously in this section. The Master EIR part of the document evaluates the environmental impacts of the proposed rehabilitation and sediment management activities at the TRRP's then-remaining Phase 1 and Phase 2 sites. From a programmatic perspective, it provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California Public Resources Code [PRC], Section 21000 et seq.). In addition to addressing the direct and indirect impacts associated with the Proposed Project and the alternatives, the Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the Remaining Phase 1 and Phase 2 sites. Reclamation and BLM, the lead and co-lead federal agencies, have determined that the requirements of NEPA are met by the analyses done for the Phase II sites in the Master EIR.

Part 2 is an EA/EIR, an integrated NEPA/CEQA document that evaluates the environmental impacts of the proposed channel rehabilitation and sediment management activities at a project-specific level for the then-remaining Phase 1 sites. The EA/EIR was prepared to comply with NEPA (42 United

States Code [USC], Section 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). This EA/IS incorporates by reference the discussions of "statutory considerations" in the Master EIR – EA/EIR (Chapters 5 and 8). These discussions cover certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the Proposed Project, the significant effects that cannot be avoided if the Proposed Project is implemented, and growth-inducing effects of the Proposed Project. The discussions also cover statutory considerations required under NEPA, such as significant irreversible and irretrievable commitments of resources and the relationship between local short-term uses of the environment and the maintenance of long-term productivity. These considerations are summarized below; see the Master EIR – EA/EIR for additional discussions on these topics.

The Master EIR (Regional Water Board and Reclamation 2009) includes a brief chronology summarizing the most pertinent management actions that have occurred relevant to the Trinity River Basin between 1938 and 2008 (Section 1.4.4., page 1-8).

Additional details concerning the legislative and management history can be found in the Trinity River FEIS/EIR (USFWS et al. 2000a) and the EA/Final EIRs for TRRP projects constructed between 2005 and 2008[1]. These documents are on file at the TRRP office in Weaverville, California, and available on the TRRP website (www.trrp.net) and at the Weaverville public library. The Master EIR (Section 1.4.5, pages 1-10 through 1-15) also contains a summary of the various restoration activities that have been undertaken since the signing of the ROD, as well as brief discussions of other watershed restoration programs and activities occurring within the basin; additional information is available on the TRRP website[2].

Phase I of the channel rehabilitation component of the ROD (23 sites of the 47 enumerated in the FEIS) was completed in 2010. By 2014, 32 of the original 47 sites had been constructed.

1.4.1 Analysis Since the 2009 Master EIR – EA/EIR

Under the Implementation Plan for the Preferred Alternative of the Trinity River EIS/EIR (contained in Appendix C of the FEIS/EIR), the Phase I channel rehabilitation projects were described. The Implementation Plan states that:

> *Twenty-four sites are proposed during the first three years of construction if adequate funding is available. Additional projects will be constructed after evaluation of the first series of projects under Adaptive Environmental Assessment and Management. This evaluation will be ongoing beginning with construction of the first projects, but an interim period without construction activities may be necessary to fully evaluate the effectiveness of project designs and the effect of the new flow regime before beginning construction on the remaining sites.*

Based on this statement, several organizations in 2014 reiterated earlier requests that the TRRP stop implementation of their channel rehabilitation and gravel augmentation projects pending a "Phase I review." However, the ROD emphasizes the need for rapid implementation of the program so that

[1] Hocker Flat (Reclamation and California DWR 2004), the Canyon Creek Suite (Reclamation and the Regional Water Board 2006), Indian Creek (Reclamation and TCRCD 2007), and Lewiston-Dark Gulch (Reclamation and TCRCD 2008).
[2] On the TRRP website, go to http://www.trrp.net/?page_id=409.

synergistic benefits of the work may quickly restore river conditions for fish and allow for expansion of depleted populations. TRRP requested development of a review document that would assess Phase 1 activities within the context of the TRRP's foundational documents (USFWS and HVT 1999; USDI 2000) and provide direction for the second phase of implementing channel rehabilitation projects. The TRRP's Scientific Advisory Board (SAB) was asked to compile information and develop a comprehensive report that would provide an independent and impartial assessment of Phase 1 activities and progress toward achieving TRRP goals and objectives, along with recommendations for Phase 2. The SAB and an external board of experts have conducted the Phase 1 review and have completed a programmatic report of findings. The report summarizes Phase 1 activities through 2010 and the physical and biological responses from 2005-2011, followed by recommendations for Phase 2 (Buffington et al. 2014; http://odp.trrp.net/Data/Documents/Details.aspx?document=2172).

The report states that Phase 1 projects were initially focused on removing riparian berms that had encroached on the river following dam closure, lowering floodplains to match the post-ROD flow regime, and creating point bars that would promote a dynamic river. The conceptual model for these activities was that if restraining features were removed, fluvial processes would take over, creating a more dynamic and complex river that, in turn, would offer more productive habitat for fish and wildlife (USFWS and HVT 1999; USDI 2000). However, the initial rehabilitation projects produced little immediate dynamic geomorphic response. Consequently, the degree of mechanical intervention and the complexity of projects increased over time. The report notes that project objectives have become more specific as projects have become more complex and as design guidelines have been developed (HVT et al. 2011). In addition, predictive numerical models are now being used by TRRP to assess salmon rearing habitat availability and potential geomorphic responses for a given project design. Currently, habitat modeling is being developed in an effort to link physical changes over time to fish production, as called for in the TRRP's foundational documents. Habitat conditions that are predicted by modeling at channel rehabilitation sites are now being evaluated post-construction to determine how as-built conditions compare to predicted outcomes.

The Phase 1 report states that the review effort was hampered by insufficient data and/or insufficient time since project implementation to observe geomorphic changes and associated fish population responses. It further states that although the available data were informative and allowed some assessment of progress toward TRRP goals and objectives, additional information is needed to fully assess the synergistic effects of TRRP activities (management of flow, temperature, sediment, and channel morphology) over space and time to understand the effects on fish production. To move the TRRP partners and the public toward better understanding the dynamic nature of the river system, the primary report recommendation is that the TRRP focus attention toward development of a Decision Support System (DSS). A DSS is a series of linked physical and biological models that will allow the TRRP to (1) predict site and system response to alternative management actions in relation to ROD and stakeholder objectives; (2) make such predictions in a timely fashion (ahead of monitoring results); (3) focus and refine monitoring efforts; and (4) provide a necessary tool for adaptive management. Additionally, it will help to better structure and integrate program activities and increase the defensibility and transparency of management actions. Beyond constructed changes in habitat, the site and system responses observed during Phase 1 were found to be slow, and monitoring efforts must be supplemented by predictive models as part of a DSS to inform management actions in a timely manner and to facilitate adaptive management. In response to Phase 1 report recommendations, the TRRP is working toward an integrated set of predictive models and a process

for using the models to support management decisions. The TRRP has refined fundamental and means objective statements that can be addressed within a DSS. Models now in use include river temperature, two-dimensional hydrodynamics, and fish habitat. In addition, a fish population dynamics and a riparian dynamics model are nearly complete. The process for applying these models in support of TRRP management decisions is under development.

An integral part of the TRRP has been the implementation of an Adaptive Environmental Assessment and Management (AEAM) Program. As described in the Trinity River FEIS/EIR, an AEAM process is important for management of complex physical and biological systems like the Trinity River. Although the TRRP has used adaptive management in its project implementation and project design processes to date, local fishing guides (e.g., the Trinity River Guides Association [TRGA]) have stated that TRRP construction and gravel augmentation have been filling adult holding areas and various public stakeholders have expressed concerns that gravel additions to the river could result in the filling of some of the deep pools used as holding habitat by adult salmonids. Gravel augmentation, including in-channel placement and high-flow injection of coarse sediment, is intended to offset sediment storage by the dams and to promote a mobile streambed, bar formation, and a supply of spawning gravels for salmonids. Concern over the potential for pool filling intensified in late 2010 when a perception became widespread among local fishermen that holes and runs were filling with sediment throughout the river. TRRP responded to this public input by ensuring that mobile gravel was not used in construction of sites downstream of the Indian Creek tributary, below which no gravel augmentation is needed (USFWS and HVT 1999; USDI 2000). In addition, TRRP responded by initiating data collection efforts to support an evaluation of whether widespread changes in pool depths are indeed occurring, where they are occurring, and why.

Recent investigation of the issue in "Assessment of Pool Depth Changes in the Trinity River between Lewiston Dam and the North Fork Trinity River" indicates that pool depths have generally increased throughout the restoration reach as a result of ROD flows and reduced fine sediment input from tributaries (Gaeuman and Krause 2013). However, pool depths have decreased near some rehabilitation sites, and terrace lowering rather than gravel injections is implicated as the cause (Gaeuman and Krause 2013). The report documents that depth changes were negligible in many locations and that substantial aggradation or degradation occurred at relatively few sites. The depths of many pools and deep runs in the Trinity River between Lewiston Dam and the North Fork Trinity River increased between 2009 and 2011. Of 139 polygons considered in this study, 75 to 82 (54 to 59 percent) increased in depth over the study period, depending on the depth metric considered. In most cases, the magnitudes of the depth changes were modest (on the order of 1 foot or less), regardless of the direction of change.

The Gaeuman and Krause report (2013) recommends continued monitoring to detect if, when, and where gravel additions have altered pool depth and other aspects of channel geometry. Results from this monitoring have been incorporated into decision-making processes, and have assisted the project designers in integrating activities to help maintain pools and adult holding habitat at the Bucktail site. Scouring and deepening are expected in areas near log jams (unless they are completely underlain by bedrock), which should result in development of additional holding habitat. Use of small diameter material (e.g., gravel < 4 inches) would be limited to locations where equipment would cross the river.

1.5 Purpose and Need

NEPA regulations require that an EA briefly specify the need that the agency is responding to in proposing an action, including the Proposed Project (40 CFR 1508.9(a)). Similarly, CEQA requires that an IS include a statement of the objectives to be achieved by a Proposed Project (CEQA Guidelines, Section 15124(b)). Specific project objectives are discussed in Chapter 2 of this document.

Overall, the purpose of the TRRP is to implement the 2000 ROD. The TRRP is working to provide increases in habitat for all life stages of naturally produced anadromous fish native to the Trinity River in the amounts necessary to reach congressionally mandated goals. The strategy is to create habitat for native anadromous fish, while also ensuring that habitat complexity and quantity increase as the alluvial processes of the Trinity River are enhanced or restored in a manner that would perpetually maintain fish and wildlife resources (including threatened and endangered species) and the river ecosystem. The Proposed Project would continue to advance the implementation efforts of the TRRP and provides the opportunity to:

- Increase the diversity and amount of habitat for salmonids, particularly habitat suitable for rearing;
- Increase rearing habitat for juvenile salmonids, including coho and Chinook salmon and steelhead;
- Ensure that the flows prescribed in the ROD would not increase the likelihood of flood-related impacts to public resources and private property within the project boundaries;
- Increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- Increase hydraulic and fluvial geomorphic diversity and complexity; and
- Measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats.

The underlying need for the Proposed Project is to restore fish populations to pre-dam levels and restore dependent fisheries, including those held in trust by the federal government for the HVT and YT. This need results from:

- Requirements in the ROD (USDI 2000) to restore the Trinity River fishery through a combination of higher releases from Lewiston Dam (up to 11,000 cfs), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an AEAM Program; and
- The expectation that the AEAM Program would continue to incorporate the experience provided through the planning, design, and implementation of the Proposed Project into future restoration and rehabilitation efforts proposed by the TRRP.

1.6 Purpose of This Document

Both NEPA (42 USC 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.) generally require that governmental agencies disclose information about proposed activities that may affect the environment, evaluate the potential environmental impacts of their proposed actions before making formal commitments to implement them, and involve the public in the environmental review process. This site-specific EA/IS for the Proposed Project at the Bucktail site has been prepared to comply with NEPA and CEQA. This combined NEPA/CEQA document evaluates the environmental impacts of the Proposed Project, recommends project design features or mitigation measures to minimize impacts, and is designed to facilitate lawful implementation under all applicable laws.

Tiering, which is recognized under both NEPA and CEQA, refers to the practice of covering general matters in broader-scope environmental documents and focusing subsequent documents on the issues germane to the site-specific actions (40 CFR 1508.28). Tiering is appropriate when a sequence of analyses progresses from a broad, conceptual, or planning-level review over a wide area or program to a project-specific and site-specific analysis. Tiering helps the lead agencies focus on issues that are "ripe" for decision, while excluding from consideration issues already decided or not yet ripe (CEQA Guidelines, Section 15385). The general analysis in the broader document is incorporated by reference into the subsequent documents, meaning that the information in the broader document does not need to be repeated in subsequent documents.

This site-specific EA/IS for the Proposed Project at the Bucktail Rehabilitation Site is tiered to the previous analysis in the *Trinity River Mainstem Fishery Restoration FEIS/EIR* (USFWS et al. 2000a). It also incorporates by reference the analyses in the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Master Environmental Impact Report* and *Part 2: Environmental Assessment/Environmental Impact Report*(Regional Water Board and Reclamation 2009).

The Trinity River FEIS/EIR serves as a NEPA analysis from which site-specific projects may tier. NEPA allows for tiering, as described in Sec. 1508.28 of the Council on Environmental Quality (CEQ) regulations. Section 1508.28 states that tiering "refers to the coverage of general matters in broader environmental impact statements…with subsequent narrower statements or environmental analyses (i.e., regional or basinwide program statements or, ultimately, site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared."

In 1994, the USFWS, as the NEPA lead agency, and Trinity County, as the CEQA lead agency, began the public process for developing the EIS/EIR for the Trinity River Mainstem Fishery Restoration Program. The EIS portion of the Trinity River FEIS/EIR (published in October 2000) functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing "first-tier" review of other potential actions, including the Proposed Project. However, the Trinity County Board of Supervisors—the CEQA lead agency for the Trinity River FEIS/EIR—never certified the EIR portion of the 2000 FEIS/EIR for the Trinity River Mainstem Fishery Restoration Program. Therefore, the EIR portion of the Trinity River FEIS/EIR was not available for the CEQA portion of this document, or other earlier TRRP CEQA documents, to "tier" from. Consequently, four joint EA/EIRs were completed to analyze TRRP

channel rehabilitation projects between 2004 and 2008[3]. Based on the similarity of these projects and their environmental impacts, and agreement that future TRRP projects would have similar impacts, a separate programmatic document, the Master EIR was developed. The EA portion of the Master EIR – EA/EIR tiers from the Trinity River Mainstem Fishery Restoration FEIS/EIR (USFWS et al. 2000a). The ROD, dated December 19, 2000, for the FEIS/EIR directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the FEIS/EIR.

CEQA allows for preparation of a Master EIR that analyzes a series of related actions that are characterized as one large project or program, such as the channel rehabilitation and sediment management activities proposed by TRRP. A Master EIR evaluates at a programmatic level the direct and indirect environmental impacts, cumulative impacts, growth-inducing impacts, and irreversible significant effects on the environment of subsequent site-specific projects. A Master EIR forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines, Section 15175, et. seq.). The Master EIR meets the elements required for a Program EIR pursuant to California Code of Regulations (CCR), Title 14, Section 15168. Therefore, the Master EIR provides programmatic CEQA level review, from which the Bucktail Project—a subsequent site-specific project—is tiered.

The Regional Water Board acted as the lead agency for the Master EIR (State Clearinghouse number 2008032110) and for the initial study portions of subsequent site-specific EA/ISs. The Master EIR provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California PRC, Section 21000 et seq.). In addition to addressing direct and indirect impacts associated with the Proposed Project and alternatives, the Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the remaining Phase 1 and Phase 2 sites. The Regional Water Board certified the Master EIR on August 25, 2009.

As stated before, the Bucktail site contains portions of the Dark Gulch and Lowden Ranch sites. The Dark Gulch site was a Phase 1 site, the effects of which were analyzed in the Lewiston–Dark Gulch Rehabilitation Project: Trinity River Mile 105.4 to 111.7 EA/EIR (Reclamation and TCRCD 2008). The Lowden Ranch site was also a Phase 1 site, which was analyzed in the Master EIR (North Coast Regional Water Board and Reclamation 2009). Although the Bucktail site was not specifically covered in the Master EIR, portions of the present Bucktail site were described in other TRRP project environmental documents, and Master EIR permitting includes coverage for channel rehabilitation activities that may be conducted to improve habitat conditions at previously constructed TRRP sites.

Because the Master EIR provides programmatic level review from which site-specific projects may tier, the analysis of the Proposed Project required under CEQA is tiered from that document. Because work at the Bucktail site includes a portion of the Dark Gulch Rehabilitation Site, this analysis is also tiered to the Lewiston-Dark Gulch Rehabilitation Project: Trinity River Mile 105.4 to 111.7 EA/EIR (U.S. Bureau of Reclamation and TCRCD 2008). In addition, the EIS portion of the Trinity River FEIS/EIR functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing "first-tier" review of other potential actions, including the Proposed Project. This EA/IS focuses only on site-specific activities

[3] Hocker Flat (Reclamation and California DWR 2004), the Canyon Creek Suite (Reclamation and Regional Water Board 2006), Indian Creek (Reclamation and TCRCD 2007), and Lewiston-Dark Gulch (Reclamation and TCRCD 2008).

for the Proposed Project and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies.

Under 14 CCR, Section 15177, after a Master EIR has been prepared and certified, subsequent projects that the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review. The CEQA guidelines (14 CCR, Section 15177, subd. (b)(2)) state that the preparation of a new environmental document and new written findings will not be required if, based on a review of the IS prepared for the subsequent project, the lead agency determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, that no new additional mitigation measures or alternatives are required, and that the project is within the scope of the Master EIR. Whether a subsequent project is within the scope of the Master EIR is a question of fact to be determined by the lead agency based on a review of the IS to determine whether there are additional significant effects or new additional mitigation measures or alternatives required for the subsequent project that are not already discussed in the Master EIR.

This EA/IS for the Proposed Project provides site-specific details for the environmental impact analyses and has been prepared to comply with NEPA (42 USC, Section 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). This EA/IS focuses only on site-specific activities for the Proposed Project and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies. This Bucktail EA/IS contains a site-specific project description and other information required to apply for enrollment under General Water Quality Certification R1-2015-0028 (or subsequent reissued Certification) for Trinity River channel rehabilitation activities, which the Regional Water Board will consider in making its determination and approval decision.

1.7 Federal and California Lead Agencies

As previously stated, this document is tiered to the Trinity River Mainstem Fishery Restoration FEIS/EIR and incorporates by reference the information contained in the Master EIR in their entirety. As an integrated, multi-purpose document, the Master EIR is responsive to the efforts of the lead, responsible, and cooperating agencies to ensure that it addresses applicable laws, policies, and regulations. At the same time, it incorporates the input provided during the scoping process in conjunction with the extensive level of consultation and coordination between the agencies.

Reclamation is responsible for the funding and implementation of the Proposed Project and is the federal lead agency under NEPA. The BLM, which manages a portion of the land within the site boundaries, serves as a co-lead for the Project. The Regional Water Board is the California state lead agency under CEQA. The TCRCD, in its role as an experienced implementer of restoration actions, collaborator on TRRP revegetation, and CEQA lead for the earlier Lewiston-Dark Gulch and Lowden Ranch Projects, which encompass a portion of the Bucktail site, is working with the TRRP to ensure that the Proposed Project is in accordance with the CEQA guidelines.

1.8 Regulatory Framework

In addition to CEQA and NEPA, the Proposed Project is subject to a variety of federal, state, and local statutes, regulations, policies, and other authorities. The decision to facilitate mechanical channel rehabilitation projects requires various permits from state agencies. The primary responsible and trustee agencies are the U.S. Army Corps of Engineers (USACE), USFWS, NMFS, California DWR, CDFW, the Regional Water Board, and Trinity County. Chapter 3, "Regulatory Framework," of the Master EIR includes descriptions of the actions required of these agencies and of permits required for the TRRP work on the Trinity River as well as an overview of the principal environmental statutes that establish the regulatory setting that would be used to assess the impacts of rehabilitation activities. As necessary, the lead, cooperating, and responsible agencies will use the Master EIR document for their permitting and approval process. Implementation of the Proposed Project, as described in Chapter 2 of this EA/IS, would generally require compliance with the federal, state, and local permit and approval processes and regulations described in Chapter 3 of the Master EIR. For example, federal protection of the Trinity River, which is part of the Wild and Scenic Rivers System, is required under Section 7 of the federal Wild and Scenic Rivers Act (WSRA; PL 90-542). The Trinity River is designated specifically for its outstandingly remarkable anadromous fishery value. The federal WSRA requires the preservation of its free-flowing condition; anadromous and resident fisheries; and outstanding geologic, wildlife, flora and fauna, historic and cultural, visual, recreational, and water quality values.

1.9 Scoping and Public Involvement

Since the signing of the ROD and efforts to begin its implementation, numerous public meetings and open houses have been held by the TRRP and various agencies to gain public input and information for each channel rehabilitation site as well as programmatically under the Master EIR. The Master EIR includes a complete description of scoping and public involvement activities that occurred as part of that process (Master EIR, Section 1.6). The same agencies and organizations that were consulted during the preparation of the Master EIR have also consulted on the Proposed Project.

The Master EIR was developed specifically to identify and mitigate potential significant impacts as defined by CEQA. Accordingly, the same issues that were addressed programmatically in that analysis are considered germane to the Proposed Project. These issues were used to develop the descriptions of the resource areas and the associated impact analysis presented in Chapter 3 of this document.

As part of ongoing TRRP outreach activities, TRRP staff members met with local groups (e.g., fishing guides and mining groups) and individual landowners from the Lewiston area, where the site is located, as needed, to obtain stakeholder input and advice as well as to address any concerns. Notice of all public meetings and other pertinent project information is announced in local newspapers and posted on the TRRP's website: http://www.trrp.net/. The TCRCD will continue to assist the TRRP with public notification and meetings so interested parties can learn about the projects and provide input.

Renewal of the TRRP's 5-year Clean Water Act (CWA) Section 401 general water quality certification for channel rehabilitation activities (401 certification) was requested from the Regional

Water Board and a public meeting was held on March 26, 2015, in Weaverville to receive public input on the proposed renewal. The public notice period for this permit renewal and the date of the meeting were posted on the Water Board's website at: http://www.waterboards.ca.gov/northcoast/public_notices/water_quality_certification/. The 401 Certification was reissued on May 20, 2015, effective for a term of 5 years.

A public outreach meeting for the Bucktail project was held on June 4, 2013, to solicit stakeholder input and values, and to relate values to the measured metrics of each design alternative. As part of the public involvement process for the Bucktail site, Reclamation used a stream restoration decision analysis and design guidance tool (Stream Project Tool) that was created to define and implement a rational, objectives-driven approach to evaluating and designing stream restoration projects. Using the Stream Project Tool, stakeholders were given the opportunity to participate in the scoring of proposed alternative designs for the Bucktail site. Participants ranked their opinions of three Program objectives--increasing/enhancing habitat, restoring physical processes, and supporting more proper riparian function--using two different measures for each objective. Participants then presented scores to the designers based on their support for specific goals and the means by which to achieve them. The results helped the design team characterize stakeholder concerns and showed what design objectives caused a particular design alternative to rank higher. This allowed certain features to be added, modified, or eliminated earlier than had been possible for past rehabilitation site designs. The TRRP held an additional meeting on November 5, 2013, to further discuss work at the Bucktail site.

The Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8.) Environmental Assessment/Initial Study (North Coast Regional Water Board et al. 2014) was submitted to the California State Clearinghouse on December 13, 2013. The document was circulated to local, state, and federal agencies and to interested organizations and individuals for review and comment on the analysis. The public scoping period ran for 30 days from acceptance at the State Clearinghouse, through January 13, 2014. Concurrent with this review period, public notice was provided to solicit additional comments from the public and interested parties. Public notice included posting on the TRRP website; advertisement(s) in the local Trinity Journal newspaper; letters mailed to local landowners; email notices to interest groups; and signage posted at the project site informing the public of the availability of the EA/IS for review. An open house was held on December 17th, 2013, at the Trinity County Library to receive public input.

A total of 23 comment letters were received on the Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8.) EA/IS during the public comment period. The federal and state lead agencies responded to the comments received. The comments and agency responses were included in Appendix B of the draft EA/IS. Based on the comments, a decision was made to reevaluate the design for the Bucktail site. That reevaluation resulted in the current design for the Bucktail site, as presented in Chapter 2 of this EA/IS.

The official public review period for the draft EA/IS for the Bucktail site began when the document was submitted to the California State Clearinghouse on November 18, 2015. The document was circulated to local, state, and federal agencies and to interested organizations and individuals for review and comment on the analysis. The public comment period ran from acceptance at the State Clearinghouse through January 4, 2016. Concurrent with this review period, public notice was provided to solicit additional comments from the public and interested parties. Public notice included

posting on the TRRP website; advertisements in the *Trinity Journal* and *Redding Record-Searchlight* newspapers; letters mailed to local landowners; email notices to interest groups; and signage posted at the site informing the public of the availability of the EA/IS for review. An open house for the EA/IS was held on December 2, 2015, at the Lewiston Moose Lodge in Lewiston, California, to describe the Proposed Project and receive public input. Copies of the letters containing comments on the draft EA/IS and responses to those comments are provided in Appendix A of this document.

Copies of the draft and final EA/IS are available for review on the TRRP website at http://www.trrp.net/ and on Reclamation's website at http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=23209 , as well as at the following locations:

Trinity River Restoration Program
United States Department of the Interior
Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093

United States Department of Interior
Bureau of Land Management
Redding Field Office
355 Hemsted Drive
Redding, CA 96002

Trinity County Resource Conservation District
#1 Horseshoe Square
Weaverville, California 96093

Trinity County Library, Weaverville Branch
211 Main Street
Weaverville, California 96093

Questions regarding this document should be sent to:

Brandt Gutermuth
Environmental Scientist
Trinity River Restoration Program
P.O. Box 1300
Weaverville, California 96093
bgutermuth@usbr.gov
Phone: (530) 623-1800
Fax: (530) 623-5944

Copies of the Master EIR, the 2000 ROD, and the Trinity River FEIS/EIR are also available for public review on the TRRP website at http://www.trrp.net or at:

Trinity River Restoration Program Office
U.S. Department of the Interior – Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093
(530) 623-1800

Chapter 2. Project Description and Alternative Development

This chapter describes the objectives of the Proposed Project and discusses the process used to develop the Proposed Project as analyzed in this document. It also describes the design criteria, design concepts, and site location associated with the Bucktail site. Two alternatives are considered in this document: the No Project alternative and the Proposed Project alternative. Alternatives considered but not selected for evaluation are also discussed. The CEQA term "Proposed Project" is used rather than the NEPA term "Proposed Action"; however, the terms should be considered synonymous.

2.1 Background

To meet the project objectives, the TRRP identified a number of discrete activities (see Chapter 2 of the Master EIR), most of which have been incorporated into the Proposed Project as described later in this chapter. In addition to these activities, several earthwork and habitat construction activities, which were identified in the Master EIR, have grown in scope in recent projects. The addition of wood (i.e., LWD or large wood) is elaborated on in this document as an important rehabilitation tool. In the Master EIR, LWD placement was included within sediment management activities and activities common at each site. However, in the Wheel Gulch EA/IS (Regional Water Board, Reclamation, and BLM 2011), large wood installation, including construction of both large wood habitat structures, which are designed during construction in the field, and larger Engineered Log Jams (ELJs), which are designed in the office, was identified as a stand-alone construction activity. The increasing use of wood to create aquatic habitat and hydraulic complexity (scour) at channel rehabilitation sites and recommendations for additional wood use at future sites (Cardno Entrix and CH2M Hill 2011) require that this important rehabilitation activity be highlighted as a common activity planned for both the Proposed Project and for future sites. Similarly, construction of a split flow channel, which divides Trinity River flow into two branches of similar volume, is proposed and identified as an individual activity; a similar split flow channel was constructed at the Lowden Ranch project in 2010 and Wheel Gulch in 2011. The impacts associated with implementation of these activities do not rise above those identified and analyzed in the Master EIR, but their increasing use and visibility require that these activities be clearly identified for the reader.

2.2 Goals and Objectives

The TRRP has developed a number of restoration objectives for the channel rehabilitation sites that help frame the alternative development process. These objectives are intended to be used to identify specific activities that could be implemented at Trinity River locations. Ultimately, the goal of the activities described in the Master EIR is to increase the quantity and quality of suitable rearing habitat for native anadromous salmonids and other native fish species, while reestablishing geomorphic processes required to enhance alluvial features, such as alternate point bars and meander sequences, in the Trinity River. These objectives were used by the design team to identify specific activities that could be applied within the Proposed Project. This document focuses on these activities that are

intended to restore fluvial processes through the rescaling of the river channel and floodplain for the purpose of creating, restoring, and enhancing habitats for all life stages of native anadromous fishes, including salmon and steelhead. Designs at the Bucktail site have considered effects to salmonid adult holding habitat. In areas near log jams, scouring and deepening are expected (unless they are completely underlain by bedrock), which should result in development of additional holding habitat.

With input from stakeholders, the lead agencies considered a number of objectives in the alternative development process (see Master EIR, Section 2.2 for these objectives). For the Proposed Project, the specific in-channel (within the active low water channel) and riverine (within the ordinary high water mark [OHWM], but not contiguous with the active channel) activities proposed are intended to assist in reestablishing fluvial processes and interactions. Conceptually, the objective is to increase connectivity between the project area, the Trinity River, and their shared floodplain. The proposed rehabilitation activities could result in the development of a larger and more complex expanse of river and floodplain habitat. Based on successful TRRP rehabilitation projects constructed in the past, it is anticipated that fluvial processes will affect a larger area than the defined limits of activity within the project area boundaries. This habitat expansion is expected to increase habitat suitability and availability for salmonids and other native fish and wildlife species at various river flows.

2.3 Alternative Development

The President's CEQ guidelines and CEQA guidelines (Section 1508.9(b)) state that an EA or EIR shall describe a range of reasonable alternatives to the Proposed Project that would feasibly attain most of the basic objectives of each project, but would avoid or substantially lessen significant effects in comparison to the Proposed Project (Section 2.5 later in this chapter provides brief descriptions of alternatives considered but eliminated from further evaluation). Section 15126.6(c) of the CEQA guidelines states that among the factors which may be taken into account when addressing the feasibility of alternatives is site availability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site.

The alternative development process for the TRRP considered input from stakeholders, particularly local residents and resource agency personnel; existing engineering data; and social, physical, and biological factors. Consistent with the AEAM Program, the Proposed Project designs reflect the collective experience of the TRRP and the TMC from the implementation of previous mechanical channel rehabilitation projects (e.g., Upper Junction City, Lorenz Gulch, and Douglas City, among others). Information derived from the implementation of these projects, coupled with information on the biological and physical responses to these projects, was considered in the alternative development process.

The following criteria were applied to evaluate the ability of the Proposed Project to meet the objectives discussed in Section 2.2 of this document. Pursuant to NEPA, the purpose and need (presented in Chapter 1) were also considered in this evaluation.

- Effectiveness – The methods, materials, and performance of previous Trinity River restoration projects (including the original pilot projects constructed in the 1990s and the recent TRRP channel rehabilitation projects) in similar environments.

- Implementation – Practical execution, including potential public acceptance issues, permitting issues, and land use issues, was considered. Constructability and the complexity of maintaining the rehabilitation site over time were also considered.

- Environmental – Benefits and impacts to environmental resources with emphasis on special status species, including native anadromous salmonids, and humans were considered. The impacts considered included both short-term construction-related impacts and long-term maintenance impacts associated with post-ROD flows. Aquatic habitat, jurisdictional wetlands, accessibility, and consistency with land use planning were considered in the type and location of proposed activities.

- Cost – The relative cost of each alternative, including construction and revegetation costs, was considered. Cost was used to identify alternatives that were significantly out of proportion with other alternatives.

A number of alternatives were initially evaluated in the Master EIR using the criteria outlined above; as a result, three alternatives were included in that analysis – No Project alternative, Proposed Project alternative, and Alternative 1. The Proposed Project alternative was determined to most efficiently meet TRRP objectives and was selected as the preferred alternative in the Master EIR. Alternative 1 was analyzed in the Master EIR in response to input provided by stakeholders, including landowners along the river corridor, and represented a reduction in the size, intensity, and magnitude of rehabilitation activities, particularly those in close proximity to residential or recreational developments. Alternative 1 was expected to reduce significant impacts to various resources, especially to the human environment (e.g., traffic, noise near residential areas, etc.); however, it was not expected to expand Trinity River aquatic habitat complexity and quantity or to enhance natural river processes to the same extent as the Proposed Project alternative. Consequently, benefits to fish and wildlife populations would have been reduced compared to the Proposed Project alternative. As a result, Alternative 1 was not selected as the preferred alternative in the Master EIR and is not carried forward for analysis in this EA/IS.

As stated previously, the ROD for the Trinity River FEIS/EIR (December 19, 2000; USDI 2000) directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the Trinity River FEIS/EIR (USFWS et al. 2000a). The ROD specified that mechanical channel rehabilitation activities would be implemented on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River in order to create complex fish habitat similar in form to that which existed prior to the construction of the TRD. A number of sites were identified for potential channel rehabilitation activities based on conditions where the maximum amount of habitat for native anadromous fishes could be produced through construction projects, and then enhanced or maintained by a combination of river flows plus coarse sediment augmentation. Because of the selection of this alternative in the ROD, and the need to address mainstem habitat degradation associated with the construction/operation of the TRD, the TRRP continues to prioritize restoration of the mainstem Trinity River.

2.4 Description of Alternatives

A description of the two alternatives that are carried forward in this analysis is presented in this section. Both the Proposed Project and No Project alternatives are described. The No Project alternative is presented first to provide a comparison of impacts to the Proposed Project.

2.4.1 No Project Alternative

The No Project alternative represents ongoing activities and operations of the TRRP and other entities involved in restoring the Trinity River with the exception of the Proposed Project. Under this alternative, no action would be taken at the Bucktail site at this time. Consistent with CEQA Guidelines, Section 15126.6, subdivision (e)(2), existing conditions are defined as those that "would be reasonably expected to occur in the foreseeable future if the project were not approved" (Association of Environmental Professionals 2009). This is consistent with the NEPA definition of the No Action alternative involving federal decisions (42 USC 4321–4347). Collectively, actions and activities authorized in the ROD and incorporated into the No Project alternative include:

- Implementation of the annual flow release schedule based on recommendations of the TMC to Reclamation; and
- Implementation of watershed restoration and rehabilitation projects within the Trinity River Basin, including those funded by the TRRP and members of the TMC, BLM, and TCRCD.

2.4.2 Proposed Project

The Proposed Project includes specific activities within the Bucktail project area boundaries. The activities proposed are similar to those implemented at previous channel rehabilitation sites and include: reducing riparian encroachment; large wood placement; physical alteration of alluvial features (e.g., floodplains and side channels); construction of large wood hydraulic and habitat structures; and removal/replacement of riparian and upland vegetation at strategic locations. Extensive revegetation of native riparian vegetation (woody and wetland species) is also planned. The specific activities that would occur within the project area boundaries are described below. Consistent with the CEQA Guidelines (Section 15176 (a) and (c)), the information contained in this section describes the timing, type, size, intensity, and location of the activities associated with the Proposed Project as currently planned. Designers are continuing to refine designs that are presented in this document. Conditions in the field at the actual time of construction may result in slight changes to designs, as presented here. Assumptions were made in the analysis that would accommodate minor design changes. If substantial changes are made to the Proposed Project that would result in additional impacts above those analyzed in this document, then subsequent NEPA/CEQA analyses would be conducted.

Because a portion of the land within the project area boundaries is managed by the BLM, a BLM Right-of-Grant (a.k.a., Right-of Way), would be issued to Reclamation, pursuant to Title V of the Federal Land Policy and Management Act (43 USC 1761 et seq.). All environmental commitments, project design features, mitigation measures, and best management practices (BMPs) developed through this EA/IS would be considered for incorporation into all BLM project authorizations.

Mechanical Channel Rehabilitation Activities

The TRRP has developed objectives for the Proposed Project as well as specific activities that would occur at defined locations in support of project goals. The rehabilitation objectives for the Bucktail site are linked with the overall river restoration strategy of the TRRP and detailed in the TRFEFR and the Channel Design Guide (HVT et al. 2011).

The overall objectives of the proposed designs are to:

- Increase fry and juvenile salmonid rearing habitat;
- Increase or maintain adult salmonid holding habitat;
- Increase adult salmonid spawning habitat;
- Increase and enhance wildlife habitat;
- Increase and enhance riparian and wetland habitat, and enhance upland habitats;
- Increase channel complexity;
- Promote fluvial processes;
- Minimize adverse impacts to existing infrastructure; and
- Minimize uncertainty related to project performance.

Table 1 contains general descriptions of the rehabilitation activities included in the Proposed Project. These activities were described and analyzed in the Master EIR (refer to Section 2.3.2 of the Master EIR for more information about each of these general activity types. For the Proposed Project, specific activities fall within the broader categories outlined in Table 1 below - Master EIR Activities. Activities, P, Q, and W, fall within the level of impacts originally analyzed in the Master EIR, but are described separately in this analysis to clarify the intent of the activities for the reader. While this section describes the general types of activities that occur related to rehabilitation projects, Section 2.4.2.2 of this EA/IS contains the actual site-specific activity area descriptions for the Proposed Project at Bucktail.

Table 1. Rehabilitation Activities from Master EIR

Label	Activity Type
A	Recontouring and vegetation removal
B	Construction of inundated surfaces (450 cfs)
C	Construction of inundated surfaces (1,000 – 4,500 cfs)
D	Construction of inundated surfaces (6,000 cfs)
E	Low-flow side channels (300 cfs)
F	Medium-flow side channels (1,000 cfs)
G	Alcoves (450 cfs; 6,000 cfs)
H	Grade control removal
I	Sediment management (coarse and fine)
J	Placement of excavated materials
K	Staging/use areas (includes gravel processing* and stockpiling)
L	Roads, existing
M	Roads, new

Table 1. Rehabilitation Activities from Master EIR

Label	Activity Type
N	Temporary channel crossings (Trinity River and tributaries)
O	Revegetation

*No gravel processing is proposed in the Bucktail Project

Activity A (Recontouring and Vegetation Removal)

The ground surface would be modified to reduce riparian encroachment and minimize the risk of stranding of juvenile salmonids. Vegetation would be cleared at some locations, but would be maintained where possible. Activity A, sometimes referred to as the grading of banks and floodplains, or simply as "banks and floodplains," includes grading to construct or enhance topographic features that could develop into functional riparian habitat; excavation and fill would be balanced such that there is no net change in the volume of earthen material within the activity area. Trees may be marked for selective removal in order to enhance safety of the work site and to improve local conditions for individual tree growth and wildlife, and these would be used in large wood habitat structures. If additional trees are needed, beyond those removed as stated above, a separate area would be located and analyzed for tree removal with approval from a BLM Authorized Officer.

Removed vegetation would be used for in-river placement as large wood, chipped/masticated, or spread/buried in revegetation areas in order to increase nutrients and water holding capability of the soils. Activities would be accomplished using a variety of methods, including hand tools and heavy equipment, such as excavators, bulldozers, scrapers, and dump trucks. Only the minimum amount of riparian vegetation that is necessary for project implementation would be removed.

Activities B, C, and D (Construction of Inundated Surfaces)

Activities associated with the construction of inundated surfaces would enhance the connection of these surfaces to the river at various flows. As a reference point, the OHWM correlates to a 1.5-year recurrence flow. (On figures, the OHWM is estimated by hydraulic modeling.) These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the OHWM. Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation.

Newly inundated surfaces would provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish. They would also provide low points that could enhance sinuosity and thereby provide the habitat variability that was historically present and is required to support rapid growth of native fishes.

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to enhance the establishment of a diverse assemblage of native vegetation. If initial revegetation establishment is less successful than anticipated, additional efforts would be made by Reclamation consistent with requirements and commitments outlined the Riparian Mitigation and Monitoring Plan (Reclamation 2016). This plan is currently being finalized by Reclamation and members of the TMC. This plan requires supplemental efforts (e.g., in-planting,

weed control, irrigation) as necessary to establish riparian vegetation consistent with the CDFW policy of no net loss in riparian vegetation from pre-project levels. The definition of riparian revegetation is vegetation patches that are dominated by phreatic vegetation (e.g., cottonwood, willows).

Activity E and F (Side Channels)

Modifications to create or change side channels would reconnect the Trinity River with its floodplain at targeted flows. Side channels constructed for 300 cfs flows would provide off-channel, low-velocity habitat for a variety of aquatic organisms, including juvenile salmonids at base flow conditions. Side channels constructed for 1,000 cfs flows would provide habitat for salmonid rearing when water is flowing through the channels. As flows recede during the year, these side channels would drain naturally, reducing the likelihood of stranding aquatic organisms. It is important to note that side channels do not necessarily flow year round. Side channels would evolve over time and partially vegetate. While the duration of side channel flow would be dependent upon their evolution over time and the river's water surface elevation (WSE), even when water is not flowing, riparian and wildlife habitat diversity would be increased.

Side channels would be constructed to leave earthen berms near the upstream and downstream ends to protect water quality during construction. These berms would be removed at the end of construction if the water in the side channel is of appropriate quality for discharge to the river or the water in the side channel would be left in place for removal by subsequent high flows. Side channels may be pumped to uplands and dewatered during construction, or slowly metered into the mainstem post-construction. These techniques reduce the amount of turbid water that ultimately reaches the Trinity River during side channel connection.

Activity G (Alcoves)

Alcoves would be excavated to design elevations at the downstream end of side channels or other appropriate locations. They would be continuously inundated (approximately 1-2 feet deep during low flows), scoured/maintained during high flows, and would provide year-round juvenile fish habitat.

Activity H (Grade Control Removal)

Grade control structures, including constructed features, would be removed to increase channel complexity via promotion of channel migration, increased sinuosity, reduced fine sediment storage, increased coarse sediment transport, and restoration of bars. Activity H would not occur as part of the Proposed Project.

Activity I (Sediment Management, Coarse and Fine)

In addition to site-specific creation and enhancement of alluvial features (bars), sediment management activities would occur at various sites. Sediment management activities include augmentation of coarse sediment (e.g., spawning gravel) and removal of fine sediment (0.5-0.8 millimeter size fraction) at key locations. Long-term, large-scale coarse sediment augmentation sites would be established at select locations to encourage channel migration and the development of

alternate bars. Augmentation activities also include efforts required to provide a long-term supply of coarse sediment and ensure that the TRRP has the administrative access necessary to implement these activities at specific locations. Selected vegetation would be removed to facilitate the introduction of this coarse sediment along the channel margin. As appropriate, salvaged LWD would be retained and incorporated into riverine/in-channel activities to provide additional habitat complexity. The use of large wood is a vital component of channel rehabilitation work and includes incorporation of ELJs/hydraulic structures (wood and/or rock), habitat wood structures, skeletal bars, or boulder habitat placement. Coarse sediment would be introduced via mechanized equipment (e.g., conveyor, mechanical placement below the OHW) into the river channel under various high-flow conditions in a manner that facilitates the river's ability to route the coarse sediment downstream during high-flow periods.

Activity J (Placement of Excavated Materials)

Excavated materials would be placed in spoil areas so that there would be no increase in the elevation of the 100-year flood to comply with the requirements of Trinity County's Floodplain Ordinance. Appropriate, site-specific spoil areas are identified and verified through hydraulic analysis to have no effect on the 100-year flood elevation, or only within established ordinance parameters. Spoiled materials would be spread in uniform layers that blend with the natural terrain. In general, revegetation of upland areas, including efforts required for erosion control, would be consistent with agency requirements and with authorization from land managers and owners. Refer to Activity O – Revegetation – for more information. Placement of excavated and cleaned coarse sediment or cobbles may alternatively be used to create an infiltration gallery to allow sub-surface water flow.

Activity K (Staging/Contractor Use Areas)

Excavated materials would be transported across the staging area to stockpile areas. Water would be applied for construction purposes, including dust abatement, as directed by the Contracting Officer. Activity in these areas would include maintaining existing water wells and other infrastructure. The staging area may also be used for processing and storage of coarse sediment required for long-term sediment management activities or to obtain and store boulders for use in constructing hydraulic structures and boulder habitat placements.

Activity L and M (Roads, Existing and New)

The location of the activity areas within the project area would require construction of one new access road and three temporary access roads for specific project purposes. Since a portion of the current paved access road to the existing boat launch area would be decommissioned to construct a floodplain feature, a new paved permanent access road would be built to allow access to this area. The new road would be constructed to the same standard in terms of width and surfacing. The temporary access roads would be graded and unsurfaced. For the new access road to the BLM boat ramp, maintenance activities related to drainage and surfacing would occur periodically as the need arises. Site-specific design would consider factors like topography, soils, existing vegetation, and the need for future vehicle access. BMPs would be used to reduce the impacts of road-related sediment on the riparian and aquatic environments.

Activity N (Temporary Channel Crossings)

Temporary crossings occur in "X" activity areas on the figures, and may include constructed fords, temporary bridges, or other site improvements to facilitate access for construction-related traffic. If required, temporary bridges would be used when crossings are needed outside of the summer (July 15-September 15) in-channel work window. Fords would be constructed using imported clean gravel and native alluvial materials excavated from the bed and bank of the Trinity River or adjacent sources. Where equipment crossings are needed outside of the summer (July 15-September 15) in-channel work window (e.g., to perform wet season revegetation on the right bank) temporary, permitted conditions would be created to prevent spawning in the crossing until all crossings have been completed. All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks and excavators. With the exception of rip-rap or other stabilizing materials, material would be primarily extracted from activity areas within identified, permitted sites. The use of fords to cross the river would be minimized, and would not be used to transport excavated materials across the channel. All extracted material would be placed on the same side from which it was taken.

Temporary crossings would provide access across the river at the Bucktail site. Only constructed fords are planned at this site. Due to requirements to retain passage for fish and boats, at least 1/3 of a ford crossing would be submerged to a minimum depth of 1 foot under low-flow conditions. The construction of the temporary crossings would likely require some vegetation removal at entrances and exits to the channel. All temporary crossings would be constructed in a manner that does not impede navigability at the specific site.

Activity O (Revegetation)

Impacts to vegetation are anticipated in most activity areas. Revegetation of riparian and upland areas would rely on a combination of planting and natural recruitment of native species consistent with Reclamation's Riparian Mitigation and Monitoring Plan (Reclamation 2016) and the needs of BLM and other cooperating and trustee agencies. Native willows from the impact areas would be replanted as clumps during construction to speed recovery of vegetation. Replanting of impacted native vegetation (e.g., willows and cottonwoods) would be completed after construction in accordance with a site specific plan. In general, the TRRP objective is to ensure that riparian vegetation is minimally impacted by TRRP activities and is replaced at a 1:1 ratio (no net loss of riparian area habitat) within the Trinity River corridor. Revegetation would provide aquatic refugia at high flows, improve terrestrial habitat for birds and other wildlife, provide future wood recruitment, and provide future terrestrial nutrient input to the river. Additional planting, seeding mulching, and irrigation in the upland areas would occur using a 3:1 ratio using native seed and root stock available to Reclamation. Reclamation would also implement measures to control or inhibit the reestablishment of noxious and invasive plant species. This activity potentially includes watering during the first three years post-planting. Revegetation details would be included in the site-specific plan, which is under development for the Proposed Project. General planting details are described under the Activity Area and Revegetation headings below.

2.4.3 Detailed Master EIR Activities Described to Provide Additional Clarity for the Reader beyond Table 1

Activity P (In-River Installation of LWD [Hydraulic and Habitat Structures], Skeletal Bars, and Boulder Habitat)

Activity P impacts were covered in the Master EIR within Activity I (Sediment Management, as well as within other activities which facilitated side channel construction and maintenance (e.g., excavation of in-channel and riverine areas - activities E, F, and G). The TRRP would use appropriate materials to cause and enhance geomorphic action that would also enhance aquatic and wildlife habitat. Addition of large rock (>6 inch as in the ROD's skeletal bars) or rock/wood structures would remain in place and confine the river, thereby increasing stream power to scour and maintain adult salmonid holding habitat.

As appropriate, salvaged large wood and accompanying slash would be retained and incorporated into riverine/in-channel activities to provide additional hydraulic and habitat complexity. This could include large wood placement as individual pieces, small accumulations, and large habitat structures. The addition of large wood would develop topographical and hydraulic complexity and increase bank length to provide additional rearing habitat over a wide range of flows. Incorporation of woody material would improve anadromous fish spawning and rearing habitat.

Woody material is a natural part of healthy rivers. It provides important habitat for aquatic species by providing cover from high flows and predators. Its low velocity areas collect suitable spawning materials and its organic materials are a food source for aquatic insects. It can help create and maintain beneficial habitat features such as pools, islands, and gravel bars. Activity P may also include the construction of ELJs to further engage the flow and act as a catalyst for natural processes of scour and channel migration. Construction of larger habitat structures or ELJs may incorporate the use of rock and boulders as ballast to ensure that the structures do not migrate with high flows. Furthermore, ELJs may specifically be built with downstream "skeletal bars," thus forming habitat complexes that would grow in depositional areas. Processed alluvial construction material would be obtained and imported from off-site gravel processing areas, or purchased from local vendors for delivery. Unprocessed material or "pit-run" dirt and gravel from onsite excavation may be used in the construction of features and for habitat enhancement, using methods that would be continuously monitored for compliance with turbidity standards when in or near the river channel.

All large wood installations would be designed so that local velocities would be safe for navigation during relatively low river flows (less than approximately 2,000 cfs). Natural wood material would be placed in a manner to reduce the chances of hazardous contact with swimmers and boaters. Over time, woody material would collect on the structures to create areas of slower flow, which would direct water flow and, consequently, boaters away from the large wood. This would minimize the hazard of these structures to people.

The Proposed Project would place wood (e.g., in alcoves) to improve the quality of habitat in this design element by providing cover for juvenile fish, enhancing roughness and complexity, and increasing shading. Because of uncertainties in the availability, types, shapes, and sizes of the wood and the planned construction methods, the exact amounts and locations of wood placement are not

known at this time. Trees, tree tops and branches for use in constructing large wood structures would be obtained on-site (see Activity A) and/or opportunistically from other lawful sources (e.g., public or private construction areas where clearing has occurred) and delivered to the project area. The final locations and dimensions of wood and large rock placement would be determined in the field based on direction from Reclamation's field engineer.

Activity Q (Construction of Split Flow Channels)

Similar to Activity P, impacts from activities identified within Activity Q were covered in the Master EIR under Activities E or F. A new channel would be excavated to accept between 30 and 60 percent of the mainstem Trinity River flow during low flow conditions. The constructed split flow channel would be excavated through the existing floodplain, generally behind the existing riparian berm and vegetation. Similar construction methods to those noted for low flow side channels (Activity E) would be employed.

Activity W (Wetland Complexes – Rearing Ponds)

Activities identified within Activity W were covered in the Master EIR under Activities A, B, C, or D. Ponds would be created off the mainstem Trinity River. At W-1 the water holding capability would be enhanced through use of the proposed Beaver Dam Analog (BDA-1; see page 33 for description). The ponds would provide slow backwater refugia and year round rearing habitat for juvenile salmonid species. Groundwater infiltration and surface water in-flow from side channels would supply the ponds with a cold water environment. Existing tree/shrub canopy would be saved during construction to provide food sources, shade, and protection from predation. The ponds would contain deeper pools that have a connection to groundwater to supply needed cold water. Existing vegetative cover and revegetation planting would be incorporated into the ponds for food productivity.

2.4.4 Activity Areas

Table 2 lists the site-specific activity areas associated with the Proposed Project and Figure 3 illustrates these activities and construction areas. As the table shows, each activity area has been assigned a unique alphabetic label that corresponds to the type of activity area. For example, U-1 is the identifier for upland activity area 1. These labels are used throughout this document. For the Proposed Project, discrete activity areas were defined by the design team to include riverine areas, upland areas, and construction support areas. While these areas are intended to encompass the full range of activities, typically the actual area that would be treated will be smaller. Riverine areas are labeled with an R preceding the site number (e.g., R-1, R-2); upland areas are labeled with a U (e.g., U-1, U-2); in-channel work areas are labeled with an IC; construction staging/contractor use areas and access roads are labeled with a C; wetland/pond areas are labeled with a W; engineered log jams are labeled with an ELJ; and temporary crossings are labeled with an X. Table 2 also shows the size of the activity areas, the estimated volume of material that would be excavated or filled, if known, and the primary use anticipated for each area.

Table 2. Activity Areas at the Proposed Bucktail Rehabilitation Project Site.

Activity Area[a]	Primary Activity	Activity/ Treatment Area (acres)[b]	Earthwork (CY)[c]	Fill (CY)[c]
IC-1	Point Bar	0.50	0	2,000
IC-2	Side Channel	1.71	14,100	200
IC-3	Mainstem Channel Fill	0.30	0	2,650
IC-4	Mainstem Channel Relocation 63,408	1.02	5,550	0
IC-5	Mainstem Channel Splitflow	0.38	470	470
IC-6	Side Channel	0.69	3,900	0
IC-7	Side Channel	0.79	8,130	0
IC-8	Point Bar	0.33	0	1,850
	IC Subtotal =	***5.72***	***32,150***	***7,170***
R-1	Floodplain	0.60	3,600	0
R-2	Upland Planting	0.99	5,100	0
R-3	Floodplain	0.46	2,700	0
R-4	Floodplain	0.40	2,570	0
R-5	Floodplain	1.24	11,100	0
R-6	Backwater	0.98	12,700	0
	R Subtotal =	***4.67***	***37,770***	***0***
ELJ-1	Engineered Log Jam	0.13	0	250
ELJ-2	Engineered Log Jam	0.09	0	200
ELJ-3	Engineered Log Jam	0.09	0	150
	ELJ Subtotal =	***0.31***	***0***	***600***
W-1	Wetlands	2.31	0	0
	W Subtotal =	***2.31***	***0***	***0***
BDA-1	Beaver Dam Analog	0.03	0	0
	BDA Subtotal =	***0.03***	***0***	***0***
C-1	Contractor Use Area	1.01	0	0
C-2	Contractor Use Area	0.82	0	0
C-3	Contractor Use Area	0.89	0	0
C-4	Contractor Use Area	0.94	0	0
C-5	Contractor Use Area	0.42	0	0
C-6	Access Road	0.09	0	0
C-7	Access Road	0.89	0	0
C-8	Access Road	0.23	0	0
C-9	Access Road	1.99	0	0
C-10	Contractor Use Area	0.79	0	0
C-11	Contractor Use Area	2.71	0	0
C-12	Contractor Use Area	0.25	0	0
C-13	Contractor Use Area	0.04	0	0

Table 2. Activity Areas at the Proposed Bucktail Rehabilitation Project Site.

Activity Area[a]	Primary Activity	Activity/ Treatment Area (acres)[b]	Earthwork (CY)[c]	Fill (CY)[c]
	C Subtotal =	***11.07***	***0***	***0***
U-1	Upland Storage	4.85	0	58,200
U-2	Plantings	0.90	0	5,700
U-3	Storage	4.1	0	5,550
	U Subtotal =	***9.85***	***0***	***69,450***
X-1	Temporary River Crossing	0.11	0	300
	X Subtotal =	***0.11***	***0***	***300***

a IC = in-channel work area; R = riverine work area; U = upland activity area; C = construction staging/contractor use areas and access roads; X = temporary river crossing; BDA = dam structure; W = wetlands; ELJ = engineered log jam.
b Area calculated from project geographical information system (GIS).
c Provided by TRRP; CY = cubic yard.

Activity Area Details

The following section provides information about the specific activities proposed at the Bucktail site. Channel rehabilitation details are provided in Table 2, and revegetation details for this site are included at the end of this section. Actions at this site are proposed for construction in 2016 as funding is available. Prior to removal of any mature conifers or hardwoods (greater than 12 inches diameter at breast height), Reclamation will require authorization from BLM to remove these trees. Trees authorized for removal for clearing or safety considerations by BLM would be used by Reclamation for restoration activities. Additional large wood required for the project will be provided by Reclamation from off-site sources. In addition, Reclamation will make every attempt to avoid "creating" hazard trees by limiting driving over tree root systems, piling soil around bases of trees, and other similar practices.

Plans for replacing the Bucktail Bridge are currently being considered by the Trinity County Department of Transportation and funding sources are being sought. It is the intent of the TRRP to construct the Proposed Project in coordination with the building of a new Bucktail Bridge. A new Bucktail Bridge would reduce constriction, increase conveyance, and eliminate the backwater effect that exists currently; for example, the new bridge would allow for more gravel addition upstream without affecting downstream water surface elevations. However, the decision to construct a new bridge is one that is outside the jurisdiction of the TRRP. The implementation of the 2015 Proposed Project is not dependent upon construction of a new bridge; the 2015 design would function with or without the presence of a new bridge.

IC-1, Point Bar

Area IC-1 is located at RM 106.15 in the mainstem channel along the right bank. This feature would be a constructed right bank skeletal bar designed to inundate at 2,500 cfs that would improve overall channel complexity and help steer mainstem flows into the left bank at the upstream end of Area IC-3. Overtime this setup should develop a riffle pool riffle sequence, with riffles providing benthic

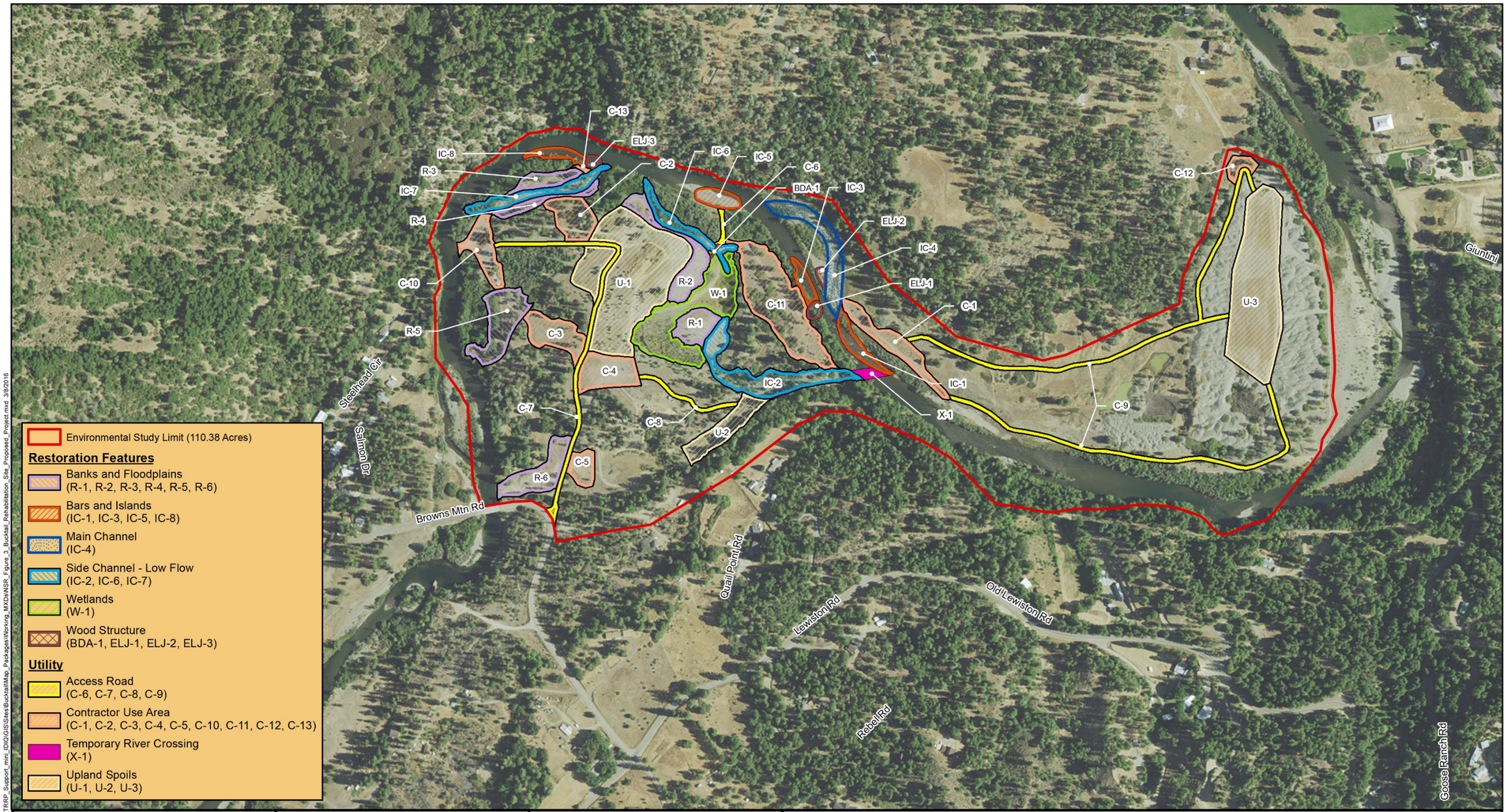
macroinvertebrate (BMI) habitats over a range of flows; the pool would become deeper increasing the opportunity for adult holding and the pool tail would provide spawning habitat.

IC-2, Side Channel

Area IC-2 starts as a high flow scour channel entrance at RM 106.2. This area is a low flow side channel, approximately 900 feet in length that is designed to deliver approximately 5 to 10 percent of the mainstem flow into areas R-1, W-1, and IC-6. The side channel meets recommended guidelines described in the Trinity River Channel Design Guide, including: 1) entrance is located just upstream of a riffle control; 2) entrance is located on the outside of a meander bend; and 3) entrance is at a 40 degree angle to the mainstem channel (HVT et al. 2011). This feature would provide connectivity between existing floodplain surfaces and a seasonal pond. The constructed channel is designed to capture 5 to 10 percent of summer/winter baseflows (15 to 45 cfs), maintaining lower streamflow velocities and shallower depths over a wider range of flows. During construction, substrate within the upper 350 feet of the side channel entrance would be evaluated for hyporheic connectivity. If necessary, a layer of cobble 2 feet deep, below design grade, may be added to act as an infiltration gallery. Constructed riffles within area IC-2 would provide adult salmonid spawning areas and productive BMI habitat that would increase food resources for fry and juvenile salmonids during critical winter and spring rearing periods. Area IC-2 combined with IC-6 and BDA-1 provides up to 90,000 square feet of fry and juvenile rearing habitat that meets criteria for depth, velocity, and with the placement of habitat structures, cover.

IC-3, Mainstem Channel Fill

Area IC-3 is the existing mainstem channel from RM 106.1 to 106.2. The existing channel in this location is steep with large cobble substrate. The left bank has wood placed as part of the 2008 Dark Gulch Project. Area IC-3 would consist of a combination of coarse sediment, revegetation, and large wood bar apex jam (ELJ-1) filling the existing channel such that 70 to 80 percent of flows up to 6,050 cfs are directed into the Area IC-4. Construction of a left bank bar in combination with ELJ-1 is designed to initiate a flow split into area IC-4. As flows increase, surrounding areas would be inundated at flows ranging between 4,500 cfs and 8,000 cfs. IC-3 would increase low water bank length by incorporating a left bank alcove. Construction of IC-3 would provide slow water refuge within a constructed alcove that would provide fry and juvenile habitat at flows ranging between 300 cfs and 4,500 cfs.


C-13
ELJ-3
IC-8
R-3
IC-7
R-4
C-2
IC-6
IC-5
C-6
BDA-1
IC-3
C-12
ELJ-2
IC-4
ELJ-1
C-1
C-10
R-5
U-1
R-2
W-1
C-11
R-1
C-3
C-4
IC-2
IC-1
X-1
C-9
U-3
Giuntini
C-7
C-8
U-2
C-5
R-6
Steelhead Cir
Salmon Dr
Browns Mtn Rd
Quail Point Rd
Lewiston Rd
Old Lewiston Rd
Rebel Rd
Goose Ranch Rd
Environmental Study Limit (110.38 Acres)
Restoration Features
Banks and Floodplains
(R-1, R-2, R-3, R-4, R-5, R-6)
Bars and Islands
(IC-1, IC-3, IC-5, IC-8)
Main Channel
(IC-4)
Side Channel - Low Flow
(IC-2, IC-6, IC-7)
Wetlands
(W-1)
Wood Structure
(BDA-1, ELJ-1, ELJ-2, ELJ-3)
Utility
Access Road
(C-6, C-7, C-8, C-9)
Contractor Use Area
(C-1, C-2, C-3, C-4, C-5, C-10, C-11, C-12, C-13)
Temporary River Crossing
(X-1)
Upland Spoils
(U-1, U-2, U-3)
G:\Projects\12_10200_010_Multiyear_TRRP_Support_mm_IDIQ\GIS\Sites\Bucktail\Map_Packages\Working_MXDs\NSR_Figure_3_Bucktail_Rehabilitation_Site_Proposed_Project.mxd 3/8/2016
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Trinity River Restoration Program
PLSS T33N, R09W, Section 23 & 24
California State Plane Zone 1, NAD83 Feet
N
0 175 350 700
Feet
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TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL
PROPOSED CHANNEL REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY
Figure 3
Bucktail Rehabilitation Site – Proposed Project
March 2016

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IC-4, Mainstem Channel Relocation

Area IC-4 extends from RM 106.05 to 106.2, beginning in the mainstem channel and along the left bank and then crossing into an existing right bank low flow side channel constructed in 2008 (RM 106.05 to 106.15). Area IC-4 proposes construction of a split flow channel intended to capture 70 to 80 percent of flows up to 6,050 cfs. This involves excavation of the constructed 2008 side channel to become the new mainstem channel, which would increase channel length, complexity, and sinuosity and reduce slope and radius of curvature. ELJ-2 is proposed along the right bank at RM 106.1 to direct additional flow into IC-4 when flows are greater than 6,050 cfs. As flows increase, surrounding areas are inundated at flows ranging between 4,500 cfs and 8,000 cfs. Area IC-4 and surrounding areas would provide shallow depths and slow velocities across a wider range of streamflows than the existing mainstem channel configuration. Increasing the mainstem channel length and reducing slope would improve adult spawning opportunities. In addition, by increasing channel sinuosity and complexity, this feature would provide fry and juvenile rearing opportunities at a wide range of flows over existing conditions. Area IC-4 should provide suitable BMI habitat for food production for increased local drift availability. Herbaceous vegetation would be planted along the toe of the mainstem channel slopes at the low water edge.

IC-5, Mainstem Channel Splitflow

Area IC-5 (RM 106.0) is located along the back side of the original feathered edge site constructed in 1993. As part of the 2008 Dark Gulch Project, coarse sediment was placed atop the bar as a high flow gravel recruitment pile. Under the Proposed Project, this area would be re-contoured to expedite mobility and transport downstream of the remaining coarse sediment associated with the 2008 high flow recruitment pile. Re-contouring the existing bar would allow flows of 2,500 cfs to inundate the bar completely and flows of or in excess of 6,050 cfs would mobilize and redeposit coarse sediment downstream. This feature would increase off-channel fry and juvenile rearing opportunities at a wide range of flows over existing conditions. No planting is proposed in this location; however, lowering this surface to inundate at flows of 2,000 cfs or greater should increase the potential for natural riparian regeneration.

IC-6, Side Channel

Area IC-6 extends from the existing wetland and gravel spoils pile in area R-2 to the mainstem channel intersecting both a terrace and riparian berm at RM 105.94. Area IC-6 is a 300 cfs side channel designed to drain areas R-1, IC-2, and W-1. At the inflow to IC- 6, a beaver dam analog (BDA-1) would be designed to provide variable backwater elevations into the seasonal wetland and areas R-1 and IC-2. The constructed side channel would increase low water bank length and provide an outlet to the seasonal wetlands fed by IC-2. If needed, coarse sediment, between ¼ inch and 5 inches, would be added to the constructed side channel to provide a suitable medium for macro invertebrate production and salmonid spawning. The constructed channel would have 5-10 percent of summer/winter baseflows (15-45 cfs) providing lower streamflow velocities and shallower depths over a wider range of flows. Area IC-6, combined with IC-2 and BDA-1, provides up to 90,000 square feet of fry and juvenile rearing habitat that meets criteria for depth, velocity, and with the placement of habitat structures, cover. Constructed riffles within area IC-6 would provide areas of productive BMI habitat that increase food resources for fry and juvenile salmonids during critical

winter and spring rearing periods. This feature would increase inundated area for groundwater recharge providing more suitable areas for wetland and riparian establishment.

IC-7, Side Channel

Area IC-7 extends from RM 105.76 to 105.9, passing along the backside of an historic right bank bar and current riparian berm. Area IC-7 proposes a side channel designed to capture approximately 5 to 10 percent of summer/winter baseflows (15-45 cfs) and has lower streamflow velocity and shallower depths over a wider range of flows. A large wood structure (ELJ-3) is proposed to maintain entrance conditions and meter flow into the side channel. ELJ-3 would be woven into the existing trees between the upstream end of the IC-8 point bar and entrance to IC-7 side channel. This feature increases low water bank length and provides improved surface and groundwater connectivity between constructed floodplains R-3 and R-4. Construction of IC-7 would provide fry and juvenile rearing habitat from 300 cfs to 4,500 cfs that meets cover (with the addition of habitat features), depth, and velocity criteria.

IC-8, Point Bar

Area IC-8 is a riparian berm located from RM 105.72 to 105.85 on the left bank. Area IC-8 was previously treated with berm notching and a large wood habitat structure protruding from the bank into the mainstem. Under the Proposed Project, approximately 1,850 CY of coarse sediment would be added to the left bank immediately increasing coarse sediment storage by creating a self-sustaining point bar with an alcove at the downstream end. This feature would increase low water bank length, sinuosity, and expansion and contraction zones. The top of the IC-8 point bar is designed to completely inundate at 4,500 cfs providing shallow depths and slow velocities across a wider range of streamflows than the current left bank channel configuration. In addition an alcove has been designed into the downstream end of the bar. The point bar and alcove would provide slow shallow rearing habitat for flows ranging from 300 cfs to 2,500 cfs. A pool on the outside of the bend along the right bank bedrock would be maintained to preserve adult holding opportunities. Herbaceous vegetation would be planted along the toe of IC-8 at the low water edge.

R-1, Floodplain

Area R-1 contains a gravel spoils pile, low lying floodplain area, and a portion of a wetland pond. The area is currently inundated through a hyporheic connection with the mainstem channel and begins to backwater through a gravel berm at flows of 4,500 cfs. This area would be lowered to target inundation elevations ranging between 1,500 cfs and 4,500 cfs to provide slow shallow rearing habitat. At flows of 300 cfs, IC-2 would provide water into area R-1. A beaver dam structure located at the entrance to IC-6 would backwater into area R-1 to help portions of R-1 function as a seasonal wetland. Construction of R-1 would result in shallow depths and slow velocities across a wider range of streamflows than those currently provided. This surface is expected to support riparian plantings featuring willows and cottonwoods and natural regeneration from seed deposited during overbank flows.

R-2, Upland Planting

Area R-2 contains a gravel spoils pile, low lying floodplain area, and a portion of a wetland pond. The area is currently inundated through a hyporheic connection with the mainstem channel and begins to backwater through a gravel berm at flows of 4,500 cfs. Under the Proposed Project, the area would be lowered to target inundation elevations ranging between 1,500 cfs and 4,500 cfs to provide slow shallow rearing habitat. At flows of 300 cfs, area IC-2 would provide water into area R-2. A beaver dam located at the entrance to IC-6 would backwater into area R-2 to improve planting and natural recruitment success. Construction of area R-2 would result in shallow depths and slow velocities across a wider range of streamflows than those currently provided.

R-3, Floodplain

Area R-3 runs between the riparian berm on the backside of IC-8 and the IC-7 side channel. Under the Proposed Project, the area would be lowered to a functional floodplain elevation to inundate at flows ranging between 1,000 cfs and 4,500 cfs to provide slow shallow rearing habitat. Lowering the existing right bank along IC-7 would provide bank complexity and surfaces that would initiate floodplain deposition. The area would provide areas with shallow depths and slow velocities across a wider range of streamflows than those currently adjacent to the mainstem channel. Excavated material would be stockpiled at U-1 for future gravel augmentation. The floodplain would be revegetated with riparian hardwood species.

R-4, Floodplain

Area R-4 is located along the right bank of the IC-7 low flow side channel. This area would be lowered to a functional floodplain elevation that would inundate at flows ranging between 1,000 cfs and 4,500 cfs, providing bank complexity and surfaces that would initiate floodplain deposition. This would provide areas with shallow depths and slow velocities across a wider range of streamflows than those currently adjacent to the mainstem channel. The proposed constructed surfaces would provide slow shallow rearing habitat. Excavated material would be stockpiled at U-1 for future gravel augmentation. The floodplain would be revegetated with riparian hardwood species.

R-5, Floodplain

Area R-5 begins at RM 105.6 and connects an existing riparian hardwood stand consisting of mixed willows into a historic settling pond, primarily vegetated with narrow-leaf willow. Construction in this area is intended to backwater at flows of 4,500 cfs connecting an historic settling pond depression within the interior of the Bucktail site to the mainstem channel. This feature would provide areas with shallow depths and slow velocities across a wider range of streamflows than those currently adjacent to the mainstem channel. The area would provide slow shallow rearing habitat for streamflows ranging from 1,500 cfs to maximum fisheries flow of 11,000 cfs. Approximately 11,100 CY of material would be excavated and stockpiled at area U-1 for features, potential processing, and future gravel augmentation. The surface would be planted with riparian hardwood species.

R-6, Backwater

Area R-6 is at the downstream end of an existing high flow scour channel. The area is primarily open sand, gravel, and cobbles with non-native grasses. Flows in excess of 8,000 cfs enter the high flow scour channel at RM 106.2, exiting through R-6 just upstream of the Browns Mountain Road Bridge. The area would be designed to backwater at flows ranging between 450 cfs and 2,500 cfs, providing areas with shallow depths and slow velocities across a wider range of streamflows than those currently available. Approximately 12,700 CY of material would be excavated and stockpiled at Area U-1 for future gravel augmentation. The floodplain would be revegetated with riparian hardwood species.

Wood Habitat Structures

Wood habitat structures would be distributed throughout constructed side and mainstem channels. Wood would be buried into constructed banks and bars without piles or boulder ballast making it available for transport downstream. Some angled piles may be used to allow time for vegetation to grow into place and secure habitat structures. Large boulders may be used in combination with wood for additional complexity. These structures would create areas of local scour and deposition, and would provide immediate cover, depth, and velocity refugia for all salmonid life stages over flows of 300 cfs. Large wood used for construction would be a combination of that obtained on-site during vegetation removal and that obtained from other lawful sources and delivered to the site.

ELJ-1, Engineered Log Jam

Construction of ELJ-1 would incorporate large wood and coarse sediment into existing vegetation along the left bank to form a large wood jam at the upstream end of IC-3. Wood placement combined with coarse sediment and vegetation is designed to meet the design objective of directing 70 to 80 percent of flows up to 6,050 cfs into the newly constructed channel (IC-4). Some wood posts would be used to pin the structure in place. The structure would be constructed with a matrix of woody and fill material to provide hydraulic cover, allowing for riparian plantings and regeneration within area IC-3. The structure is designed to withstand forces exerted by the maximum fisheries flow of approximately 11,000 cfs. This structure increases the complexity of the stream bank and creates a scour pool upstream of the wood placement. Over time, ELJ-1 would create holding habitat for adults through the creation of local scour and capture of woody material mobilized by high flows. ELJ-1 provides adequate summer rearing habitat for juvenile salmonids, enhances hydraulic and escape cover along the channel margin, reduces the distance to cover from adjacent spawning areas (IC-3 and IC-4), and increases channel complexity and salmonid habitat for all life stages at a wide range of flows.

ELJ-2, Engineered Log Jam

ELJ-2 proposes construction of a medial bar jam at the head of the 2008 split flow medial bar at RM 106.1. ELJ-2 is designed to maintain a split flow channel when streamflow is greater than 6,050 cfs. Wood would be used in combination with boulders and vegetation to create a stable configuration at the upstream end of the 2008 medial bar downstream of the IC-4 confluence with the mainstem Trinity River channel. This structure is designed to direct flows in excess of 6,050 cfs into IC-4. This feature would increase the complexity of the stream bank and provide hydraulic and escape

cover for juvenile salmonids during all flows. Smaller wood would be placed along the wetted perimeter of the larger wood placements to add hydraulic and escape cover for fish. The structure also creates physical complexity by creating refugia for juvenile residents and salmonids. The scour pool and cover provided by the wood placed at the apex of the medial bar would create summer rearing habitat in the form of feeding stations and holding features.

ELJ-3, Engineered Log Jam

Positioned at the head of IC-8, ELJ-3 sits within an existing riparian berm and subtle point bar. ELJ-3 would be designed to mitigate a 95/5 percent flow split between the mainstem channel and the low-flow side channel (IC-7). The feature proposes weaving large wood into existing vegetation between IC-7 and IC-8, providing a stable hard-point along the left bank of the channel. ELJ-3 would be designed to meter flows into IC-7 such that at a flow of 300 cfs, 5 to 10 percent (15 cfs to 30 cfs) enters the side channel. Flows in excess of 6,050 cfs are expected to inundate the entire site. Weaving logs into existing vegetation at the head of an existing riparian berm is expected to increase the diversity of aquatic habitats by creating connection to off-channel habitats, side channels, and floodplains. This feature would increase the complexity of the stream bank and increase salmonid habitat for all life stages at a wide range of flows including providing hydraulic and escape cover for juvenile and adult salmonids, providing holding habitat for adults through the creation of local scour pools, and providing adequate summer rearing habitat for juvenile salmonids.

W-1

No earthwork is proposed for area W-1. Post-project, the area would be planted with emergent wetland and sedge wetland vegetation. This would include mugwort, torrent sedge, common rush, spreading rush, scouring rush, basket sedge, and small-fruited bulrush.

BDA-1, Beaver Dam Analog

The proposed BDA-1 would be located at the downstream end of the existing seasonal wetland built in 2008. Currently, the area is void of vegetation, and consists of gravel and cobbles. Proposed construction of a beaver dam analog at the upstream end of IC-6 would allow an adaptive approach to raise water surface elevations at various flows to backwater area R-1. The proposed beaver dam analog at the upstream end of IC-6 would consist of buried posts (12 inches in diameter) that provide a framework for willow cuttings to be woven between the posts. This would regulate water depth in the wetland upstream. The beaver dam analog could be managed in a way that allows high winter and spring flows to pass without obstruction. This would reduce fine material from depositing within the channel alignment. During periods of high flow, fine sediment is expected to deposit on the floodplain and seasonal wetland surfaces. During summer and winter baseflows, BDA-1 would backwater into area R-1 providing up to 2 acres of wetland habitat. During winter and summer rearing periods, this feature could backwater up to 90,000 square feet providing large areas that meet velocity, depth, and cover criteria for fry and juvenile salmonid rearing habitat. An adaptive approach would be necessary to successfully achieve riparian and wetland plant success as well as encouraging fine sediment deposition outside the low flow channel thalweg.

X-1, River Crossings

A temporary crossing would provide access across the river. The temporary crossing would be a constructed ford to facilitate access for construction-related traffic. If required, temporary bridges would be used when crossings are needed outside of the summer (July 15-September 15) in-channel work window. All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks, excavators, and scrapers. All temporary crossings would be constructed in a manner that does not impede navigability at the site.

U-1, Upland Storage

Area U-1 consists of the majority of the high terrace area in the center of the Bucktail site. This area primarily consists of roads, non-native grassland, and sparse conifers. Area U-1 would serve as the primary contractor use area and provide a location above the 100-year floodplain to stockpile coarse sediment for future local coarse sediment augmentation. Post-project, upland plantings and wood habitat piles are proposed for those areas not needed for storage to increase stand complexity providing a variety of avian, reptilian, and mammalian habitat.

U-2, Plantings

Area U-2 is an existing high flow channel that currently overtops at 7,000 cfs to 8,000 cfs. Existing vegetation is a sparse mix of riparian and upland vegetation. The construction of U-2 entails placement of excavated alluvial material in a manner that fill this feature to an elevation that allow it to function as an upland terrace below flows of about o 11,800 cfs.. This would should promote mainstem scour, channel migration, and complexity into the future. Placement of fill at this area also reduces the risk that the existing paved road near area R-6 would be scoured from high flows. Post-project, this area would be planted with upland vegetation, creating more complex upland woodland that over time may be recruited by a migrating channel, increasing large wood supply to the Trinity River. Successful upland plantings would provide a complex upland vegetation community that supports a variety of mammalian, reptilian, and avian species.

U-3, Storage

Area U-3 is located on top of an existing tailings pile and 2008 spoils area. This area would serve as the coarse sediment stockpile area for all materials excavated from area IC-4. This area also provides a location above the 100-year floodplain to stockpile coarse sediment for future gravel augmentations for the Trinity River. Post-project, native grasses would be planted on top of the graded surface to provide open grasslands that support a variety of mammalian, reptilian, and avian species.

C-1, C-2, C-3, C-4, C-5, C-10, C-11, C-12, and C-13, Contractor Use Areas

Contractor use areas would be used for construction access, staging, stockpiling, mobilization, gravel processing, and other necessary construction activities during implementation. No earthwork is proposed for area C-1. Post-project this area would be planted with willow trenches to increase roughness, which should create areas of water that meet depth, velocity, and cover criteria when flows are 2,000 cfs and greater. The addition of a complex riparian community would provide off-channel high flow refuge for rearing salmonids. No earthwork is proposed for area C-2. This area

would be planted with upland vegetation, creating more complex upland woodland that over time may be recruited by a migrating channel, increasing large wood supply to the Trinity River. Upland plantings in this area would provide a complex upland vegetation community that supports a variety of mammalian, reptilian, and avian species. This area inundates at flows between 6,000 cfs and 8,500 cfs; therefore, slow shallow rearing habitat is not expected until flows exceed 6,000 cfs.

C-6, C-7, C-8, and C-9, Access Roads

Construction access roads are required to complete the Proposed Project. Within the site, existing access roads would predominantly be utilized. Because scrapers would likely be utilized for excavation of channels and floodplains, these roads would be essential for safety and efficiency. Post-project, access roads would be returned to pre-construction condition, decommissioned, or left as improved, according to landowner approval.

Revegetation

Revegetation details are presented in Table 3.

Table 3. Revegetation Types and Species Proposed for the Bucktail Site.

Planting Type	Species	
Wetland Zonal	torrent sedge *Carex nudata* common rush *Juncus effuses* small fruited bulrush *Scirpus microcarpus*	scouring rush *Equisetum hyemale* spreading rush *Juncus patens* hard stemmed bulrush *Schoenoplectus acutus*
Emergent Wetland Zonal	mugwort *Artmesia douglasiana* scouring rush *Equisetum hyemale* spreading rush *Juncus patens*	torrent sedge *Carex nudata* common rush *Juncus effusus* small fruited bulrush *Scirpus microcarpus*
Toe Zonal[a]	torrent sedge *Carex nudata*	common rush *Juncus effusus*
Slope Zonal[b]	mugwort *Artmesia douglasiana* cottonwood *Populus trichocarpa* red willow *Salix laevigat* shiny willow *Salix lasiandra*	scouring rush *Equisetum hyemale* California rose *Rosa californica* arroyo willow *Salix lasiolepis*
Riparian Cluster	Cottonwood Cluster cottonwood *Populus trichocarpa* red willow *Salix laevigata* shiny willow *Salix lasiandra* snowberry *Symphoricarpos albus* California grape *Vitus californica* Mixed Willow Cluster mugwort *Artmesia douglasiana* American dogwood *Cornus sericea ssp. occidentalis* scouring rush *Equisetum hyemale* cottonwood *Populus trichocarpa*	Mixed Alder Cluster white alder *Alnus rhombifolia* mugwort *Artmesia douglasiana* American dogwood *Cornus sericea ssp. occidentalis* scouring rush *Equisetum hyemale* Oregon ash *Fraxinus latifolia* Arroyo Willow Cluster mugwort *Artmesia douglasiana* cottonwood *Populus trichocarpa* arroyo willow *Salix lasiolepis* California rose *Rosa californica*

Table 3. Revegetation Types and Species Proposed for the Bucktail Site.

Planting Type	Species	
	red willow *Salix laevigata* shiny willow *Salix lasiandra* arroyo willow *Salix lasiolepis*	snowberry *Symphoricarpos albus*
Upland Cluster and Upland Infill	ponderosa pine *Pinus ponderosa* canyon live oak *Quercus chrysolepis* interior live oak *Quercus wislizeni* greenleaf manzanita *Manzanita patula*	ghost pine *Pinus sabiana* redbud *Cercis occidentalis* whiteleaf manzanita *Manzanita viscida* honeysuckle *Lonicera hispidula*

a Toe zonal plantings would occur within 24 inches of the water surface along the excavated side channels.
b Slope zonal plantings would occur on side channel slopes.

Revegetation design objectives include:

- Increase the plant species richness used in revegetation,
- Increase the potential future large wood supply,
- Increase riparian vegetation quality and quantity along the side channel and constructed benches,
- Increase upland vegetation quality and quantity between side channels, constructed benches, and the existing upland,
- Provide structural complexity, plant species diversity, and cover to enhance and increase wildlife and fish habitat, and
- Maintain continuous corridors of riparian vegetation with a more variable upland vegetation ecotone.

Revegetation consists of site layout, preparing planting areas, planting a mixture of upland and riparian plant species, and some degree of irrigation. If irrigation is required, equipment would include pumps, tanks and lines. In addition irrigation, maintenance of revegetated areas may include measures such as weeding, mulching, browse protection and in-planting. Plant species would be assigned to different riparian or upland patches. The grading plan avoids removing patches of existing riparian vegetation within the site that currently provide cover and a readily available seed source immediately after construction. Efforts would be made to minimally impact riparian vegetation along the left bank side channels as high quality vegetation conditions currently exist in these locations. The banks of constructed side channel slopes would be planted with riparian plant species to provide cover for wildlife and fish, shade the channel, speed riparian vegetation recovery, and increase woody plant and age class diversity. Constructed benches and bars are specifically targeted for woody riparian revegetation. Wetland species would be planted in areas appropriate for an individual species' tolerance to varying lengths of inundation. Planted material may be collected from local stocks or nursery grown native species. Their sizes may vary by plant species.

The TRRP anticipates that most planting areas would not require watering post project. However, given recent drought years, some intermittent watering of planted areas, during dry conditions may increase plant survival. If this subsequent irrigation is needed, gasoline pumps and hoses would be brought into the site, probably via river rafts. Equipment would be used to water plants as needed, stored on site for use during dry periods or brought in as water demands require. Any irrigation measures would be temporary in nature, and would assist the plants in establishing their roots and in long-term survival. Revegetation maintenance Irrigation measures would be undertaken to meet permit and/or and land owner/agency requirements; most of maintenance measures are expected to occur within the only in the first three years post-construction., would be used to restore the land to its natural condition, and would have only minimal and temporary impacts on the surrounding environment.

Connected Activities and Construction Criteria and Methods Associated with the Proposed Project

In addition to the activities included in Table 2, several other activities are common to all activity areas to varying degrees. Earthmoving equipment that may be used at the site to complete the construction activities includes off-road articulated dump trucks, wheel loaders, tracked excavators, dozers, push-pull scrapers, water tenders, and graders. Expected quantities of materials transported to the Bucktail site from locations outside the project area are listed in Table 4. It is assumed that trucks capable of hauling 10 CY would be used to bring materials to the site. All large wood brought to the site for use in activity area features would be obtained from locations in Trinity County and would be disease-free; potential locations include the Trinity Pines subdivision near Hayfork and Lance Gulch near Weaverville. Large boulders and cobbles for use in activity area features would be obtained from a local commercial source, and gravel would be transported from clean stockpiles stored at TRRP channel rehabilitation/gravel processing sites, potentially including stockpiles at the Sawmill, Lowden Ranch, Lower Junction City and Upper Junction City sites.

Table 4. Estimated Quantities of Off-Site Materials Needed for Civil Design Features.

Description	Quantity	Location	Estimated Trips
Large Wood – Logs	161	Trinity County	30
Large Woody Debris	144 CY	Trinity County	10
Clean Gravel, Cobble	7,450 CY	TRRP l Sites	700
Large Boulders	67 (2'-3')	Local Commercial Source	7

Environmental Commitments and Project Design Features

For the purposes of NEPA, the environmental commitments and project design features presented in the following section have been developed for, and are included as part of, the Proposed Project in order to reduce or avoid adverse effects of the action. This section is organized by resource topic. In some instances, these commitments and features have been developed to address more than one resource but are not repeated for each resource. Although many of the commitments and features presented below respond to significant impacts as defined under CEQA and have been incorporated

in their entirety by reference to the Mitigation Monitoring and Reporting Program (MMRP) in Appendix E of the Master EIR, Appendix B of this EA/IS provides a comprehensive and project specific MMRP consistent with CEQA requirements. Monitoring would occur as a required element of the Proposed Project and responds to the TRRP management objectives, as well as the MMRP.

Fluvial Geomorphology, and Soils

Reclamation will implement the following features during construction activities:

- Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation.
- All vehicular construction traffic will be confined to the designated access routes and staging areas.
- Disturbance will be limited to the minimum necessary to complete all rehabilitation activities.
- All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.

Reclamation will prepare a Storm Water Pollution Prevention Plan (SWPPP) to prevent erosion and control sediment into adjacent water bodies. Measures for erosion control will be prioritized based on proximity to the Trinity River. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, the Regional Water Board, NMFS, and CDFW) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following features will be used as a guide to develop this plan:

- Restore disturbed areas to pre-construction contours to the fullest extent feasible.
- Salvage, store, and use the highest quality soil for revegetation.
- Discourage noxious weed competition and control noxious weeds.
- Clear or remove roots from steep slopes immediately prior to scheduled construction.
- Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff.
- To the fullest extent possible, cease excavation activities during significantly wet or windy weather.
- Use bales, wattles, and/or silt fencing as appropriate.
- Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic.

- Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway.

- Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be recontoured and revegetated to reduce the potential for erosion.

- Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day.

Water Quality

The project will comply with the applicable general permits issued by the Regional Water Board in 2015 to ensure its meets the water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011). These conditions are summarized below.

- Turbidity levels will not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

- Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity.

- Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated are defined in the 2015 general discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels

immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.

To ensure that turbidity levels do not exceed the thresholds described in the general permits during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.

- If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.

Fill gravels used on the streambeds, stream banks, and river crossings will be composed of clean, spawning-sized gravels from a local Trinity River Basin source. Gravel will be cleaned to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Clean gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.

To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following design features:

- Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season.

- Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out.

- Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels or other water bodies.

- Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.

To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas. Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.

Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.

Reclamation will ensure that any construction equipment that will come in contact with the Trinity River be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option.

Reclamation will ensure that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Gas pumps and engines will be stored and maintained on impermeable barriers so that any leaking petroleum products are isolated from the ground. In addition, the construction contractor will be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.

Fishery Resources

The proposed construction schedule avoids in-channel work during the period in which it could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000), Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15).

Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.

Construction specifications will include the following features to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary:

- Equipment and materials will be stored away from wetland and surface water features.
- Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier.

To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.

Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area.

To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area.

Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5- year or less frequent event (i.e., Q >6,000 cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.

Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the projects to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and wetland waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain flagged areas on a regular basis throughout the construction phase.

Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be redelineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.

Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be cleaned to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Clean

gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium available from the project area.

Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage.

Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion (National Marine Fisheries Service 2000), or result in a temporary impairment to fish passage related to a bridge.

Vegetation, Wildlife, and Wetlands

Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.

Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, the following features will be implemented.

- Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, the following commitments will be implemented.

    - A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey(s) will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. To the extent possible given timing for construction and with the contract award, pre-construction surveys will conform to methodologies identified in a Willow Fly Catcher Survey Protocol for California available online at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Birds . If an active nest is found, CDFW will be contacted prior to the start of construction to determine the appropriate mitigation measures.

- If vegetation is to be removed by the projects and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary.

In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until qualified personnel have moved the frog(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.

A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits.

Prior to construction in open water habitat, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats.

During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until qualified personnel have moved the turtle(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.

Prior to the start of construction, a qualified biologist will conduct surveys of the rehabilitation sites to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, the following commitment will be implemented.

- Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, the following measures will be implemented.

  - A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction surveys will be used to ensure that no nests of these species

within or immediately adjacent to the rehabilitation sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest.

- If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

Due to the removal of the bald eagle from the endangered species list, and the availability of the National Bald Eagle Management Guidelines provided by the US Fish and Wildlife Service to protect the bald eagle, additional commitments are outlined below. These measures are now stricter than those outlined in the 2009 Master EIR/Programmatic EA, and provide additional protections for the bald eagle to abide by directives within the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d):

Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable habitat for Bald Eagle and/or northern goshawks is present. If suitable habitat is present, the following commitment will be implemented.

- Construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and/or northern goshawks. If it is not possible to schedule construction during this time, the following measures will be implemented.

  - Pre-construction surveys for bald eagles and nesting northern goshawks will be conducted by a qualified biologist to ensure that no disturbance will occur during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. The biologist will conduct surveys immediately adjacent to the impact areas for bald eagles and northern goshawk nests. If eagles or an active nest are found within 500 feet of the construction areas to be disturbed by these activities, the biologist, in consultation with the CDFW and the National Bald Eagle Management Guidelines, will determine the extent of a construction-free buffer zone to be established.

  - If vegetation is to be removed as part of the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts. Directives under the Bald and Golden Eagle Management Protection Act will be adhered to.

Pre-construction surveys for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The surveys will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed.

Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, the following commitment will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones.

- If an active maternity roost or hibernaculum is found, the projects will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the projects cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during darker hours.

- Ring-tailed cats are fully protected species under Fish and Game Code Section 4700. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. If an active ring-tailed cat nest is found, the projects will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the projects cannot be redesigned to avoid removal of the occupied tree, the CDFW will be contacted for their input. If approved by CDFW, demolition of the tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, prior to disturbance, the CDFW will be notified to review and approve proposed procedures to ensure that no take occurs as a result of the action. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.

When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed. Preclude the use of rice straw in riparian areas. Limit any import or export of fill to materials to those that are known to be weed free.

Ensure all construction equipment is thoroughly washed prior to entering and leaving the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.

Use a mix of native grasses, forbs, and non-persistent non-native species for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.

Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species.

Within the first 3 to 5 years post-project, if it is determined that on-site revegetation/post-project conditions do not meet landowner requirements, opportunities to revisit the site and remedy the concern will be considered.

Recreation

Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local Trinity Journal newspaper prior to the onset of project construction.

Reclamation will repair and/or replace any facilities associated with the Proposed Project that are impacted by project activities. This feature includes installation of interpretive signage consistent with the requirements of the BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.

Cultural Resources

Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and Reclamation's designated archaeologist will be consulted. Once the find has been identified, Reclamation will be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA.

Implementation of the proposed project could potentially result in disturbance of undiscovered human remains.

If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by PRC, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be

treated according to provisions set forth in the Native American Protection and Repatriation Act (25 USC 3001) as well as Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.

Air Quality

Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate:

- Inactive construction areas will be watered as needed to ensure dust control.
- Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer).
- Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion.
- Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust.
- All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation.
- Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation.
- All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the NCUAQMD.
- Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints.

Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).

Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session.

Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m.

Reclamation will notify residences within 300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.

Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.

Noise

Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours, as needed.

Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices.

Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).

Public Services and Utilities/Energy

Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers.

Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.

Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.

Transportation/Traffic Circulation

Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that gravel trucks maintain a speed limit of 15 mph on residential and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.

Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes, and will consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.

Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of

darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. These permits will require traffic control and signage to meet California standards.

Tentative Schedule

Development of preliminary designs for this site began in 2011 and designs for the current Proposed Project, which incorporates land manager and TRRP design input, was completed in 2015. The Proposed Project is planned for construction in 2016, if funding is available. Some staging of materials, such as trees and gravel, could be staged on site before construction begins. Construction associated with the Proposed Project would not begin until the environmental process is completed. In addition, the following will have been completed: the final designs, plans, contract specifications, and cost estimates; award of contract(s) for work; acquisition of rights-of-way; BLM vegetation removal contract; acquisition of permits; and design approvals from local, state, and federal agencies.

To minimize impacts to breeding birds, construction would typically begin after nesting (August 1), but could begin sooner if pre-August bird surveys determine that nesting birds are not, and will not be, present in the construction areas, and thus would not be impacted by construction. Due to the extent of in-channel construction at the Bucktail site, contractors are expected to move into the site and to initiate pre-construction surveys for breeding birds and construction staking as early as June. Construction may begin after approvals are received (e.g., 404 Permit) where breeding bird surveys indicate that no impacts to birds will occur. Surface disturbance activities may be limited during the late spring (May and June), depending on the flow release schedule established for the particular water year. Although the majority of excavation and grading activities would typically occur between July 15 and November 1, excavation may continue later as long as surface water runoff does not increase the mainstem Trinity River turbidity by > 20 percent (Trinity River summer turbidity is typically very low; < 2 nephelometric turbidity units [NTUs]). Revegetation work (e.g., planting of willow pole cuttings and/or container plants, and seeding with native grasses) would generally take place in the wet season (fall/winter) following work or a year after construction.

2.5 Alternatives Considered but Eliminated from Further Evaluation

Within the general confines of the defined activity areas and ESL, the designers continue to use models to inform themselves as to the potential effects that changes in constructed topography (how the features are built – using various grades, side slope angles, and elevation on the ground) might have on how constructed features function under various flow conditions. The designers have been evaluating how these relatively minor changes in design affect modeled water depths, velocities, and sheer stresses under post construction conditions and how these results might affect long-term maintenance/evolution of features. Results of modeling are being used to select optimal configurations for maximum aquatic habitat quality for juvenile salmonids (e.g., depth, velocity, and substrate) in as-built conditions and as conditions evolve (e.g., erode, aggrade, or vegetate) under envisioned ROD flow conditions. In addition to the alternatives described above, the following alternative was also considered but dismissed for the reasons presented.

2.5.1 2013 Design Alternative

The original 2013 Bucktail and Lower Junction City EA/IS contained a different alternative than presented in Section 2.42. At that time, commenters objected to the split flow channel (at IC-5) and mechanical re-routing of the river at IC-3. They stated that creation of the side channel would reduce the depth of water over gravel bars, particularly at winter base flows of 300 cfs, and that this would affect fishermen who have to drag boats over gravel bars at low flows, therefore potentially impacting salmon redds contained in the gravel bars. They also objected to the reduction in public access to the Trinity River. They stated that public access would be temporarily affected during the construction period as well as being reduced in the long term because of the proposal to replace the existing public access boat launching area upstream of Bucktail Bridge to an area downstream of the bridge on BLM managed lands, resulting in a net loss of public access. Therefore, design revisions were made based on program partner and public comments received during the CEQA/NEPA process.

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Chapter 3. Affected Environment and Environmental Consequences

3.1 Introduction to the Analysis

This chapter describes the existing resources at the Bucktail site and presents an analysis of the potential environmental impacts associated with implementing the proposed activities. The anticipated impacts of the alternatives are analyzed in this chapter. The analyses are presented by environmental resource area. The analysis for each resource area includes discussions of the existing environmental setting, applicable CEQA significance criteria, potential environmental impacts, environmental commitments, project design features and CEQA mitigation measures. The contents of each of these discussions are described briefly in the following subsections.

3.1.1 Affected Environment/Environmental Setting

The affected environment/environmental setting section for each resource area describes the existing conditions using the most current information available. Conditions existing at the time of the Notice of Preparation for the Master EIR (in March 2008) are used to establish the environmental baseline for CEQA purposes (CEQA Guidelines Section 15126.6(e)(1)). Throughout the remainder of this document, this baseline will provide the basis for determining whether the Proposed Project's environmental impacts are likely to be significant under CEQA.

3.1.2 Environmental Consequences/Impacts and Mitigation Measures

The requirements of NEPA and CEQA are not necessarily the same, however, both require the consideration of potential environmental impacts in the evaluation of a proposed agency action. CEQ regulations (40 CFR 1508.27) provide NEPA guidance as to the requirement to evaluate impacts in an environmental document. General NEPA procedures are set forth in the CEQ regulations (40 CFR 1500-1508). Under CEQA, the concept of environmental "impacts" or environmental "effects" (the terms are used synonymously), as well as the determination of the significance of those impacts, is focused on changes in the existing physical conditions in the affected environment. The project impacts are identified and the level of significance of the impacts is determined in the following sections of this chapter. The impact analyses consider the type, size, location, and intensity of the potential effects associated with the activities proposed at the Bucktail site. The subsections presented in the Environmental Consequences section for each resource area are described briefly below.

Methodology

This subsection identifies the methods used to analyze impacts, and the key assumptions used in the analysis.

CEQA Significance Criteria

This subsection presents the criteria and thresholds used to identify potentially significant effects on the environment. For the most part, the significance criteria discussed in these subsections apply to CEQA, in accordance with PRC section 21082.2 and CEQA Guidelines sections 15064 and 15065. CEQA "thresholds" include guidance provided by the CEQA Guidelines, agency standards, legislative or regulatory requirements, as applicable, and professional judgment. All impacts that do not exceed the stated significance criteria described for each section are assumed to be less than significant under CEQA and are therefore not discussed in detail (PRC, § 21100 and CEQA Guidelines § 15128). The exception is for Indian trust assets and environmental justice, which are not specifically CEQA issues.

Summary of Impacts Table for CEQA

At the beginning of the Impacts and Mitigation Measures subsection is a table that identifies all of the impacts evaluated for that particular environmental issue area. Included in this summary table are the various levels of CEQA significance (i.e., no impact, less than significant, significant) for the Proposed Project and No Project alternatives. The tables also indicate what the CEQA level of significance would be after mitigation is implemented.

Impacts and Mitigation Measures/Project Design Features

In this subsection, each impact statement is presented, followed by a detailed impact analysis. CEQA mitigation measures that would reduce significant impacts associated with implementation of the Proposed Project to less than significant levels are identified after each impact discussion and are also provided in Appendix B. Although these measures are referred to as mitigation measures for CEQA purposes, they are considered environmental commitments and/or project design features for the purposes of NEPA. For NEPA purposes, environmental commitments and project design features are incorporated into the Proposed Project to reduce or eliminate adverse effects during implementation. An alphanumeric coding system that corresponds to the mitigation measures found in Appendix E of the Master EIR is used to identify each mitigation measure. Throughout this document, the term mitigation measure means both CEQA mitigation measures and NEPA environmental commitments and design features.

3.1.3 Mitigation and Monitoring Program

California PRC section 21081.6, subdivision (a), requires lead agencies under CEQA to "adopt a reporting and mitigation monitoring program… in order to mitigate or avoid significant effects on the environment." CEQA mitigation measures (design features already incorporated into the Proposed Project for NEPA purposes) that will be implemented in association with the Proposed Project are clearly identified and presented in Appendix B in language that will facilitate establishment of a monitoring and reporting program. Relevant information described in Appendix B will also be included as environmental commitments in conjunction with any mitigation measures adopted by the Regional Water Board as conditions for project approvals. The conditions for project approvals will be included in a MMRP to verify compliance. The MMRP for the Proposed Project is included as Appendix B. The approval of such a program will be part of any action taken by the Regional Water Board with respect to the Proposed Project. When other state, regional, or local agencies subject to

CEQA approve portions of the Proposed Project under their jurisdiction or regulatory power, these "responsible agencies" will be required to adopt their own MMRPs (14 CCR 15097, subd. (d)). In working with the Regional Water Board (CEQA lead agency), Reclamation and the BLM (NEPA co-leads) have agreed to implement mitigation measures/project design features identified in the MMRP.

3.2 Land Use

This section describes existing and planned land uses in the project area vicinity and evaluates the potential impacts to land uses from project implementation. More information about this resource is presented in the Master EIR (Section 4.2); that information is incorporated herein by reference.

3.2.1 Affected Environment/Environmental Setting

Existing Land Uses

The land within the Bucktail site boundary (110.38 acres) is a mixture of public and private land. The BLM manages 39.95 acres of land within the ESL and the remainder (70.43 acres) is privately owned. The Bucktail site is located off of Browns Mountain Road west of Lewiston. At the downstream end of the site, there are homes located on river right in a residential development off of Steelhead Circle. The upstream end of the project area also has houses just outside the project boundary on river right; these are accessed from Salt Flat Road. On river left, there are homes and other structures located just outside the project area boundary that are accessed off Lewiston Road.

Public land in or adjacent to the project area is primarily used for resource management and recreation and is managed for multiple uses in conformance with specific agency guidance documents. BLM-managed lands are administered in accordance with BLM's Redding RMP. This plan discusses the general condition of natural resources in the plan areas and prescribes appropriate land use management for lands within the plan's jurisdiction. A discussion of BLM's Redding RMP in Section 4.2.2 of the Master EIR is hereby incorporated by reference.

Weaverville is the largest community in Trinity County with a 2010 population of 3,600 (U.S. Census Bureau 2011). It is located 45 miles west of Redding on SR-299, adjacent to Weaver Creek, a tributary to the Trinity River. Lewiston is 35 miles west of Redding, and 15 miles east of Weaverville. Lewiston has a population of approximately 1,300 people (U.S. Census Bureau 2000). The Bucktail site is located in the Lewiston Community planning area (Trinity County 1986).

The small community of Lewiston, which is near the project area, is situated adjacent to the Trinity River where terrain is relatively gentle. Development in this rural community is primarily residential, typified by scattered single-family residences and mobile homes. Future development is restricted by the proximity of parcels to the Trinity River, because many of these parcels are zoned Flood Hazard and Open Space. Existing land uses typical of the area are primarily residential, timber and other resource production, recreation, and open space. The Trinity River within and adjacent to the project area is used by anglers, rafters, wildlife watchers, and tourists. The river is accessible at several public and private locations throughout the area, including at the Bucktail Hole boat launch, which is in the project area.

Local Land Use Planning

Trinity County General Plan

The project area is located in Trinity County. The Trinity County General Plan (Trinity County 2003) applies to privately owned lands in the project area; these lands fall under several of the county's land use designations. The county has established zoning districts for planning purposes. For a detailed discussion of Trinity County General Plan land uses and definitions, refer to the Master EIR (Section 4.2, Table 4.2-1).

Lewiston Community Plan

The Lewiston Community Plan (Trinity County 1986) covers approximately 16 square miles (10,227 acres) centered around the Trinity River from Lewiston Lake to slightly downstream of Grass Valley Creek. There are approximately 7.9 miles of river frontage in the rural community of Lewiston; private lands account for 39 percent of lands bordering the river. Neighborhoods that are adjacent to the Trinity River include Rush Creek Road, the Community Core, the Historic District, Goose Ranch Road, Salt Flat, Old Lewiston Road, and Bucktail Subdivision. The variety of land uses along the river in Lewiston include commercial, residential, timber resource, agricultural, and open space. These occur at varying densities, which generally reflect available public services and environmental constraints. There is a trend in Lewiston to subdivide parcels, which has resulted in the creation of smaller lots and increased densities. This has led to a slight increase in residential land uses in the Lewiston Community Plan area.

The Bucktail site is within the Lewiston Community plan area and would be located in the Old Lewiston Road neighborhood. This neighborhood typically includes Rural Residential, Village, Open Space, and Resource land use designations. These land uses occur at varying densities that generally reflect available public services and environmental constraints. Public and private fishing and river access areas occur throughout the plan area.

Trinity County Zoning

The Trinity County Zoning Ordinance is discussed in Section 4.2 of the Master EIR, including details about Trinity County zoning districts that apply to lands in the area. Substantial portions of the project area are located in the 100-year floodplain of the Trinity River as determined by the Federal Emergency Management Agency (FEMA). Areas in the 100-year floodplain have been designated as Zone A, Zone AE, Zone X, and Zone X500 Flood Hazard Areas[1] and all sites within the 100-year floodplain are designated by Trinity County as Scenic Conservation Zones.

[1] Zone A is an area inundated by 100-year flooding for which no Base Flood Elevation (BFE = 100-year flooding water surface elevation) has been determined. Zone AE is an area inundated by 100-year flooding for which the BFE has been estimated. Zone X is an area inundated by 100-year flooding with average depth of less than 1 foot, or with drainage areas less than 1 mi^2, or areas protected by levees from a 100-year flood event. Zone X500 is an area between the 100- and 500-year floodplain.

Relevant Land Use Plan

BLM's Redding Field Office manages public lands in the Trinity River Basin in accordance with its Redding RMP (USDI BLM 1993), which in turn requires compliance with the Aquatic Conservation Strategy for Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl. The RMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for lands within the plan jurisdiction, including BLM-managed lands encompassed within the site boundaries for the Proposed Project. See Section 4.2.2 of the Master EIR for more information about the RMP and Appendix C of this EA/IS for the Aquatic Conservation Strategy Consistency Evaluation for the Proposed Project.

The Proposed Project applies a 2006 Pechman Exemption from a stipulation entered by the court in litigation regarding Survey and Manage species and the 2004 ROD related to Survey and Manage requirements[2]. In 2006, the District Court (Judge Pechman) invalidated the 2004 RODs, eliminating Survey and Manage requirements due to NEPA violations. Following the District Court's 2006 ruling, parties to the litigation entered into a stipulation exempting certain categories of activities from the Survey and Manage standards and guidelines, including both pre-disturbance surveys and management of known sites. The Proposed Project meets Exemption C because it is a river restoration project that incorporates the placement of large wood and channel and floodplain reconstruction. Appendix D of this EA/IS shows the Pechman exemptions.

The TRRP project reach is federally designated with a recreational status under the Wild and Scenic System. BLM is the federal river manager from Lewiston Dam to the North Fork Trinity. As the river manager, BLM must follow management guidelines identified in the WSRA. More information on Wild and Scenic River management is provided in Section 4.8 of the Master EIR and Section 3.8 of this EA/IS. In addition, public lands in the Trinity River corridor are managed to meet the BLM Visual Resource Management Class II objective: "to retain the existing character of the landscape. The level of change to the characteristic landscape should be low." Therefore, management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape (USDI BLM 1993).

3.2.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The methodology used for the land use impact analysis involved an assessment of the compatibility of the Proposed Project with relevant plans and policies and a review of the Trinity County General Plan, the Lewiston Community Plan, applicable land use plans, and zoning in relation to surrounding land uses and site features. The analysis was conducted through a literature review and site visit.

[2] *Northwest Ecosystem Alliance v. Rey*, No. 04-844-MJP (W.D. Wash., Oct. 10, 2006).

CEQA Significance Criteria

The following significance criteria were developed in the Master EIR and are based on guidance provided by CEQA guidelines. Impacts to land uses would be significant under CEQA if they would:

- Result in land uses that are incompatible with existing and planned land uses adjacent to actions described as part of the Proposed Project;
- Conflict with any applicable land use plan, policy, ordinance, or regulation of an agency with jurisdiction over the Proposed Project adopted for the purpose of avoiding or mitigating an environmental effect;
- Disrupt or divide the physical arrangement of an established community;
- Result in substantial nuisance effects on sensitive land uses that would disrupt use over an extended time period;
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; or
- 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.

Impacts and Mitigation Measures/Project Design Features

Table 5 summarizes land use impacts that could result from implementation of the No Project and Proposed Project alternatives.

Table 5. Summary of Potential Land Use Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.2-1. Implementation of the project could disrupt existing land uses adjacent to the rehabilitation site.		
No Impact	Less than significant	Not applicable[1]
Impact 3.2-2. Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the Trinity County General Plan, or other local community plans, policies, and ordinances.		
No Impact	Less than significant	Not applicable[1]
Impact 3.2-3. Implementation of the project may affect the availability of a locally important mineral resource recovery site.		
No Impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.2-1: Implementation of the Proposed Project could disrupt existing land uses adjacent to the rehabilitation site.

No Project Alternative

Under the No Project alternative, no restoration activities would occur. Therefore, there would be no impact.

Proposed Project

The Proposed Project would not introduce a new land use within the boundaries of the site, nor would it obstruct the water conveyance functions of the 100-year floodplain. Project activities that aim to restore floodplain functions would have long-term benefits for many land uses that are located along the Trinity River.

The Proposed Project is designed to minimize short-term disruptions to the community of Lewiston that could occur because of rehabilitation activities in the project area. Construction and staging areas would be located in and adjacent to the 100-year floodplain, which is designated as a Scenic Conservation overlay. Activities at the Bucktail site would occur on both BLM-managed public lands and private lands (refer to Figure 2). Staging, construction, and access on private lands in and adjacent to the site boundaries would require landowner approval. Any work within adjacent road easements would require Trinity County encroachment permits and traffic control for ingress and egress. Residential development located near the project area would be outside the areas of direct impact associated with the Proposed Project. There are no residential developments within the ESL boundaries, but residences are located nearby. Although private residences are located near the boundaries, project activities would not interfere with, preclude, or conflict with adjacent land uses.

Based on the analysis above, potential conflicts with or disruptions to adjacent land uses resulting from activities associated with the Proposed Project would be temporary and less than significant. As discussed in Section 3.16, Transportation and Traffic, no road closures would result from implementation of the Proposed Project. Access to adjacent residences would be maintained during project construction and post-construction monitoring activities (refer to Appendix B).

Construction activities in the river channel could interrupt adjacent land uses for short periods; but they would not preclude the use of nearby businesses or residences. Construction and transportation associated with the Proposed Project could produce minor nuisance effects (i.e., air quality, visual resources, and noise) at some nearby residences; however, such impacts would be temporary and would not significantly affect the ability to use adjacent lands. Project impacts associated with air quality, visual resources, and noise are discussed in Sections 3.11, 3.12, and 3.14, respectively.

Impact 3.2-2: Implementation of the Proposed Project may be inconsistent with the goals, policies, and objectives of the STNF LRMP, BLM's RMP, and the Trinity County General Plan, as well as local community plans, policies, and ordinances.

No Project Alternative

Under the No Project alternative, project activities would not occur. Therefore, there would be no impact.

Proposed Project

Implementation of activities at the Proposed Project site would not introduce land uses that are incompatible with existing or proposed land uses, nor would rehabilitation activities conflict with any applicable land use plan, policy, or ordinance. The discussion provided for this impact in Section 4.2.2 of the Master EIR summarizes the Proposed Project's consistency with federal, state, and local plans, policies, and ordinances. The impacts would be less than significant.

Impact 3.2-3: Implementation of the Proposed Project may affect the availability of a locally important mineral resource recovery site.

No Project Alternative

Under the No Project alternative, no rehabilitation activities would be implemented. Therefore, there would be no impact.

Proposed Project

There are no active mining claims within the project area, and there are no locally important mineral recovery sites identified by the state within the boundaries of the site. The TRRP has worked closely with the mining community to locate site boundaries in a manner that minimizes any impacts to future mineral recovery efforts and would continue to be involved in dialog with the mining community to address concerns related to mining. Because there are no state-identified locally important mineral recovery sites within the boundaries of the Proposed Project site, this impact would be less than significant.

3.3 Geology, Fluvial Geomorphology, Minerals, and Soils

Section 4.3 of the Master EIR describes geologic, fluvial geomorphic, and soils resources in the vicinity of the Proposed Project site and that information is incorporated herein by reference. This section describes site-specific information important for the analysis and evaluates the potential impacts to these resources from implementation of the Proposed Project.

3.3.1 Affected Environment/Environmental Setting

Fluvial Geomorphology

A discussion of the regional and local fluvial geomorphology is included in the Master EIR (Section 4.3). The geomorphic environment of a site is directly affected by the hydrology, sediment regimes,

channel bed composition, and riparian vegetation present. Modification of the channel and floodplain configuration has altered and simplified the natural diversity of geomorphic processes and products within the area, hence limiting the variety of channel forms, habitats, and vegetation structures. Extensive modification of historic and modern alluvial landforms within the area is evident by the aerial extent of channel modifications resulting from historic mining and, more recently, impacts related to the TRD. A discussion of these modifications is provided in the Master EIR (Section 4.10). Table 6 provides a summary of the geomorphic features for the project area that are shown on Figure 4.

Table 6. Geomorphic Features within the Project Area Boundaries.

Geomorphic Feature	Acres
Modified Terrace*	58.48
Tailings	19.85
Floodplain	9.83
Upland Hillslope	5.28
Vegetated Riparian Berm*	3.54
Bar	1.01
Coarse Fill	0.04
Levee	0.03

* = Human induced geomorphic feature.

The mainstem Trinity River flows generally southwest through the Bucktail site. The following description uses the river left or left bank and river right or right bank concept to describe the location of resources on each side of the river. River left and river right are defined from the standpoint of someone looking downstream.

The Bucktail site is located on the Trinity River between RM 105.45 and 107.0. The site begins approximately at the Bucktail Bridge and extends upstream approximately 1.5 miles to just downstream of RM 107.0. The downstream end of the site is marked by Browns Mountain Road and the Bucktail Bridge. The hydrology of the site is influenced almost exclusively by the mainstem Trinity River and associated operation of the TRD (i.e., Lewiston Dam and Trinity Dam). To a lesser extent, development and runoff from adjacent roads and hillsides following precipitation also affect the site. A review of historic aerial photographs between 1944 and 2012 provides insight into channel changes over time at this site (HVT et al. 2013). These photographs show a dramatic decrease in bankfull channel width between 1944 and 2012. Reduced flows from Trinity Dam operations narrowed the existing bankfull channel width of 200-250 feet down to its current bankfull width of between 100 and 120 feet. Safety of Dam releases, tributary floods, and ROD high flow releases have exacerbated the problem, depositing additional fine sediment along the left bank and scouring the channel into its current rectangular form with near vertical banks. The channel upstream of RM 105 is primarily comprised of gravel and cobble (HVT et al. 2013).

Several constraints at the Bucktail site may limit potential designs to the mainstem channel and left bank. Infrastructure constraints at the site include: 1) Bucktail Bridge (Browns Mountain Road Bridge) is located at RM 105.45 at the downstream end of the project reach; and 2) Private property inholdings and houses. In addition to the infrastructural constraints listed above, three geological/physical constraints exist at the site: 1) Valley wall and bedrock confinement along the entire right bank channel through the project reach (RM 105.65 – 106.0); 2) Need to maintain seasonal fishing access to the Bucktail boat launch; and 3) FEMA requires that the 100-year flood water surface elevation at the site not be raised or lowered by more than one foot. An existing bridge (Browns Mountain Road Bridge or the Bucktail Bridge) at the downstream end of the project reach constricts the channel and backs water up throughout the Bucktail site. The bridge is proposed for replacement; the currently proposed replacement bridge would have a longer span and would reduce the constriction through the bridge section.

Mineral Resources

The geologic properties of many of the units in the Klamath Mountains Province (KMP) are related to their origins as oceanic crust and/or their intrusion by plutonic bodies. These properties have resulted in mineralization that is widely distributed. Many minerals of economic importance are present, including gold, copper, zinc, chromite, manganese, platinum, silver, and mercury. These minerals have been mined from the advent of European settlement to the present by a variety of methods.

Trinity County was historically a gold mining region, and many unpatented mining claims exist along the Trinity River. Both lode (hardrock) mines and placer (alluvial gravel) mines were present in the watershed, with activity from 1848 to the present. A map of 2009 active mining claims is provided in the Master EIR.

The tailing deposits associated with large-scale placer mining provide a substantial source of aggregate required in various construction projects. Since World War II, mineral extraction activities have focused on aggregate resources. Effective January 1, 2016, Senate Bill 637 amended Fish and Game Code Section 5653 and added Section 13172.5 to the Water Code, making it illegal to use suction dredges in California. Some gold mining activity continues throughout the Trinity River basin in the form of panning and other non-motorized techniques. Placer mining has left tailing deposits that are apparent at the rehabilitation sites and that continue to influence the form and function of the Trinity River. Over time, aggregate mining of alluvial deposits and reworking of hydraulic tailings have resulted in additional channel modifications and changes in sediment supply.

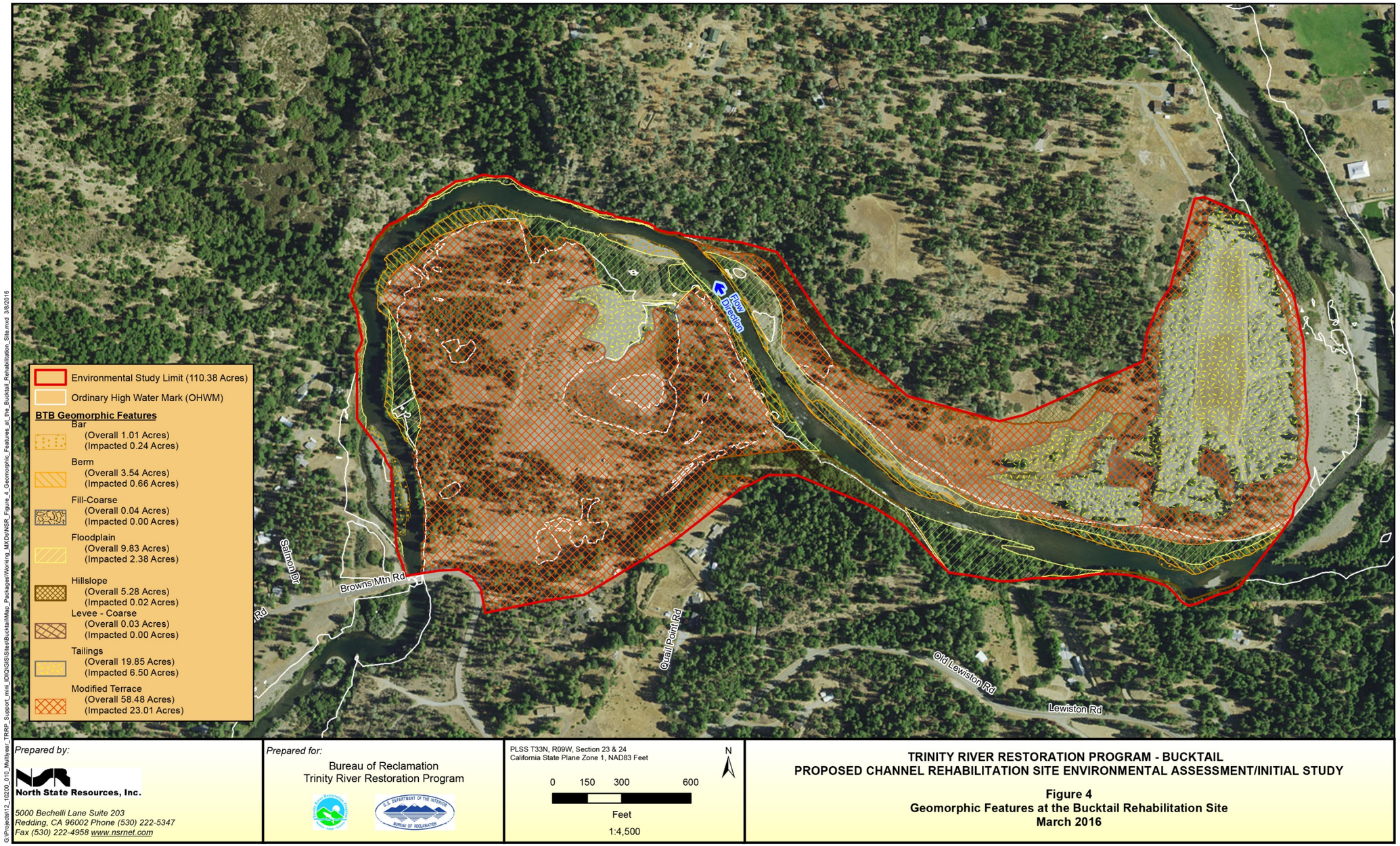


Figure 4. Geomorphic Features at the Bucktail Rehabilitation Site.

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The General Mining Law of 1872 is one of the major statutes that directs the federal government's land management policy. The law grants free access to individuals and corporations to prospect and mine for minerals in public domain lands and allows them, upon making a discovery, to stake (or "locate") a claim on that deposit. However, the Assistant Secretary of the Interior for Policy, Management and Budget proposed to withdraw, subject to valid existing rights, on behalf of the BLM, public lands located in Trinity County, California, from location and entry under the United States mining laws, but not from mineral material sales or mineral or geothermal leasing, to protect the cultural, recreational, and biological resources within and along the recreational segments of the Wild and Scenic River segment of the Trinity River (Federal Register, Vol. 78, No. 162, Wednesday, August 21, 2013, 51741-51743). The Notices of Proposed Withdrawal temporarily segregated the lands for up to two years from location and entry under the United States mining laws. The Secretary of the Interior withdrew this land from location of new claims effective August 21, 2015 as published in the Federal Register on September 9, 2015 (Federal Register, Vol. 80, No. 174, September 9, 2015, 54317-54318). The TRRP will continue to work with the BLM to ensure that construction efforts are consistent with BLM's long-term management goals for sites that contain BLM-managed lands.

In its 2014 EA for mineral withdrawal on BLM lands along the Trinity River, the BLM stated that there were 23 active placer claims. However, there were no plans of operations or notices filed for these claims and activity in these claims was limited to casual use (USDI BLM 2014). Placer claims are established with the intent to sort and wash unconsolidated alluvial materials for precious metals (e.g., gold, platinum). While suction dredging has been the principal mining method used on the Trinity River, it is now illegal in California with the passage of Senate Bill 637.

Other than for mining activities authorized under the Surface Mining and Reclamation Act (SMARA), information on private mining activities in Trinity County is limited. There are two active mining operations in the region that operate under a County SMARA permit, the Eagle Rock Mine and the Smith Mine. The Eagle Rock Mine, a sand and gravel extraction company, is currently operating at the site of the historic La Grange Hydraulic Gold Mine. The Smith Mine is located within the boundary of the completed Hocker Flat site and is active on an intermittent basis based on market conditions. Both of these mine sites are downstream of the project area.

New mining on public lands on the Trinity River has been precluded by a BLM and USFS mineral withdrawal (as described on p. 46 of this document). A USFS map is available at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3854273.pdf.

The proposed project area has been heavily disturbed by previous mining activities. The project area has large volumes of dredge tailings that are artifacts of this mining era. Evidence of this activity can be seen from the banks of the Trinity River within the site boundaries. These remaining tailing deposits continue to influence the form and function of the Trinity River.

Geologic Hazards

A discussion of the regional seismicity and seismic hazards is provided in the Master EIR (Section 4.3). No local active Quaternary faults have been identified, although little detailed mapping of Quaternary geologic features has been conducted in the area. The soils bordering the Trinity River are predominantly alluvial in nature and have the potential to experience liquefaction – a process whereby water-saturated granular soils are transformed to a liquid state during ground shaking;

however, the type of activities described in Chapter 2 would not affect the potential for liquefaction or be affected by liquefaction were it to occur.

Soils

The soils in the project area are described in the Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture [USDA] 1998). There are six main soil types in the Bucktail project area. They are 102 – Atter-Dumps, Dredge Tailings-Xerofluvents Complex, 2 to 9 percent slopes; 179 – Musserhill Gravelly Loam, 15 to 30 percent slopes; 182 – Musserhill-Weaverville Complex, 30 to 50 percent slopes; 198 – Tallowbox-Minersville Complex, 50 to 75 percent slopes; 213 – Xeralfs-Xerorthents Complex, 5 to 50 percent slopes; and 217 – Xerofluvents-Riverwash Complex, 0 to 5 percent slopes. Brief descriptions of these main soil types are included below:

- **102 – Atter-Dumps, Dredge Tailings-Xerofluvents Complex, 2 to 9 percent slopes.** This map unit is on alluvial fans, stream terraces, and floodplains that have been altered by dredging operations. This unit is about 50 percent Atter extremely gravelly loamy sand, 20 percent Dumps, dredge tailings, and 15 percent Xerofluvents. The Atter soil is very deep and is somewhat excessively drained. Permeability is rapid in the Atter soil. Available water capacity is very low. Runoff is slow, and the hazard of water erosion is slight. Dumps and dredge tailings consist of nearly barren mounds deposited along stream channels by dredge mining activities. Permeability is rapid in areas of the dumps. Runoff is medium, and the hazard of water erosion is slight. Xerofluvents consist of well-drained soils that formed in alluvium derived from mixed rock sources. Permeability is moderate or rapid in the Xerofluvents. Available water capacity is very low or low. Runoff is slow or medium, and the hazard of water erosion is slight or moderate. These soils are subject to flooding during prolonged, high-intensity storms. The frequency of the flooding ranges from rare to frequent; channeling and deposition are common along streambanks (USDA 1998).

- **179 – Musserhill Gravelly Loam, 15 to 30 percent slopes.** This map unit is found on hillslopes, is well drained, and is not subject to flooding or ponding. The map unit composition is 85 percent Musserhill and similar soils and 2 percent Xerofluvents. The available water capacity is low and the hydric rating is partially hydric.

- **182 – Musserhill-Weaverville Complex, 30 to 50 percent slopes.** This map unit is found on hillslopes and is well drained. It is not subject to flooding or ponding. The available water capacity is low for Musserhill but very high for Weaverville. The map unit composition is 45 percent Musserhill, 30 percent Weaverville, and 2 percent Xerofluvents. The hydric rating is partially hydric.

- **198 – Tallowbox-Minersville Complex, 50 to 75 percent slopes.** This map unit is found on mountain slopes is somewhat excessively drained, and shows no frequency of flooding or ponding. Available water capacity is low for Tallowbox and high for Minersville. The map unit composition is 60 percent Tallowbox, 20 percent Minersville, and 2 percent Xerofluvents. The hydric rating for this map unit is partially hydric.

- **213 – Xeralfs-Xerorthents Complex, 5 to 50 percent slopes.** This map unit is located on hills and terraces. Much of the soil has been removed by hydraulic mining. Areas are dissected by perennial streams. This unit is about 40 percent Xeralfs and 40 percent Xerorthents. The Xeralfs consist of well-drained soils of variable depths. Permeability is very slow to moderate in the Xeralfs. Available water capacity is very low to moderate, and runoff is rapid. The Xerorthents consist of well-drained soils of variable depths. Permeability is slow or moderate in the Xerorthents. Available water capacity is very low or low, and runoff is very rapid. This soil map unit is on the terrace above the river and floodplain and is not subject to flooding (USDA 1998).

- **217 – Xerofluvents-Riverwash Complex, 0 to 5 percent slopes.** This map unit is located on floodplains and stream terraces. It formed in alluvium derived from mixed rock sources. This unit is approximately 45 percent Xerofluvents and 35 percent Riverwash. Varying areas of the stream channel occur within this map unit that are under water during parts of the year. Xerofluvents consist of well-drained soils that formed in alluvium from mixed rock sources. Permeability is moderate to rapid in the Xerofluvents. Available water capacity is very low or low, and runoff is slow or medium. These soils are subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. Riverwash consists of nearly barren, unstabilized, stratified sandy, silty, clayey, stony, cobbly, or gravelly alluvium derived from mixed rock sources. Areas of Riverwash are flooded, channeled, and reworked nearly every winter (USDA 1998).

3.3.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Data for the following analysis were taken from existing reports on regional and local geology as well as on-site assessments during field reviews. These reports include the following documents: Geology of Northern California (USGS 1966); Soil Survey of Trinity County, California, Weaverville Area (USDA 1998); wetland delineations (North Wind 2013; North State Resources 2005); Trinity River Mainstem Fisheries Restoration Program EIS; Trinity River Maintenance Flow Study Final Report (McBain and Trush 1997); Trinity County General Plan; and online and GIS data sources.

CEQA Significance Criteria

A project would have a significant impact related to geology, geomorphology, soils, and minerals if it could subject people, structures, or other resources to geologic or seismic hazards or disrupt, eliminate, or otherwise render geologic, soil, or mineral resources unusable or unavailable. Impacts to geology, fluvial geomorphology, minerals, and soils would be significant under CEQA if the project would:

- Expose people, structures, or critical utility facilities to major geologic hazards (including seismicity, landslides, seiches, and liquefaction);

- Involve changes in topography that would result in unstable soil conditions;

- Increase erosion rates to a level at which associated sedimentation levels could affect streams, rivers, or other water bodies;
- Interfere with existing, proposed, or potential development of mineral resources; or
- Be inconsistent with the 10 Trinity River healthy alluvial river attributes.

Impacts and Mitigation Measures/Project Design Features

Table 7 summarizes the potential geology, fluvial geomorphology, minerals, and soils impacts that would result from the No Project and Proposed Project alternatives.

Table 7. Summary of Geology, Fluvial Geomorphology, Soils, and Minerals Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.3-1. Implementation of the Proposed Project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.		
No impact	No impact	Not applicable[1]
Impact 3.3-2. Construction activities associated with the Proposed Project could result in increased erosion and short-term sedimentation of the Trinity River.		
No impact	Significant	Less than significant
Impact 3.3-3. Implementation of the Proposed Project would interfere with existing, proposed, or potential development of mineral resources.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.3-1: Implementation of the Proposed Project could result in the exposure of structures and/or people to geologic hazards, including ground shaking and liquefaction.

No Project Alternative

Under the No Project alternative, no construction activities would occur. There would be no new exposure of structures and/or people to geologic hazards. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, no permanent structures or facilities would be constructed. There would be no new exposure of structures and/or people to geologic hazards. Thus, there would be no impact.

Impact 3.3-2: Construction activities associated with the Proposed Project could result in increased erosion and short-term sedimentation of the Trinity River.

No Project Alternative

Under the No Project alternative, the Proposed Project would not be constructed. Therefore, no construction-related erosion or associated sedimentation of the Trinity River would occur, and there would be no impact.

Proposed Project

Implementation of the Proposed Project has a potential to increase erosion and subsequent short-term sedimentation of the Trinity River. The amount of erosion in the project area would likely be influenced by the following:

- The extent that disturbed soils are exposed to flowing water,
- The extent that disturbed soils are exposed to energetic weather conditions, and
- The extent of soil compaction and associated runoff.

During or after excavation and other related construction activities, the highest rate of soil erosion would most likely occur near the margins of constructed features (e.g., side channels and floodplains). At these locations, the exposure of fine-textured soils during and after construction would increase the potential for soil erosion and sedimentation. Impacts of turbidity levels specific to water quality degradation are analyzed below, in Section 3.5, Water Quality, and associated impacts to anadromous fisheries are analyzed in Section 3.6, Fishery Resources.

A large portion of proposed rehabilitation activities would occur in proximity to flowing water and could expose newly disturbed and/or stable sediments and other alluvial materials to flowing water. Specifically, in-channel activities would likely disturb areas in proximity to flowing water. Riverine work areas may generally be isolated so that flowing water does not reach these areas until they are "opened" to the river. Sediment exposed to flowing water has an increased potential to mobilize and be transported downstream resulting in impacts such as short-term increases in surficial and channel erosional processes; increases in turbidity levels downstream (varying distances); and changes to type, volume, and character of deposition downstream. Monitoring results from previous TRRP channel rehabilitation projects (i.e., Hocker Flat, Canyon Creek, Indian Creek, and Lewiston-Dark Gulch) demonstrate that these impacts decrease rapidly once construction activities have ceased. However, downstream turbidity levels may remain elevated for a longer duration post-construction when winter high flows wash over newly disturbed areas and seasonal fluctuations in hydrologic conditions further shape the disrupted area into a more stable geometry.

Construction activities in the river and uplands have the potential to significantly decrease soil cohesion and armoring, thus increasing soil exposure to energetic weather conditions and increasing the short-term potential for wind and water erosion. Increased wind and water erosion and subsequent downstream sediment transport in the Trinity River would occur if any soils were left exposed during the wet season (typically November through May) as well as other infrequent precipitation events (summer thunderstorms). These areas would be replanted with native vegetation after project completion. The potential watering of the planted areas post-project would result in

negligible disturbance to project area soils. Watering would assist plants in establishing their roots and would help restore the land to its natural condition, which may reduce potential erosion and sedimentation.

The use of heavy equipment for restoration activities would likely increase soil compaction, potentially causing surface water runoff. An increase in the volume of surface water runoff increases the potential for erosion. Thus, any substantial increase in soil compaction would cause a potentially significant increase in erosion. Therefore, this impact is significant.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in increased erosion and short-term sedimentation of the Trinity River. Therefore, the environmental commitments and project design features presented in Chapter 2, in conjunction with CEQA mitigation measures 4.3-2a and 4.3-2b described in Appendix B, will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.3-3: Implementation of the Proposed Project would interfere with existing, proposed, or potential development of mineral resources.

No Project Alternative

Under the No Project alternative, the project would not be constructed. Therefore, no interference with existing, proposed, or potential development of mineral resources would occur, and there would be no impact.

Proposed Project

The development of mineral resources may be inhibited where a mining claim occupies a rehabilitation site. Currently, BLM has no authorized operating plans for mines along this reach of the Trinity River. There are no active claims in the project area. Because there are no current or proposed mining activities operating under either a federally authorized operating plan or through a County SMARA permit within the rehabilitation site there would be no impacts to mineral activities. Therefore, the impact would be less than significant.

3.4 Water Resources

This section presents a discussion of the water resources known to occur in the Trinity River Basin in proximity to the Proposed Project site. It evaluates potential impacts to water resources from implementation of the Proposed Project. Additional information about the affected environment for water resources is addressed in the Master EIR (Section 4.4).

3.4.1 Affected Environment/Environmental Setting

Surface Water Hydrology

The Trinity River Basin encompasses approximately 2,965 square miles, about one-quarter of which is upstream of the TRD. Since 1960, the TRD has been the major determinant of the hydrologic conditions affecting the mainstem Trinity River, particularly in the 40-mile reach downstream of Lewiston Dam. Figure 1 shows the locations of the proposed rehabilitation sites along the Trinity River.

Prior to authorization of the 2000 ROD for the Trinity River Mainstem Fishery Restoration FEIS/EIR, the average annual flow volumes released from the TRD into the Trinity River at Lewiston Dam were reduced from pre-dam conditions by as much as 90 percent. Consequently, channel form and function in this reach have been substantially altered. From 1962 to 1979, CVP diversions delivered nearly 90 percent of the water from the TRD to the Sacramento River for urban and agricultural use. After 1979, river releases were increased from 110,000 to 340,000 afa, substantially increasing the available flow to the Trinity River during the period between 1979 and 2002 (ROD flows). Although the 2000 ROD for the Trinity River FEIS/EIR established an annual volume based on water year types, litigation in federal court prevented implementation of the flow releases specified in the ROD in water years 2001-2004. Ultimately, the ROD was upheld, and the 2005 water year incorporated the schedule established by the TRRP in accordance with the ROD. This schedule is revised each year based on water year type.

Groundwater

Most usable groundwater in the mountainous Trinity River Basin occurs in widely scattered alluvium-filled valleys, such as those immediately adjacent to the Trinity River. These valleys contain only small quantities of recoverable groundwater and are therefore not considered a major source. A number of shallow wells adjacent to the river provide water for domestic purposes. These infiltration wells are often located near the river and may be affected by spring ROD flow releases (i.e., up to 11,000 cfs). Consequently, the TRRP in cooperation with Trinity County implemented the Trinity River Potable Water and Sewage Disposal System Assistance Program (Assistance Program) to allow qualifying landowners to relocate, replace, modify, or otherwise improve their potable water and sewage systems to better resist damage from ROD flows intended to benefit fisheries. The Assistance Program was a one-time only opportunity to receive financial assistance from the TRRP to ensure that ROD flows do not negatively affect existing infrastructure and site improvements (e.g., water sources and wastewater disposal systems). At the time the Master EIR was completed, approximately 75 wells/septic systems had been improved. Since that time, over 150 well/septic systems were replaced or improved with TRRP funding. The Assistance Program was discontinued in 2013 after a five-year open period, with approximately two-thirds of the landowners with qualifying systems obtaining assistance. Not all wells/septic systems were negatively impacted by the fishery flows, and there are a number of wells that are designed to be inundated, and often are, during the course of a water year.

Floodplain Hydrology and Hydraulics

The floodplain of the Trinity River is identified in FEMA's Flood Insurance Study, Trinity County, California, and Incorporated Areas (1996). Actual floodplain designations are contained in the

accompanying Flood Insurance Rate Map (FIRM). The countywide FIRM became effective on August 16, 1988, with an update in 1996.

Within the 40-mile reach of the Trinity River below Lewiston Dam, the river has adjusted to a flow and sediment regime imposed in large part by the TRD. While the degree of berm development varies within the 40-mile reach, the river channel has been simplified and the channel has narrowed over time. In general, the aquatic habitat in this reach of the river lacks complexity and is typified by a recurring sequence of pools, runs, glides, and low-slope riffle habitat. Though the annual hydrograph is influenced by accretion flow from tributaries, the main influence on river flows is the Lewiston Dam release. The closer to the dam, the greater its relative influence on river flows. In the vicinity of the dam (downstream to approximately Weaver Creek), the OHWM is equal to the normal year ROD flow release of 6,000 cfs. Downstream of Weaver Creek, winter flows have the dominant influence on the OHWM. Winter peak flows here frequently exceed spring ROD releases. The OHWM in the Canyon Creek area was estimated at 6,600 cfs (North Coast Regional Water Board and Reclamation 2006). The timing of peak flow and ramping-down releases under the ROD corresponds to the typical annual period of peak snowmelt floods in the watershed for each of the water year classes described in the ROD. Additional information on morphologic processes and Trinity River flows is provided in Sections 4.3 and 4.4, respectively, of the Master EIR.

The best available hydraulic analysis for the Trinity River is the Trinity River Hydraulic Flow Study: North Fork Trinity to Lewiston Dam developed by the California DWR for the TRRP using flow data from the 2005 Reclamation study (California DWR 2007). The California DWR study summarizes flow modeling of the mainstem Trinity River from Lewiston Dam to its confluence with the North Fork Trinity River, 40 miles downstream. The model estimates WSE based on a controlled flow release of 11,000 cfs from Lewiston Reservoir with 10-year and 100-year spring tributary flows. The TRRP has defined the 11,000 cfs release plus 100-year spring tributary flow event as the maximum fishery flow (MFF) for project planning and risk assessment purposes. Using the well grant assistance program, the TRRP has funded the structural improvement and relocation (or otherwise addressed problems with existing structures) within the MFF inundation zone to allow this maximum ROD flow to be implemented.

3.4.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Hydraulic models allow the preliminary evaluation of risks to Trinity River properties by comparing the WSE of the Proposed Project site's design conditions with the existing conditions. The comparison indicates how the features of the Proposed Project site could affect the base flood elevation (BFE) estimated by FEMA for the 100-year flood. One of the design criteria for the Proposed Project was developed to ensure that none of the proposed activities would result in an obstruction to flow or an increase in the BFE of more than 12 inches.

CEQA Significance Criteria

Impacts to water resources would be significant under CEQA if one of the following conditions occurred:

- It could subject people, structures, or other resources to substantial changes in flood hazards; or
- It would result in modification of groundwater resources.

Under CEQA, the Proposed Project would result in a significant impact related to hydraulics if one of the following conditions occurred:

- The base flood WSE would increase by more than 1 foot;
- There would be a substantial alteration of the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site; or
- It would expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

Under CEQA, the Proposed Project would result in a significant impact to groundwater if one of the following conditions occurred:

- There would be a long-term decline in groundwater elevations (or a net reduction in groundwater storage) due to interference with recharge;
- There would be detectable land subsidence;
- Any water quality standards or waste discharge requirements intended to protect groundwater quality would be violated; or
- There would be a detectable degradation of groundwater quality.

Groundwater impacts were assessed at the scale of a groundwater basin or sub-basin. The significance of declining (or increasing) water levels depends in part on the duration and permanence of the impact. Because groundwater elevations fluctuate naturally due to changes in rainfall, short-term changes in groundwater elevations are not considered significant impacts.

Impacts and Mitigation Measures/Project Design Features

Table 8 summarizes the potential water resources impacts that would result from the No Project and Proposed Project alternatives.

Table 8. Summary of Potential Water Resource Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.4-1. Implementation of the project could result in a temporary or permanent increase in the BFE.		
No impact	Less than significant	Not applicable[1]
Impact 3.4-2. Implementation of the project could result in a permanent decline in groundwater elevations or a permanent change in groundwater quality.		
No impact	Less than significant	Not applicable[1]
Impact 3.4-3. Implementation of the project would expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.4-1: Implementation of the Proposed Project could result in a temporary or permanent increase in the base floodwater elevation.

No Project Alternative

Under the No Project alternative, the Trinity River floodplain would not be altered and the existing BFE would not change because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The elevation and extent of the floodplain of the Trinity River would be modified through the activities associated with the Proposed Project, as described in Chapter 2. The Proposed Project would be consistent with the overall project objectives and design criteria established by the TRRP and the Regional Water Board and the hydraulic analysis indicates that removing all the excavated material from the riverine rehabilitation areas and placing it as coarse sediment within the channel or above the BFE in upland activity areas would not result in an increase in the FEMA BFE. Therefore, the impact would be less than significant.

Impact 3.4-2: Implementation of the Proposed Project could result in a permanent decline in groundwater elevations or permanent changes in groundwater quality.

No Project Alternative

Under the No Project alternative, no effects on local groundwater levels would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The displacement of channel and floodplain materials has only a minimal potential to change the groundwater hydraulics within the boundaries of the Proposed Project site. Groundwater table elevations and water volumes in nearby off-channel wetlands would not be affected because groundwater elevations in these areas are associated with river stage. The tendency of the surface water-groundwater system to move to equilibrium conditions and the overall absence of impacts to the regional driving mechanisms of groundwater recharge (seasonal precipitation and Trinity River flow regimes) suggest that no long-term impacts on water table elevations would occur. Therefore, this impact would be less than significant.

Impact 3.4-3: Implementation of the Proposed Project would expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.

No Project Alternative

Under the No Project alternative, no people or structures would be exposed to additional flood risks because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The Proposed Project would not result in activities intended to increase the BFE at the rehabilitation site. Activities intended to modify the bed and banks of the Trinity River could have ancillary impacts to the bed and banks downstream. To date, TRRP staff have identified several locations downstream of activity areas where the bank of the river appears to be responding to post-ROD changes in the flow and sediment regime.

While the fundamental objective of the activities associated with the Proposed Project is to reestablish the alluvial features of the river, isolated instances of bank erosion may result in the loss of river bank and associated vegetation or, to a lesser extent, constructed features such as wells, utilities, and landscape features. In addition to the Assistance Program for water and sewer, bank stabilization measures, specifically the bio-engineering measures described in Appendix A of the Draft EA/IS, are intended to address these impacts on a case-by-case basis, consistent with all federal, state, and local requirements. In concert with the ongoing efforts of the TRRP and the activities described in Chapter 2 and Appendix A of the Draft EA/IS, the Proposed Project is designed to avoid exposing people or structures to a significant risk of injury, death, or loss involving flooding. Therefore, this impact would be less than significant.

3.5 Water Quality

This section describes water quality conditions in the vicinity of the Proposed Project site along the Trinity River. It also evaluates potential impacts to water quality from implementation of the Proposed Project. The principal components of the TRD are Lewiston Dam, Trinity Dam, and the facilities that divert runoff from the Trinity River watershed to the Sacramento River Basin. Prior to full implementation of the ROD, up to 90 percent of the natural Trinity River flow was diverted, which substantially altered water quality in the Trinity River, particularly its temperature and sediment regimes. Additional information on the affected environment as it relates to water quality is

provided in the Master EIR, Section 4.5, Water Quality. Information related to this topic is also provided in the Master EIR in Section 4.4, Water Resources, and Section 4.6, Fisheries.

3.5.1 Affected Environment/Environmental Setting

The releases from the TRD influence flow volumes and velocities, water quality, and channel geometry downstream of Lewiston Dam. These influences are particularly important to water quality parameters such as temperature, turbidity, and suspended sediments. A dramatic decrease in the abundance of Trinity River coldwater fishes has taken place since the TRD began operation (USFWS and HVT 1999). Water quality in the Trinity River may also be affected by acid mine drainage from abandoned mines and past mining activities, sediment releases from land use practices associated with unstable soils and decomposed granite (e.g., roads, vegetation management, and subdivisions), septic tanks, aboveground and underground storage tanks, and lumber mills (Regional Water Board 2011).

The Proposed Project is subject to compliance with the Water Quality Control Plan for the North Coast Region (Basin Plan; Regional Water Board 2011). The beneficial uses for the Trinity River defined in the Basin Plan are listed in Table 4.5-1 of the Master EIR. In addition to municipal and domestic water supply, the beneficial uses affected by the water quality of the Trinity River are primarily those associated with supporting high-quality habitat for fish. Recreation (contact and non-contact) is another important beneficial use potentially affected by various water quality parameters (e.g., sediment and temperature). The Basin Plan identifies both numeric and narrative water quality objectives for the Trinity River. Table 4.5-2 in the Master EIR summarizes the water quality objectives for each of the categories that have been established by the Regional Water Board to protect designated beneficial uses.

Temperature

The influence of Trinity Lake and Lewiston Reservoir on downstream conditions diminishes with distance. In general, the greater the release volumes from Lewiston Dam, the less susceptible the river's temperature is to other factors. Releases from the TRD are generally cold (42 to 47 degrees Fahrenheit [°F]). These temperatures are transmitted through Lewiston Reservoir to the Trinity River below Lewiston Dam.

Sediment

In 1992, the Environmental Protection Agency (EPA) added the Trinity River to its list of impaired rivers under the provisions of Section 303(d) of the CWA in response to a determination by the State of California that the water quality standards for the river were not being met due to excessive sediment. In 2001, the EPA established a Total Maximum Daily Load for sediment in the river. The Regional Water Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of habitat for anadromous salmonids. The restriction of streamflows downstream of the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (EPA 2001). With implementation of ROD flows and placement of coarse sediment in the Lewiston area, local reductions in fine sediment in the river bed have been observed and fish spawning has increased. Recent measurements to compare in-channel fine sediment concentrations, pre- and post-ROD flows,

have indicated that gravel quality and river bed oxygen permeability have increased through the 40-mile reach. The percent fines measured in Trinity River samples at 2001 sites revisited in 2010, was measurably less than found in 2001 (Graham Matthews and Associates 2010).

Local fishermen (e.g., the Trinity River Guides Association) have recently expressed concern that TRRP addition of gravel to the river has resulted in the filling, or partial filling, of fishing holes (adult holding habitat) with gravel. In high-flow gravel augmentation areas, primarily the Sawmill and Lowden Ranch locations, holes have decreased in depth. Furthermore, due to high fishery flows released in spring 2011 (11,000 cfs from Lewiston Dam), riverbed and floodplain gravel have also moved more than in earlier years. While increased erosion and gravel movement during high flow years is to be expected, the TRRP has examined data, collected pre- and post-high flows, to determine the extent and type of change that has occurred on the river's bottom and an Assessment of Pool Depth Changes in the Trinity River between Lewiston Dam and the North Fork Trinity River (Gaeuman and Krause 2013) has been developed. The results, in combination with results of the Phase 1 review, are assisting the TRRP in determining how to proceed with future gravel augmentation at rehabilitation sites and during high flow augmentation efforts.

Turbidity

The Basin Plan (Regional Water Board 2011) contains water quality objectives to protect present and probable future beneficial uses of water and to protect existing high quality waters of the state. Water quality objectives form the basis for establishment of waste discharge permits. The Basin Plan contains a water quality objective for turbidity that applies to the Trinity River, including the Proposed Project site. The water quality objective for turbidity states, "Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon issuance of discharge permits or waiver thereof." An allowable zone of turbidity dilution is an area within water where turbidity discharges may increase the naturally occurring turbidity level by more than 20 percent. An allowable zone of turbidity dilution may only be granted in waste discharge permits if all beneficial uses (identified in Table 4.5-1 of the Master EIR) remain protected.

The turbidity level in a water body is related to the concentration of suspended solids, which are predominantly less than 0.5 millimeter (mm) in diameter. Water clarity has historically been measured as the concentration of suspended solids (milligrams per liter [mg/L]) or more recently as turbidity, which is measured in NTUs. Turbidity generally does not cause acute adverse effects to aquatic organisms unless concentrations are extremely high (Lloyd 1985). Noggle (1978) estimated an acute lethal concentration causing 50 percent mortality of juvenile coho salmon at 1,200 mg/L during summer (approximately 900 NTUs). At relatively high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly (e.g., ability to feed) or indirectly (e.g., impact to food supply or spawning substrate) (Alabaster and Lloyd 1980). However, at lower levels, effects of turbidity last as long as the perturbation in clarity and are limited to reducing reactive distance to prey as well as predation risk. For instance, if periods of increased turbidity occur during periods of merganser (fish predator) activity, the turbidity would probably be used as protective cover that would provide an overall benefit to the fish (Regional Water Board and Reclamation 2009). In the laboratory, benthic feeding success of coho salmon in water with turbidity

levels as high as 100 NTUs has been found to be at least 70 percent of their feeding success in clear water (Harvey and White 2008). During low flow restoration activities, adult salmon have been observed using the more turbid sections of the river (10 to 15 NTUs) as protective cover during their spawning migrations through the project areas (Gutermuth, pers. obs.). Finally, the Alaska Department of Environmental Conservation (ADEC; 2008) has determined that turbidity levels for protection of aquaculture in flowing conditions may not exceed 25 NTUs above natural conditions, and that this level is protective of fishery resources.

The Trinity River is typically very clear with natural background turbidity levels in the range of 0 to 1 NTU during summer low flow conditions. Due to the very low background concentrations during the summer, turbidity levels immediately downstream of the most carefully planned and implemented in-channel restoration activities will likely be increased by more than 20 percent above background levels, and plumes extending downstream of restoration activities may be visible. However, short-term increases in turbidity levels that occur during permitted restoration activities are generally not considered to be biologically detrimental to aquatic organisms; they are short in duration and fish are able to move away from the activity area. Reduction of these turbidity levels to within 20 percent above background is very expensive if not impossible using BMPs. Monitoring turbidity increases during implementation of previous Trinity River restoration projects has shown that periods of increased turbidity are brief (generally less than 24 hours); turbidity levels have not exceeded 50 NTUs at monitoring points located 500 feet downstream and beneficial uses were still protected. In addition, the quantity of fine sediment introduced to the river during low flow restoration activities is typically small.

In contrast, sediment particles between 0.5 mm and 8.0 mm in diameter tend to settle more quickly. These larger sediment particles can decrease the permeability of the channel bed and cover spawning sites, causing negative impacts on the aquatic community (USFWS and HVT 1999). However, as long as the larger sediment particles are only mobilized into the water column from completed restoration activity areas and off-site sources during high flows, the larger sediment particles will be transported far down-river or deposited on adjacent alluvial features (e.g., floodplains) where these particles contribute to riparian form and function (e.g., plant growth).

Post construction monitoring data from the Indian Creek site and the Canyon Creek suite of sites indicate that downstream turbidity levels may be increased by overland flow during the initial high flow events that occur following completion of construction activities. During high flow spring-time releases from Lewiston Dam (e.g., clear water released from the dam during ROD flows), turbidity levels may be increased by more than 20 percent at monitoring locations 500 feet or more downstream of recently completed channel rehabilitation sites. However, when the high flows are caused by natural storm water runoff in the Trinity River Basin, and the river is already carrying a substantial sediment load (e.g., turbidity greater than 40 NTUs), background levels are generally not increased by more than 20 percent at monitoring locations downstream of recently completed activities. Furthermore, during natural high flow events the relative addition of fine sediment from recently completed channel rehabilitation sites is minimal compared to the sediment load already being transported by the river (Gutermuth, pers. obs.). In both of these high flow scenarios, impacts to the Trinity River from the addition of TRRP related fine sediment is minimal because the materials that increase turbidity levels are maintained in suspension and transported downriver or deposited on the floodplain in the same manner as fine sediment from other sources. In both low flow and high

flow scenarios, as long as project related turbidity level increases are limited in concentration and duration, impacts to aquatic life and beneficial uses are expected to be minimal in comparison to the long-term aquatic habitat benefits that the Proposed Project is designed to create.

Mercury

Another source of potential water quality impairment of the Trinity River is mercury. Although the river is not listed under Section 303(d) of the CWA for mercury impairment, elevated concentrations have been found in water, sediment, and biota (i.e., fish, frogs, and predatory aquatic insects) in the upper Trinity River Basin upstream of Lewiston Dam (USGS, unpublished data). The general significance of mercury as a biological toxin and the likely sources of mercury in regional and local contexts are discussed in Section 4.13, Hazards and Hazardous Materials, of the Master EIR.

Early in the planning phases for the mechanical channel rehabilitation projects along the Trinity River, the TRRP recognized the possibility that mercury in placer tailings and/or fluvial fine sediments could be disturbed and mobilized by the rehabilitation activities. USGS monitoring suggests that the alluvial materials that are subject to project-related disturbance contain levels of mercury well below the numeric criteria promulgated by the EPA for priority toxic pollutants. Overall, the USGS assessment of site-specific methylation data suggests that the bioavailability of mercury in the Trinity River and its floodplain is not presently high and would not likely be modified by the Proposed Project.

3.5.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

For the past 11 years, the TRRP has implemented a number of channel rehabilitation projects and completed similar activities to those proposed at the Proposed Project site. While the type and intensity of these activities vary, the effects of the activities on water quality in the Trinity River are well understood. Impacts on water quality were determined by analyzing whether the proposed modification of the physical features and biological conditions at the Proposed Project site would comply with Basin Plan objectives for the Trinity River.

CEQA Significance Criteria

The Proposed Project would result in significant adverse impacts to water quality under CEQA if it would result in any of the following:

- Violations of state or federal numerical water quality standards or state or federal narrative water quality objectives;
- Substantial degradation of water quality, such that existing beneficial uses are precluded specifically because of degraded water quality;
- Violation of any waste discharge requirements and/or Section 401 Certification conditions;

- Substantial alterations of the course of a stream or river in a manner that would result in substantial erosion or siltation onsite or offsite; or

- Violation of site-specific temperature objectives for the Trinity River contained in the Basin Plan (Regional Water Board 2011).

Impacts and Mitigation Measures/Project Design Features

Table 9 summarizes the potential water quality impacts that would result from the No Project and Proposed Project alternatives.

Table 9. Summary of Potential Water Quality Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.5-1. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.		
No impact	Significant	Less than significant
Impact 3.5-2. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.		
No impact	Significant	Less than significant
Impact 3.5-3. Construction of the project could cause contamination of the Trinity River from hazardous materials spills.		
No Impact	Significant	Less than significant
Impact 3.5-4. Construction of the project could result in increased stormwater runoff and subsequent potential for erosion.		
No impact	Less than significant	Not applicable[1]
Impact 3.5-5. Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.		
No impact	Significant	Less than significant

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.5-1: Construction of the Proposed Project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.

No Project Alternative

Under the No Project alternative, no construction-related short-term increases in turbidity or total suspended solids levels would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The activities described in Chapter 2 for the Proposed Project would temporarily increase turbidity and total suspended solids in the Trinity River. The incorporation of design elements and construction criteria described in Appendix B (e.g., in-river construction, water pollution prevention, and construction schedules) are intended to limit the total addition of fine suspended sediment to the Trinity River. Additionally, river's edge and in-channel construction activities would be staged to minimize potential turbidity effects. During in-channel construction activities, increases in turbidity levels could occur because of excavation of alluvial material. Connection of isolated and newly constructed side channels with the mainstem (e.g., the first flush of flowing water) would result in short-term increases in turbidity levels as this material is removed from and/or redistributed within the channel. Fine sediments may be suspended in the river for several hours following construction activities. The extent of downstream sedimentation would be a function of the size and mobility of the substrate. For example, fine-grained sediments like silts and clays can be carried several thousand feet downstream of construction zones, while larger-sized sediments like coarse sands and gravels tend to drop out of the water column within several feet of the construction zone. Collectively, the activities included in the Proposed Project could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially violate the Basin Plan objectives for turbidity in the Trinity River. Short-term increases in turbidity and suspended solids levels during construction would be a significant impact.

The temporary crossing at the site would provide access for in-channel and riverine work areas. The low-flow channel crossing would be constructed of appropriately sized alluvial materials. Placement of alluvial fill materials could temporarily increase turbidity and suspended materials during and immediately following crossing construction. Removal and distribution of alluvial materials upon deconstruction of the low-flow channel crossing could also increase turbidity and suspended materials during and immediately following excavation.

Mitigation Measures/Project Design Features

Construction of the Proposed Project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction. Therefore, mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce impacts to less than significant.

Impact 3.5-2: Construction of the Proposed Project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.

No Project Alternative

Under the No Project alternative, no short-term increases in turbidity or total suspended solids levels would occur following construction because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The character and location of alluvial features associated with the Trinity River were modified by the construction and operation of the TRD in response to changes in the flow and sediment regimes, particularly the loss of scouring associated with peak flows. Modification or reconstruction of these alluvial features at strategic locations would promote the river processes necessary for the restoration and maintenance of Trinity River alternate bars, thereby enhancing salmonid rearing habitat. These activities would also increase the habitat available for salmonid rearing under various flows.

Activities associated with implementing the Proposed Project would increase turbidity and total suspended solids in the river and fluvial surfaces following construction. These increases in turbidity levels would occur when newly disturbed areas are exposed to elevated river stages during high river flows. Ground-disturbing activities including tree removal have the potential to result in short-term, temporary increases in turbidity and total suspended solids levels after construction. Erosion control measures (water bars, hay, baffles, etc.) may be utilized in tree removal areas if soil erosion conditions arise to reduce potential impacts to water quality from these activities. Fine sediments may be suspended in the river for several hours following such exposure and erosion. The extent of downstream sedimentation would be a function of the rainfall intensity and/or instream flow velocity, as well as the particle size of exposed sediments. Lower intensity rainfalls would be unlikely to mobilize fine sediments because precipitation would be absorbed. If fine sediments are mobilized by flow over newly disturbed areas, they could be carried several thousand feet downstream of the activity areas, while larger sized sediments (i.e., sands and gravels) would tend to drop out of the water column within several feet of the activity areas.

Post-construction exposure of sediments to rainfall and/or flows would result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially be in violation of the Basin Plan turbidity objective for the Trinity River. A short-term increase in turbidity and suspended solids levels following construction would be a significant impact.

Mitigation Measures/Project Design Features

Construction of the Proposed Project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction. Therefore, mitigation measures 4.5-2a, 4.5-2b, and 4.5-2c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.5-3: Construction of the Proposed Project could cause contamination of the Trinity River from hazardous materials spills.

No Project Alternative

Under the No Project alternative, no construction-related contamination of the Trinity River from spills of hazardous materials would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Construction staging activities could result in a spill of hazardous materials (e.g., oil, grease, gasoline, and solvents) into the Trinity River. In addition, operation of construction equipment in or adjacent to the river would increase the risk of a spill of hazardous materials into the river (e.g., from leaking of fluids from construction equipment). Spills of hazardous materials into or adjacent to the Trinity River could degrade water quality and have deleterious effects on salmonids of any life stage that are in close proximity to construction activities. Section 3.13, Hazards and Hazardous Materials, evaluates potential effects associated with exposing the public to hazards associated with the transportation and use of hazardous materials at the rehabilitation site. Requirements outlined in Chapter 2 and mitigation measures described in Appendix B would be incorporated into the Proposed Project to reduce the potential impact. However, because construction activities could result in a spill of hazardous material, this would be a potentially significant impact.

Mitigation Measures/Project Design Features

Construction of the Proposed Project could cause contamination of the Trinity River from hazardous materials spills. Therefore, mitigation measures 4.5-3a, 4.5-3b, and 4.5-3c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.5-4: Construction and maintenance of the Proposed Project could result in increased stormwater runoff and subsequent potential for erosion.

No Project Alternative

Under the No Project alternative, there would be no increases in stormwater runoff and the potential for subsequent erosion because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Implementation of the Proposed Project as defined in Chapter 2, including those measures described in Appendix B, would not result in an increase in impervious surface areas (e.g., structures and roadway approaches) that could subsequently generate additional stormwater runoff and potential for erosion. Grading activities, including the use of rippers during grading activities, are expected to eliminate surface runoff during the first year after construction. Access routes would be located on gentle terrain and would require minimal grading. The impact associated with runoff and erosion would, therefore, be less than significant.

Impact 3.5-5: Construction and maintenance of the Proposed Project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.

No Project Alternative

Under the No Project alternative, no degradation of Trinity River beneficial uses would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, significant impacts to beneficial uses of the Trinity River could occur in the following categories of water quality objectives listed in the Basin Plan:

- Sediment,
- Toxicity,
- Turbidity,
- Settleable material,
- Suspended material, and
- Chemical constituents.

The impacts would be associated with riverine and in-channel work including the placement and deconstruction of low-flow channel crossings. Although the design elements and construction methods described in Chapter 2 are intended to minimize these impacts, the activities associated with construction, particularly in riverine and in-channel activity areas, would result in significant impacts that would be mitigated by the measures listed in Appendix B.

Mitigation Measures/Project Design Features

Construction and maintenance of the Proposed Project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan. Therefore, mitigation measures identified above for Impacts 3.5-1, 3.5-2, and 3.5-3 and described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. These particular mitigation measures address potential impacts to multiple resources, but they are only listed once in an attempt to reduce the size of the document. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.6 Fishery Resources

This section describes the fishery resources and aquatic habitats that are known to occur within the boundaries of the Proposed Project site and evaluates the impacts of the Proposed Project on these resources. The TRFEFR (USFWS and HVT 1999) determined that lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor limiting the recovery of salmonid populations in the Trinity River. Activities at the Proposed Project site are specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, increasing channel sinuosity, and providing shallow low velocity habitats in close proximity to the river's edge. The discussion of fisheries resources is based on a focused literature review, informal consultation with resource agencies, and observations made during site visits. These resources are discussed in the Master EIR (Section 4.6 and Appendix G). The Magnuson-Stevens Fishery Conservation and Management Act and Essential Fish Habitat (EFH) are also described in the Master EIR (Section 4.6).

3.6.1 Affected Environment/Environmental Setting

Native Anadromous Fish Species

The native anadromous species of interest in the mainstem Trinity River and its tributaries are Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss irideus*) and Pacific lamprey (*Entosphenus tridentatus*). There are two spawning races of Chinook salmon (spring- and fall-run) and two spawning races of steelhead (winter- and summer-run). The life histories and fresh water habitat requirements of these and other species and their distinct spawning populations are described in Appendix G of the Master EIR.

Resident Native and Non-Native Fish Species

Resident native fish species found in the Trinity River Basin include game fish such as rainbow trout (*Oncorhynchus mykiss*) and non-game fish such as speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), Klamath River lamprey (*Entosphenus similis*), three-spined stickleback (*Gasterosteus aculeatus*), coast range sculpin (*Cottus aleuticus*), and marbled sculpin (*Cottus klamathensis*). The abundance of resident native species and the factors affecting their abundance within the basin are not well understood; however, all these species evolved and existed in the Trinity River prior to the TRD and are presumably adapted to those conditions.

Non-native fish species found in the Trinity and Klamath River Basins include American shad (*Alosa sapidissima*), brown bullhead (*Ameiurus nebulosus*), green sunfish (*Lepomis cyanellus*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (USFWS, unpublished data). American shad occur in the lowermost portions of the Trinity River Basin, but are primarily found in the Lower Klamath River Basin. Anadromous brown trout were propagated in the Trinity River Salmon and Steelhead Hatchery until 1977, when this practice was discontinued because of small numbers and the lack of anadromous characteristics of fish entering the hatchery. Currently, brown trout are largely limited to the upper portions of the river, although some brown trout exhibit anadromous characteristics. Brook trout provide a significant sport fishery in the tributary streams and high-elevation lakes of the Trinity River Basin. Its life cycle and habitat requirements are similar to those of brown trout. The structure and abundance of populations of these species in the Trinity and Lower Klamath River Basins are unknown.

Special Status Species

This section contains a discussion of special-status fish species. Special status fish species with the potential to occur at rehabilitation sites in the Trinity River are discussed in the Master EIR (Section 4.6 and Appendix G) and are summarized below. For the purposes of this evaluation, special-status fish species include species that are (1) listed as threatened or endangered by the state or federal governments under the Endangered Species Act (ESA) or California Endangered Species Act (CESA); (2) proposed or petitioned for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; or (4) identified by CDFW as species of special concern and/or California Fully Protected Species. A list of special-status fish species to be considered for analysis was compiled by performing a search of the California Natural Diversity Database (CNDDB); informal consultations with the CDFW, USFWS, and NMFS; and a review of

applicable biological literature. Special status fish species considered for this analysis are included in Table 10.

Table 10. Special-Status Fish Species Considered for Analysis.

Common Name (Scientific Name)	Status FED/ST/BLM[1]	General Habitat	Comments
Southern Oregon/ Northern California Coasts ESU coho salmon *(Oncorhynchus kisutch)* Designated critical habitat	T/T/S2	Juveniles prefer deep (≥1 m) pools with dense overhead cover and clear water. Found over a range of substrates from silt to bedrock (Moyle et al. 1995). Trinity River is designated critical habitat and essential fish habitat for the species.	Suitable spawning, rearing, and/or migration corridor habitat exists within the project area.
Klamath Mts. Province ESU steelhead *(Oncorhynchus mykiss irideus)* (summer/fall- and winter-run races)	NW/SSC/S2S3	Freshwater rivers and streams (Trinity and Klamath Rivers and their tributaries). Steelhead require cool, swift, shallow water; clean, loose gravel for spawning; and suitable large pools in which to spend the summers.	Summer-run race is a state species of special concern. Suitable spawning, rearing, and/or migration corridor habitat exists within the project area.
Upper Klamath-Trinity Rivers ESU Chinook salmon *(Oncorhynchus tshawytscha)* (spring- and fall-run races)	NW/SSC/S2	Freshwater rivers and streams. (Trinity and Klamath Rivers and their tributaries). Chinook salmon require cool streams with deep pools and riffles and gravel or cobble substrate. Trinity River is designated essential fish habitat for the species.	Spring-run race is a state species of special concern. Suitable over-summering, spawning, rearing, and migration corridor habitat exists at or near the project area.
Pacific lamprey *(Lampetra tridentata)*	NW/--/S4	Spawn in freshwater rivers and streams with juveniles found in slow-moving current, silty bottom habitats; metamorphosed juveniles migrate through estuaries to the ocean.	Observed to spawn in tributaries of the upper river; Ammoecetes abundant during spring near the project area.
Green sturgeon *(Acipenser medirostris)*	SSC/SC/S2	Known to spawn in Sacramento, Feather, and Klamath rivers, and juveniles may occur in estuaries. Occurs in San Francisco, San Pablo, and Suisun bays and in the Delta. Prefers to spawn in large cobble; eggs fertilized in relatively high water.	The species may be found in the lower Trinity River, but is not known to inhabit the upper Trinity River. Project boundaries are outside the known range of the species. Therefore this species is not considered further.

[1] Federal (FED), State (ST), and BLM Status Codes: E = Endangered; T = Threatened; C = Candidate Species; NW = Not Warranted for Listing; SC = Species of Concern; SSC = Species of Special Concern

S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.

S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors.

Coho Salmon

The Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon was listed as threatened pursuant to the federal ESA on April 25, 1997. This listing includes coho salmon from the Trinity River and Klamath River Basins. Critical habitat for the SONCC ESU coho salmon was designated on May 5, 1999; in the Trinity River Basin, designated critical habitat for this species consists of the water, substrate, and adjacent riparian zone of those estuarine and riverine reaches (including off-channel habitats and accessible tributaries) downstream of Lewiston Dam (Federal Register Vol. 64, No. 86, May 5, 1999, 24049-24062). The 2000 Biological Opinion (BO) on the Trinity River Mainstem Fishery Restoration FEIS/EIR (NMFS 2000) found that the program "*is not likely to jeopardize the continued existence of the [SONCC ESU] coho salmon*," and "*is not likely to destroy or adversely modify critical habitat for the [SONCC ESU] coho salmon.*"

Both Reclamation's 2000 Biological Assessment (BA) and NMFS' subsequent 2000 BO acknowledged that construction at channel rehabilitation projects would not occur "within the wetted channel." However, in-channel work would occur related to proposed activities at the Proposed Project site. After considerable restoration planning and design work by TRRP staff, NMFS, with support from the TMC, now considers in-channel work a necessary component to successfully carry out and achieve program goals and objectives as detailed in the ROD. The TRRP concluded that reinitiation of formal consultation under Section 7 of the ESA was not warranted because effects to SONCC coho salmon were consistent with and not likely to rise above those that were considered in the original 2000 BO. In May 2006, NMFS concurred that reinitiation of formal consultation was not warranted if bank rehabilitation activities were authorized within the wetted channel (NMFS 2006). Reclamation is currently working to update the 2000 BA in cooperation with NMFS, which serves as a member agency of the TMC. Until that analysis is completed and NMFS has issued a new BO, the existing 2000 BO will provide continuing coverage/compliance for TRRP activities.

Steelhead

The KMP ESU of steelhead, which includes stocks from Trinity River, was proposed for federal listing as threatened on March 16, 1995; however, on February 7, 1998, NMFS determined that the population did not warrant threatened status, but that it did warrant candidate status (as defined by NMFS). Subsequent information on the KMP ESU steelhead was evaluated and NMFS made a final listing determination that the ESU did not warrant listing in April 2001 (Federal Register Vol. 66, No. 65, April 4, 2001, 17845-17856). The summer-run population segment of this ESU remains a California Species of Special Concern, as well as a USFS sensitive species (Moyle et al. 1995; USFWS 1995).

Chinook

Similarly, in a 1998 status review of all west coast Chinook salmon stocks (Myers et al. 1998), the Upper Klamath-Trinity Rivers ESU Chinook salmon was determined to not warrant listing as a threatened or endangered species under the ESA. However, spring-run Chinook salmon within the Klamath-Trinity Basin is a California Species of Special Concern (Moyle et al. 1995).

Pacific Lamprey

The Pacific lamprey, along with three other lamprey species, was petitioned for federal listing in 2003. On December 27, 2004, the USFWS announced that the petition along with additional information does not present substantial scientific or commercial information indicating that listing of these species may be warranted (Federal Register Vol. 69, No. 247, December 27, 2004, 77158-77167). BLM lists the Pacific lamprey as a sensitive species (USDI BLM 2008).

Local Aquatic Habitat

Flows in the Trinity River downstream from Trinity and Lewiston Dams have been regulated since Trinity Dam closed in 1960. Diversion of up to 90 percent of the Trinity streamflow to the Sacramento River basin in the 1960s and 1970s led to substantial geomorphic change in many locations along the river, with the predominant responses being channel narrowing and vegetative encroachment along the channel margins (TRRP Federal Design Group 2014). A review of historic aerial photographs between 1944 and 2012 provides insight into channel changes over time at the Bucktail site. These photographs show a dramatic decrease in bankfull channel width between 1944 and 2012 (HVT et al. 2013). Reduced flows from Trinity Dam operations narrowed the existing bankfull channel width of 200-250 feet down to its current bankfull width of between 100 and 120 feet. Safety of Dam releases, tributary floods, and ROD high flow releases have exacerbated the problem, depositing additional fine sediment along the left bank and scouring the channel into its current rectangular form with near vertical banks. The channel upstream of RM 105 is primarily comprised of gravel and cobble (HVT et al. 2013).

The aquatic environment in the general vicinity of the project area is characterized by a sequence of aquatic mesohabitat types. Each of these habitat types consists of distinctive combinations of depth, water velocity, water temperature, cover, substrate composition (bedrock, cobble, gravel, sand, silt, etc.), and adjacent riparian vegetation. Figure 5 illustrates aquatic mesohabitat as qualitatively defined by the USFWS in a 2002 survey.

In general, moderate slope (near riffle) and low slope (glide) areas equate to faster reaches than deep pools, and runs, which are intermediate in depth. A low slope area may alternatively be named a glide and moderate slope areas (near riffle) often include aerated waters. Riparian vegetation directly adjacent to the river is referred to as shaded riverine aquatic (SRA) habitat and is included as a component of designated critical habitat for coho salmon, as well as a component of EFH for both coho and Chinook salmon. Juvenile coho are expected to utilize suitable habitats in the 40-mile reach of the mainstem Trinity River below Lewiston Dam year-round (Regional Water Board and Reclamation 2009). Pool habitat associated with boulders and large wood is particularly preferred by rearing coho salmon (Hassler 1987; Sandercock 1991; Moyle 2002).

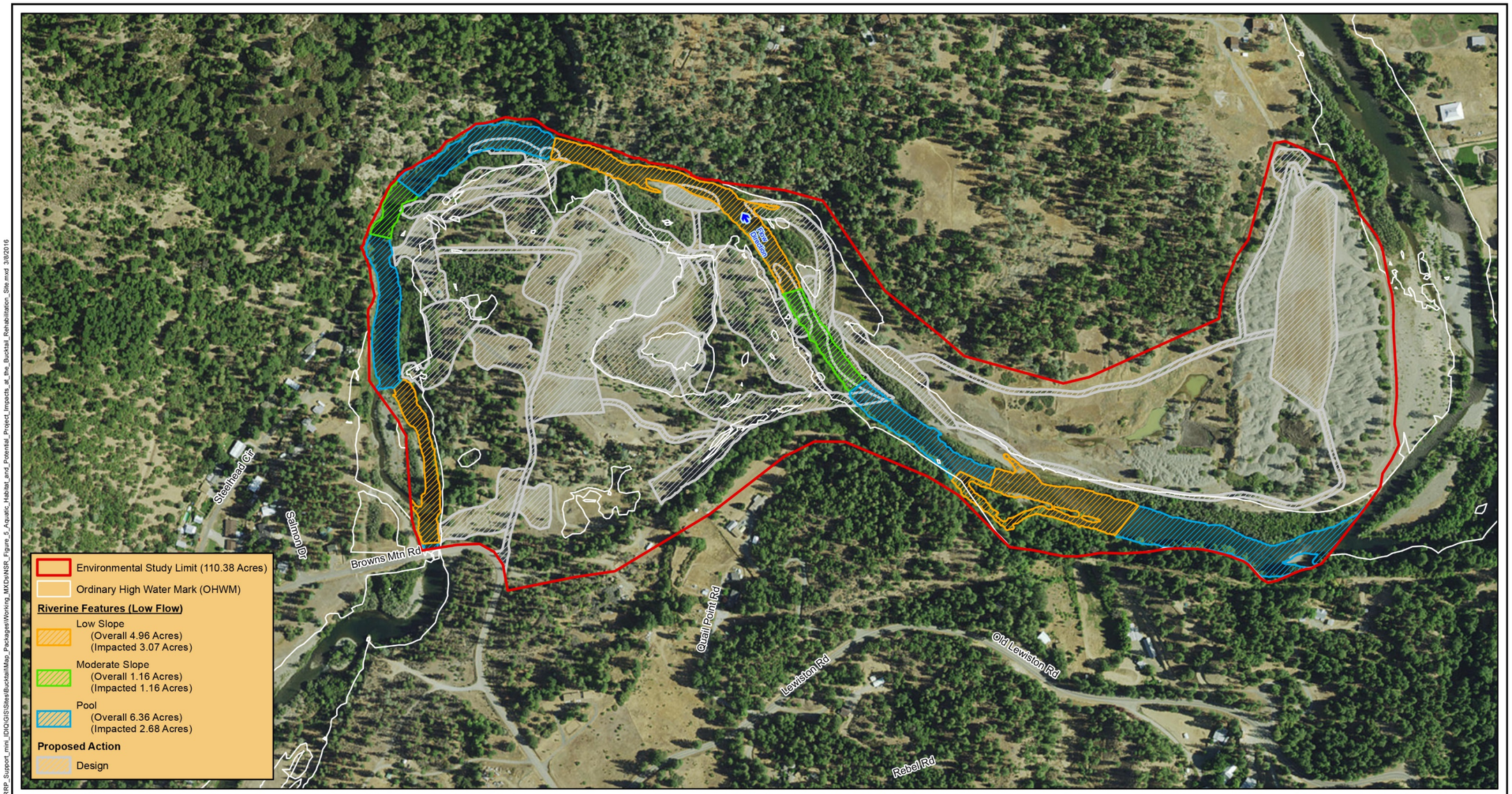


Figure 5. Aquatic Habitat and Potential Project Impacts at the Bucktail Rehabilitation Site.

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In 2003, a radio-telemetry study of migration and behavioral thermoregulation of adult spring-run Chinook salmon was conducted in the upper Trinity River (Marine and Lyons 2004). Tagged fish used available run and glide habitats that were typically large (surface area) and offered depths up to 4 feet. These habitats held fish for longer periods than other portions of the study reach. Adult summer/fall-run steelhead migrate to, and hold in, the deeper pools, runs, and glides along the river between April and January (Leidy and Leidy 1984; Moyle 2002). These fish are active throughout the salmon spawning season, and migrate to the upper-most river reaches and into tributaries to spawn from February through April.

Winter-run steelhead migrate to spawning grounds from November through April and spawn during the same time as the summer/fall run. Suitable steelhead spawning habitat occurs in riffles throughout the river. Suitable juvenile steelhead rearing habitat also occurs in the river. Fry and juvenile steelhead of both runs may be expected in the riffles and run/pool habitats year-round, especially those associated with abundant SRA and large cobble/boulder habitat, including large wood (Hampton 1988; Moyle 2002).

Suitable spawning habitat for anadromous salmonids occurs in most riffles, particularly in low-slope riffles and tail-outs of pools and deep run/glide habitats. Salmon spawning surveys in the upper Trinity River conducted annually by the CDFW (in cooperation with the YT, USFWS, and USFS) report that the greatest concentration of Chinook and coho salmon spawning occurs in the upper survey sections, which range from Lewiston Dam to Old Lewiston Bridge and Old Lewiston Bridge to Bucktail Bridge. Approximately 15 Chinook redd locations were mapped in the Bucktail reach in 2012 (HVT et al. 2013). Currently the Bucktail reach provides approximately 126,930 square feet of Chinook pre-smolt habitat and 61,660 square feet of Chinook fry habitat at 300 cfs. At 1,200 cfs the reach provides approximately 80,990 square feet of pre-smolt habitat and 38,600 square feet of fry habitat, and at 2,000 cfs there is 162,600 square feet of pre-smolt habitat and 88,150 square feet of fry habitat (HVT et al. 2013).

Habitat Conditions

Construction and operation of the TRD, combined with watershed erosion, large-scale gold dredging, and other human-caused disturbances, have resulted in major changes in habitat conditions in the Trinity River. Factors that have resulted in adverse effects on fish habitat include:

- Obstruction to river reaches upstream of the TRD (Lewiston Dam);
- Changes to quantity and timing of flows;
- Changes in channel geomorphology;
- Changes in substrate composition caused by the addition of fine sediments and restriction of gravel recruitment; and
- Changes in water temperature.

These factors are addressed in other sections of this document, specifically Section 3.3, Geology, Fluvial Geomorphology, and Soils; Section 3.4, Water Resources; and Section 3.5, Water Quality, as well as in the respective sections of the Master EIR. The relationship between these factors and fish is summarized in the following paragraphs.

The TRD blocked access to 59 miles of Chinook salmon habitat, 109 miles of steelhead habitat, and an undetermined amount of coho salmon habitat (USFWS 1994). Much of this habitat is thought to have been prime spawning and rearing habitat. In the case of Chinook salmon, it represented about 50 percent of the suitable spawning habitat in the upper Trinity River Basin. As early as 1980, the overall decline in spawning habitat was estimated at 80 to 90 percent (USFWS 1980). Furthermore, the blocking of salmon access to upstream reaches greatly reduced the diversity of habitats available to salmon in the Trinity River.

For the first 21 years of TRD operations (1964 to 1985), Lewiston Dam releases to the Trinity River averaged only 21 percent of the natural river inflow. The reduction in flows led to a reduction in habitat and declining quality in the remaining habitat. For example, spawning habitat losses in the mainstem Trinity River below the Grass Valley Creek confluence have been estimated to be 80 percent in the first 2 miles and up to 50 percent overall in the 6 miles downstream of that confluence (USFWS 1994).

The altered patterns of fluvial geomorphic processes in the upper Trinity River have resulted in a reduction in the number of alternate gravel bar sequences with a resultant change in substrate quality and a loss of important salmonid habitats associated with the alternate bars (e.g., pools, riffles, open gravel/cobble bars, and slack-water habitats). Additionally, functional side-channel habitat has also been affected by modifications to alluvial deposits.

Changes in substrate composition occur in conjunction with upland and riverine processes. The construction and operation of the TRD have modified the sediment regime of the mainstem Trinity River, particularly the 40-mile reach below Lewiston Dam. The thermal environment of the Trinity River has also changed as a combined result of the construction and operation of the TRD and the subsequently altered geomorphic patterns of the river downstream. In comparison to pre-TRD conditions, water temperatures below Lewiston Dam today are cooler in the summer and warmer in the winter.

Early Habitat Restoration Projects

The Trinity River Basin Fish and Wildlife Restoration Program conducted a variety of restoration activities in the mainstem Trinity River and its tributaries over the years. Restoration activities in the mainstem Trinity River included coarse sediment (spawning gravel) supplementation, pool dredging to remove fine sediment and restore valuable holding habitat and construction of several channel rehabilitation projects (side channels and bank rehabilitation of point bars). From 1990 through 1993, the Trinity River Basin Fish and Wildlife Restoration Program constructed 29 channel rehabilitation projects on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River, 20 side-channel projects, and nine bank rehabilitation projects (also known as feathered-edge projects). Monitoring of the previous channel rehabilitation projects has documented Chinook salmon spawning within the constructed side-channels and along some “feathered-edge” sites (Regional Water Board and Reclamation 2009; USFWS, unpublished data). An evaluation of the monitoring results associated with early restoration efforts concluded that “when properly constructed, bank rehabilitation can effectively increase the amount of salmonid fry rearing habitat in the Trinity River” (USFWS and HVT 1999).

3.6.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The analytic methods used to assess potential impacts of the Proposed Project on fisheries resources included a comprehensive literature search and focused field surveys. Evaluation of the presence of special status fish species and sensitive habitats within the boundaries of the site was conducted by performing a database search of the CNDDB, informally consulting with resource agencies (e.g., CDFW, NMFS, and USFWS), and reviewing environmental documents and technical studies prepared for projects in the vicinity. Aquatic habitat within the 40-mile reach below Lewiston Dam was identified and characterized based on the USFWS mesohabitat delineations map, reconnaissance-level site visits, consultation with local fishery biologists, and review of pertinent literature and data. These efforts were conducted to provide an overview of the quality and character of potential suitable spawning, holding, and rearing habitat present.

CEQA Significance Criteria

Significance criteria used to assess the potential impacts of the Proposed Project on fisheries resources are based on the current scientific understanding of the biological requirements and ecological status of the species of interest, and the regulatory standards of county, state, and federal agencies, including the CEQA Guidelines. Under CEQA a significant impact on anadromous salmonids and other native fish would occur if the project would result in any of the following:

- Potential to substantially reduce the number or restrict the range of an endangered or threatened native fish species or a native fish species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native fish species other than those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native fish population to drop below self-sustaining levels;
- Substantial adverse effect, either directly or through habitat modifications, on any native anadromous species identified as a sensitive or special status fish species in local or regional plans, policies, or regulations;
- Substantial interference with the movement of any native anadromous or resident fish species;
- A conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan relating to the protection of native anadromous species or resident fish species;
- Mortality of state or federally listed fish species, or species that are candidates for listing or proposed for listing;

- Reductions in the size of the population of a native fish species sufficient to jeopardize its long-term persistence;
- Temporary impacts to habitats such that native fish species suffer increased mortality or lowered reproductive success that jeopardizes the long-term persistence of those local populations;
- Permanent loss of designated critical habitat and/or essential habitat of a listed species or special status native fish species; or
- Reduction in the quantity or quality of habitats in which native fish species populations occur sufficient to reduce the long-term abundance and productivity of local populations.

Impacts and Mitigation Measures/Project Design Features

Table 11 summarizes the potential fisheries impacts that would result from the No Project and Proposed Project alternatives.

Table 11. Summary of Potential Fishery Resource Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.6-1. Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-2. Implementation of the project could result in increased erosion and sedimentation that could adversely affect fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-3. Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-4. Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-5. Implementation of the project would result in the permanent and temporary loss of SRA habitat for anadromous salmonids.		
No impact	Significant	Less than significant
Impact 3.6-6. Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.		
No impact	Significant	Less than significant

Impact 3.6-1: Implementation of the Proposed Project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.

No Project Alternative

Under the No Project alternative, there would be no effects on spawning and rearing habitat other than those associated with current ongoing actions because the project would not be constructed. As described in Chapter 1, the TRRP and other entities have been implementing channel rehabilitation projects for several years. These projects continue to affect the Trinity River with regards to flows, sediments, channel morphology, and riparian vegetation. These effects would continue to influence the spawning and rearing habitat for anadromous fishes, irrespective of this alternative.

Proposed Project

Features proposed at the site would have beneficial effects on fisheries as described below. IC-1 would increase channel complexity and shallow low velocity refuge at a variety of flows. Area IC-2 combined with IC-6 and BDA-1 would provide up to 90,000 square feet of fry and juvenile rearing habitat that meets criteria for depth, velocity, and with the placement of habitat structures, cover. Constructed riffles within areas IC-2 and IC-6 would provide adult salmonid spawning areas and productive BMI habitat that increases food resources for fry and juvenile salmonids during critical winter and spring rearing periods. Area IC-6 is designed to drain seasonal wetlands to avoid juvenile fish stranding. This feature would provide fry and juvenile rearing habitat from 300 cfs to 4,500 cfs that meets criteria for cover (with the addition of habitat features), depth, and velocity. Construction of IC-3 would provide slow water refuge within a constructed alcove to provide fry and juvenile habitat at flows ranging between 300 cfs and 4,500 cfs. Area IC-4 would increase mainstem channel length that reduces slope and improves adult spawning opportunities. Area IC-4 would increase channel sinuosity and channel complexity, providing fry and juvenile rearing opportunities at a wide range of flows over existing conditions. Area IC-4 should provide suitable BMI habitat for food production for increased local drift availability. Area IC-5 would increase off-channel fry and juvenile rearing opportunities at a wide range of flows over existing conditions. Area IC-8 is a point bar and alcove that would provide slow shallow rearing habitat for flows ranging from 300 cfs to 2,500 cfs. The pool on the outside of the bend along the right bank bedrock would be maintained to preserve adult holding opportunities.

Areas R-1, R-2, R-3, and R-4 propose construction of surfaces that provide slow shallow rearing habitat for streamflows ranging from 1,500 cfs to 4,500 cfs. Area R-5 proposes construction of a surface that connects two low vegetated areas to provide slow shallow rearing habitat for streamflows ranging from 1,500 cfs to maximum fisheries flow of 11,000 cfs. Area R-6 proposes construction of surfaces that provide slow shallow rearing habitat for streamflows ranging from 450 cfs to 2,500 cfs.

Proposed wood habitat structures would provide immediate cover, depth, and velocity refugia for all salmonid life stages over flows of 300 cfs to 11,000 cfs. Large boulders may be used in combination with wood for additional complexity. ELJ-1 would provide adequate summer rearing habitat for juvenile salmonids, enhance hydraulic and escape cover along the channel margin, and reduce the distance to cover from adjacent spawning areas (IC-3 and IC-4). ELJ-2 includes placement of smaller wood along the wetted perimeter of the larger wood placements, which adds hydraulic and escape

cover for fish. The structure would also create physical complexity by creating refugia for juvenile residents and salmonids. The scour pool and cover provided by the wood placed at the apex of the medial bar would create summer rearing habitat in the form of feeding stations and holding features. ELJ-3 would provide adequate summer rearing habitat for juvenile salmonids. It would enhance hydraulic and escape cover along the channel margin and reduce the distance to cover from adjacent wood structures. All of these large wood elements would work to clean and sort spawning gravels, scour sand out of pools, and provide adequate temperature and habitat conditions for fish. Proposed construction of the beaver dam analog (BDA-1) at the upstream end of IC-6 would potentially raise water surface elevations at various flows to backwater area R-1. During winter and summer rearing periods this feature could backwater up to 90,000 square feet, providing large areas that meet velocity, depth, and cover criteria for fry and juvenile salmonid rearing habitat.

Coho Salmon

Under the Proposed Project, no permanent adverse effects to coho salmon spawning habitat would occur within the rehabilitation site. Instead, the Proposed Project is expected to result in immediate as well as long-term improvements. Figure 5 illustrates the extent of the grading, excavating, and coarse sediment addition that would occur below the OHWM in riverine habitat at the site. It is anticipated that implementation of the Proposed Project along with the flow management regime implemented by the TRRP would reactivate channel migration across the floodplain within the boundaries of the site. This dynamic fluvial channel would result in a net increase in point bar surface area through coarse sediment deposition, increasing spawning habitat within the boundaries of the site. The addition of coarse sediment would immediately provide suitable sized spawning gravels to coho and other salmonids.

Adverse effects on spawning habitat are expected to be limited to short-term, localized sedimentation caused by settling of silt disturbed by bank-side excavation activities, and the addition of coarse sediment material, including contouring and grading in the low-flow channel. Any salmon redds on or near the in-channel work could be destroyed or disturbed by these construction activities. Silt suspended by these activities may be dispersed and re-settle on downstream suitable spawning areas near the construction area. However, all in-channel work would be conducted only during late-summer (July 15-September 15) low-flow conditions, as authorized by NMFS and CDFW, to avoid impacts to spawning anadromous salmonids.

Additionally, installation of a temporary crossing across the low-flow channel could introduce a small amount of silt and cause stream bed disturbance, resulting in re-suspension of fine substrate materials (i.e., silt) and create short-term, localized increases in turbidity and suspended sediments. River crossings would occur only during the in-river work window (July 15 to September 15) or when spawning is prohibited from occurring on the crossing area (as proposed in this Proposed Project utilizing anti-spawning mats). Although the amount of silt mobilized by construction of these crossings is expected to be minimal, this silt could be deposited on either spawning habitat and/or on salmon redds downstream of the activity areas.

Some temporary effects on the quality of habitat for juvenile salmonids would occur through removal of riparian vegetation that contributes to SRA habitat in the project reach. The principal effects of in-channel work on fish include displacement of rearing salmonid fishes from their habitat and increased predation risk or reduced feeding efficiency through the loss of the cover function provided by the

SRA habitat (Michney and Hampton 1984; Michney and Deibel 1986). However, it is expected that all displaced juvenile fish, including coho salmon, would find suitable habitat within river reaches upstream or downstream of the site, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (NMFS 2006). The potential direct and indirect effects to fish resulting from increased suspended sediment and turbidity levels are addressed further under Impact 3.6-2.

The adverse impacts on habitat are expected to be offset in the long term by benefits associated with project implementation. These benefits would accrue from: 1) the constructed inundation surfaces; 2) overall reconnection of inundated surfaces to the river at low flows; 3) increased bed mobility and potential channel migration through the alluvial surfaces; and 4) revegetation of these surfaces with native plant species that would contribute shade and large wood to the river channel. Improved connectivity, particularly during high flows is expected to increase areas of slow, shallow-water habitat preferred by salmonid fry. The process of channel migration may also create new point bars, further increasing the availability of this preferred habitat. The constructed habitats and potential channel migration processes would collectively increase the relative abundance of rearing habitat, compared to the existing condition. Approximately 3.07 acres of low slope (glide) habitat would be impacted by in-channel and riverine work at the site (Figure 5). In addition, 1.16 acres of moderate slope habitat, and 2.68 acres of in-channel habitat would be impacted.

Ultimately, the collective changes in channel morphology as a result of the Proposed Project would improve rearing habitat diversity and abundance, for all anadromous salmonids. Large wood would be strategically placed to provide complex physical habitat for juvenile and adult fish in the Trinity River. Large wood hydraulic and habitat structures would create spawning and rearing habitat, increase nutrient and organic matter retention (which increases food production in the system), and provide refuge from predators and cover during high winter flows (Bustard and Narver 1975; Lestelle 1978; Lestelle and Cederholm 1982; Hicks et al. 1991; Cederholm et al. 1997).

Chinook Salmon

Potential impacts and benefits to Chinook would be generally similar to those previously described for coho salmon. Spring- and fall-run salmon potentially spawn and rear within the site. Juvenile spring-run Chinook salmon would be expected to rear year-round within the site and may be displaced by in-river work activities. Additionally, prior to spawning, adult spring-run Chinook salmon may utilize holding habitat offered by run, glide, and pool areas within the site. No permanent adverse impacts to spring-run Chinook salmon holding habitat would occur. Overall, the Proposed Project is expected to increase Chinook salmon fry habitat by 158 percent at 300 cfs, 261 percent at 1,200 cfs, and 72 percent at 2,000 cfs. The Proposed Project is expected to increase Chinook pre-smolt habitat by 85 percent at 300 cfs, 164 percent at 1,200 cfs, and 59 percent at 2,000 cfs (Hoopa Valley Tribe Design Group 2015). The Proposed Project does not include activities that would directly fill, modify, or otherwise affect the quality or quantity of spring-run holding habitat. Temporary effects on spring-run Chinook holding habitat associated with construction of the Proposed Project would be limited to short-term, localized increases in transient turbidity caused by bank-side excavation activities, in-channel construction, and contouring and grading in the side channel. The potential effects of increased suspended sediment and turbidity to holding adult spring-run Chinook salmon are addressed under Impact 3.6-2.

Steelhead

Potential impacts and benefits to steelhead resulting from implementation of the Proposed Project would be generally similar to those previously described for coho and Chinook salmon. Summer, fall, and winter runs of steelhead may migrate and stage within or near the project area and may spawn (as adults) and rear (as juveniles) in this location as well.

Pacific Lamprey

Potential impacts and benefits to Pacific lamprey resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon and other anadromous salmonids. The removal of riparian vegetation that contributes to SRA habitat within the site could have a temporary impact on adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, implementation of the Riparian Revegetation and Monitoring Plan, described in Chapter 2, would lessen this impact over the longer term.

Mitigation Measures/Project Design Features

Although the impacts to coho salmon and other anadromous fish under the Proposed Project would be temporary and localized, they would be significant. Implementation of the Proposed Project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-1a and 4.6-1b described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-2: Implementation of the Proposed Project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon.

No Project Alternative

Under the No Project alternative, there would be no increase in erosion or sedimentation levels that could adversely affect fish species because the project would not be constructed. Similar to previous discussions, this alternative acknowledges that a number of restoration activities that are intended to restore the fishery resources and functional values offered by the mainstem Trinity River have been implemented or are ongoing. While some of these activities may result in changes to erosional processes and sedimentation levels, these changes are taken into account in the evaluation of this alternative. The No Project alternative would not result in an impact with respect to this issue.

Proposed Project

Coho Salmon

Activities related to implementation of the Proposed Project would result in the localized loss of vegetation and general disturbance to the bed and banks of the Trinity River. Removal of vegetation and soil could accelerate erosion processes within the boundaries of the site and increase the potential for sediment delivery to the Trinity River. The turbidity of a water body is related to the

concentration of suspended solids. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels (i.e., levels of suspended solids reaching 25 mg/L). At these high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980).

In-channel and riverine activities including temporary crossings would disturb the alluvial materials that constitute the bed and banks of the Trinity River. Exposed soils on the upland and staging areas are susceptible to mobilization from rainfall during early season runoff events. In-river excavation is planned as part of the Proposed Project; therefore, it is expected that excavation and operation of heavy equipment would resuspend silt and sand, resulting in localized and temporary increases of suspended sediment and turbidity.

Operation of heavy equipment in the active channel during these activities would likely resuspend streambed sediments. Any juvenile coho salmon rearing in the area during in-channel construction may be temporarily displaced or their social behavior may be temporarily disrupted by turbidity created during this activity.

Trinity River main channel habitat would be temporarily impacted during construction by installation of the X-1 channel crossing that would be used for occasional equipment crossing. Removal and spreading of gravels composing the temporary low-flow channel crossings after construction would restore stream channels to original contours. These activities would likely resuspend streambed sediments but are not likely to add silt material to the river. Use of washed, spawning-sized gravels and the cleaning of vehicle wheels prior to crossing the channel would minimize the effects of this action on fish habitat. Any juvenile coho salmon rearing in the area during gravel placement or vehicle crossings may be temporarily displaced or their social behavior may be temporarily disrupted by turbidity created during this activity.

Erosion and deposition of fine sediments associated with implementation of the Proposed Project are expected to be localized and temporary. Some fine-textured materials may settle near or on spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Excavation, grading, and coarse sediment addition within the channel would occur only during low-flow conditions between July 15 and September 15, minimizing the potential for adverse effects on all life stages of coho salmon. Any juvenile coho salmon rearing in the area during this timeframe could be temporarily displaced or their social behavior could be temporarily disrupted by an increase in turbidity. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for juvenile coho salmon (Berg and Northcote 1985). These temporary impacts were anticipated and addressed in the 2000 BO and associated incidental take statement for the ROD as well as the amended BO for in-river work.

Chinook Salmon

Potential impacts to Chinook salmon populations in the Trinity River resulting from project implementation would be generally similar to those described for coho salmon. Re-suspension of fine-textured sediment, potential erosion and sediment runoff, and elevated turbidity for short distances downstream could occur during the migration, spawning, and rearing seasons for this

species. Spring- and fall-run Chinook salmon are known to spawn in suitable habitat within and adjacent to the site. Construction activities are proposed during the spawning period, and in-river construction including temporary crossings may temporarily displace holding adult salmonids. Some fine-textured materials may settle near or on spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Juvenile spring-run Chinook salmon are expected to rear throughout the year within or adjacent to the site boundaries, and transient increases in turbidity and re-suspension of sediments would be likely to have similar effects on juvenile Chinook salmon as on coho salmon. Adult spring-run Chinook salmon using holding habitat during the summer months may be displaced to other holding habitats either upstream or downstream by transient turbidity and sediment plumes created by construction activity.

Steelhead

Potential impacts to steelhead populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and Chinook salmon. Summer and winter runs of KMP ESU steelhead are known to migrate, stage (as adults), and rear (as juveniles) in the Trinity River throughout the proposed construction season. Both runs generally spawn during the winter.

Pacific Lamprey

Potential impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon and other anadromous salmonids. Adult Pacific lamprey migrate upstream from spring through early summer and again in the fall to spawn. Larval lampreys inhabit the river year-round. Siltation of nests that may be built in suitable habitats (i.e., low-slope riffles) could occur. Filter feeding by larval lampreys could be disrupted by an increase in suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary.

Mitigation Measures/Project Design Features

While the Proposed Project would increase aquatic habitat within the boundaries of the site, the proposed construction activities would result in an increase in erosion and sedimentation in the short-term. While the long-term impact would be beneficial, the short-term impacts on fishes within the Trinity River would be significant. Implementation of the Proposed Project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-2a, 4.6-2b, 4.6-2c, 4.6-2d, and 4.6-2e described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-3: Construction activities associated with the Proposed Project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.

No Project Alternative

Under the No Project alternative, there would be no risk of accidental spills of hazardous material because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Coho Salmon, Chinook Salmon, Steelhead, and Pacific Lamprey

Construction activities typically include the refueling of construction equipment on location. The Proposed Project also includes activities that would place mechanized equipment (e.g., trucks, excavators) within the active channel for short periods. As a result, minor fuel and oil spills could occur and there would be a risk of larger releases. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in proximity to surface water features, including the Trinity River. Oils, fuels, and other contaminants could have deleterious effects on all life stages of salmonids and other anadromous fish within close proximity to construction activities. Although short-term, these impacts are considered significant.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon. Therefore, mitigation measure 4.6-3a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impact to less than significant. Section 3.5, Water Quality, and Section 3.13, Hazards and Hazardous Materials, provide additional details on mitigation measures developed for water quality standards, hazards, and hazardous materials.

Impact 3.6-4: Construction activities associated with the Proposed Project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.

No Project Alternative

Under the No Project alternative, construction-related mortality to rearing salmonids would not occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Coho Salmon

Coho salmon are known to occur throughout the Trinity River. Suitable coho salmon rearing habitat exists within the boundaries of the rehabilitation site, and juvenile coho salmon may rear within these boundaries year-round. Adult coho migrate through the site and use suitable spawning habitat throughout the 40-mile reach of the Trinity River below Lewiston Dam. Direct injury to, or mortality of, coho salmon could occur during in-river construction and construction of the low-flow channel

crossings planned under the Proposed Project. These activities would be conducted only during late-summer low-flow conditions (e.g., July 15 – September 15) or when spawning is prohibited from occurring on the crossing area (as proposed in the Proposed Project utilizing anti-spawning mats), thus, minimizing the potential for direct mortality to rearing coho, because this period corresponds to a time of the year when the fewest number of juvenile coho salmon are known to occur in the project reach.

NMFS expects that all displaced juvenile fish, including coho salmon, would find suitable habitat within river reaches upstream or downstream of the site, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (NMFS 2006). The construction period identified above would completely avoid the spawning period for coho salmon; therefore, direct impacts to adult coho salmon or their eggs/alevins (yolk-sac fry) would not occur.

A small, temporary, but uncertain level of stranding of coho salmon fry could occur on the newly constructed inundation surfaces and side channel during rapidly receding flood-flow periods in the winter and early spring when fry are emerging. Additionally, construction of side channel features could result in stranding conditions as flows recede, particularly if the downstream end fills with fine sediments, potentially stranding coho salmon fry. Although stranding of fry under such receding flood conditions occurs on naturally shallow floodplains (Sommer et al. 2001), the constructed features could increase this process to varying degrees. As fluvial channel migration occurs through these surfaces, the potential for fry stranding is expected to equilibrate to that of a natural stranding risk. While the activities included in the Proposed Project are intended to benefit coho salmon, the short-term construction impacts would be significant.

Chinook Salmon

Potential impacts to Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those described for coho salmon. Physical construction within and directly adjacent to the river channel could disturb holding spring-run Chinook salmon. The principal effect to spring-run Chinook is that they would be forced to move to other habitat. The Proposed Project would not impair migration, and spring-run Chinook salmon would be able to locate and use suitable holding habitat outside of the disturbed areas. Water temperatures are the coolest in the reach of the Trinity River that encompasses the Proposed Project site, and physiological effects, or ultimately death, are not expected as temperatures in these reaches of the Trinity River (55 to 59°F) are below the threshold observed where spring run Chinook can accumulate stresses. Based on studies on temperature tolerance, temperatures in other locations within this section of the Trinity River are sufficiently cool that spring-run Chinook are able to deal with stressors (e.g., relocation) without adverse effect (North State Resources 2005).

Steelhead and Pacific Lamprey

Potential impacts to steelhead and lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and other anadromous salmonids.

Mitigation Measures/Project Design Features

While the activities included in the Proposed Project are intended to benefit salmonids and other aquatic organisms, the short-term construction impacts would be significant. Construction activities associated with the Proposed Project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-4a, 4.6-4b, 4.6-4c, 4.6-4d, and 4.6-4f described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-5: Implementation of the Proposed Project would result in the permanent and temporary loss of SRA for anadromous salmonids.

No Project Alternative

Under the No Project alternative, loss of SRA habitat would not occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

As described in the Master EIR Section 4.6, Fishery Resources, the term *riparian habitat* encompasses the range of riparian vegetation conditions along the river corridor including rehabilitation sites. It does not have a specific legal description or definition. For the purposes of this document, the term riparian habitat encompasses the range of riparian vegetation conditions within the boundaries of the site and is synonymous with SRA habitat.

Coho Salmon, Chinook Salmon, Steelhead, and Lamprey

Removal of montane riparian wetland vegetation along the banks of the Trinity River could adversely affect the quality of SRA habitats used by rearing salmonids. Riparian vegetation is important to the maintenance of healthy fish habitat. Riparian areas provide shade and temperature benefits, sediment, nutrient and chemical regulation, stream bank stability, and inputs of large wood and organic matter to the channel. Riparian vegetation that is adjacent to the river, a component of SRA habitat, is an element of designated critical habitat for coho salmon and a component of EFH for Chinook and coho salmon. Complexity in the riparian environment, an important component of fish habitat, would be increased over the long-term with construction at the Proposed Project site.

To maintain overall SRA habitat values in the project reach, the Proposed Project would be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to floodplains. Boundary markers would be installed along all riparian areas outside of delineated activity areas. These markers would minimize impacts to riparian vegetation by preventing construction access. Removal of riparian berms and re-activation of adjacent floodplains within riverine activity areas would allow for natural revegetation of most of the riparian habitat that would be lost as a result of berm removal and floodplain contouring. Additionally, riparian habitat removed under the Proposed Project would be replaced during revegetation efforts consistent with requirements of the Riparian Revegetation and Monitoring Plan. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing riparian vegetation (Figure 6) is considered a significant impact.

Mitigation Measures/Project Design Features

Proposed Project implementation would result in a permanent and temporary loss of SRA habitat for anadromous salmonids. Therefore, mitigation measures 4.6-5a, 4.6-5b, and 4.6-5c described in Appendix B will be implemented to reduce the potential for impacts. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-6: Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase.

No Project Alternative

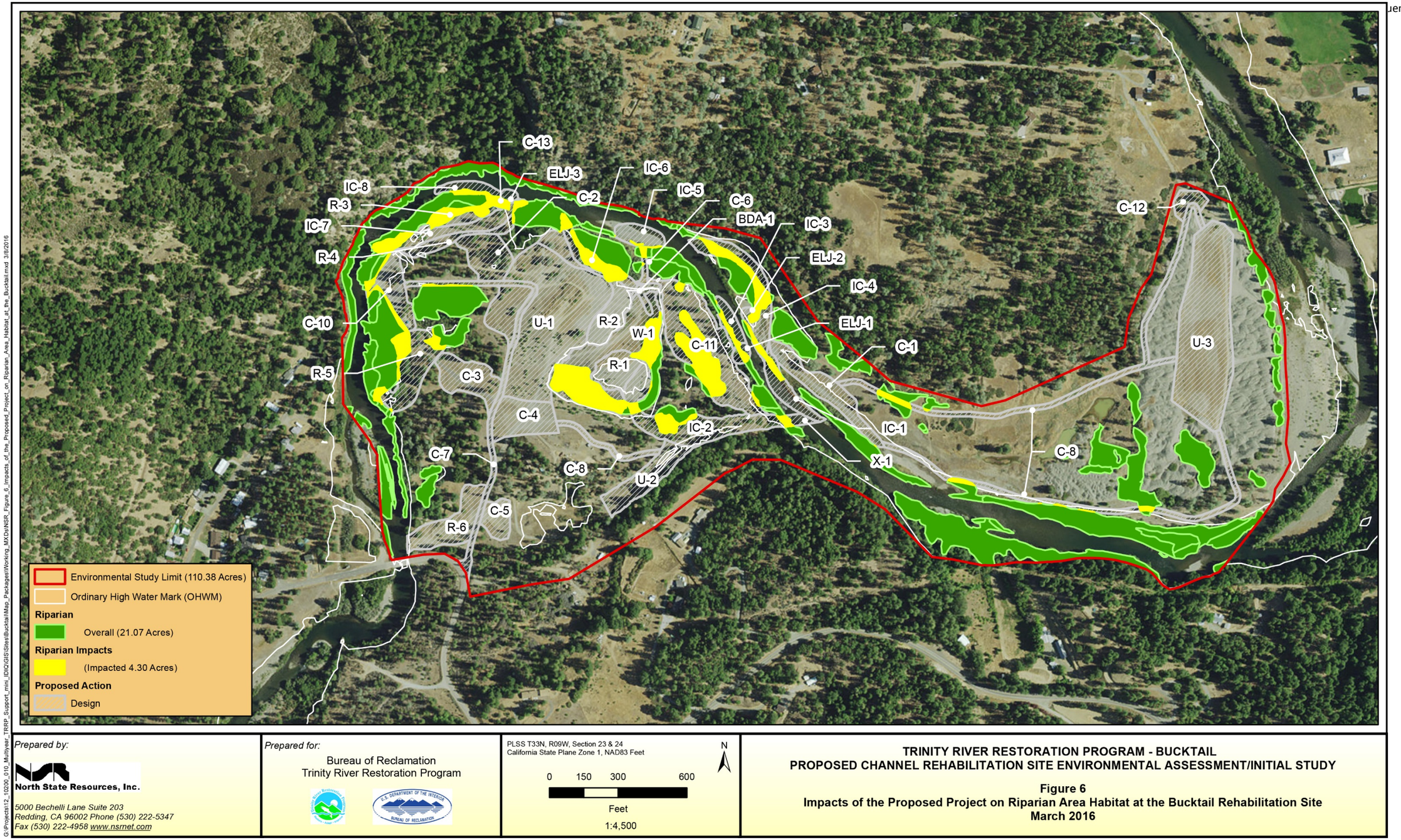
Under the No Project alternative, temporary impairment of fish passage would not occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Construction activities would require temporary placement of a low-flow channel crossing to move heavy equipment across the low-flow channel. The temporary crossing would also provide access for in-channel work. Construction activities may require service vehicles to cross up to several times per week, otherwise vehicle crossing traffic would be kept to a minimum. The crossing would be constructed in a manner that maintains adequate water depths and velocities for fish passage. The temporary crossing would only be constructed during late-summer, low-flow conditions (e.g., July 15–September 15). The crossing is expected to be in place long enough to complete work (including revegetation) at these activity areas and would be removed once work is completed.

Coho Salmon

Use of river crossings could occur during the onset of the fall coho smolt emigration, depending on seasonal conditions (flow, temperatures, etc.) and would occur during the coho adult migration and spawning period. Upon completion of work in riverine areas requiring use of low-flow channel crossings, these crossings would be dismantled and materials would be contoured to the river bottom or utilized in construction features (e.g., IC-1). Fill materials would consist of appropriately sized spawning gravel as specified by NMFS and CDFW. Use of the temporary crossing would be restricted to the timeframes outlined in the 2000 BO (NMFS 2000), or use of the crossing for spawning would be precluded with the use of anti-spawning mats.



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Trinity River Restoration Program

PLSS T33N, R09W, Section 23 & 24
California State Plane Zone 1, NAD83 Feet

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TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL
PROPOSED CHANNEL REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY

Figure 6
Impacts of the Proposed Project on Riparian Area Habitat at the Bucktail Rehabilitation Site
March 2016

Figure 6. Impacts of the Proposed Project on Riparian Area Habitat at the Bucktail Rehabilitation Site.

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Fish passage design is normally based on the weakest species or life stage present that requires upstream access and should accommodate the weakest individual within that group. For the Proposed Project, low-flow channel crossings would need to meet velocity criteria for upstream migrating juvenile salmonids and depth criteria for migrating adult salmonids, including the federally threatened coho salmon. Maximum velocities and minimum depths are adopted from NMFS Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001) and Part IX Fish Passage Evaluation at Stream Crossings of CDFW's California Salmonid Stream Habitat Restoration Manual (CDFW 2003a). Adult salmonids can negotiate water velocities of up to 8 to 9 feet per second (fps) without difficulty (Bjornn and Reiser 1991). However, juvenile salmonids can only typically negotiate water velocities up to 2 fps over short distances and up to about 1 fps over long distances and sustained periods (NMFS 2001); therefore, crossing designs would include criteria to accommodate these slower velocities for juvenile fish. Minimum water depth over the crossings at low-flow would not be less than 12 inches to provide adequate depth for migrating adult Chinook and coho salmon (NMFS 2001).

Although the construction period could extend into the smolt emigration and coho salmon spawning season, the effect of the low-water crossings on fish passage is expected to be temporary and minimal. Adult anadromous fish generally expend approximately 80 percent of their stored energy reserve during normal upstream migration to suitable spawning areas. Undue exertion or delay at stream crossings due to unsuccessful passage attempts at inadequate (blocking) structures can lead to reduced spawning success and pre-spawning mortality (Robison et al. 1999). Adequate depth and velocities over the crossing would allow for both juvenile and adult passage. While long-term beneficial changes to physical rearing habitat associated with implementing the Proposed Project are anticipated to offset the temporary impacts on fish passage, the temporary impacts on fish passage would be considered significant.

Chinook Salmon

Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River would be similar to those previously described for coho salmon. However, adult migrants from the spring and fall runs of Chinook salmon would be expected to pass through, stage, and/or spawn within the project boundaries during the construction season. The temporary placement of gravel fill at the crossing would not preclude fish passage since adequate depths and velocities would be maintained.

Steelhead and Pacific Lamprey

Potential impacts to the KMP ESU steelhead and Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and Chinook salmon.

Mitigation Measures/Project Design Features

Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase. Therefore, mitigation measures 4.6-6a, 4.6-6b, 4.6-6c, and 4.6-6d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.7 Vegetation, Wildlife, and Wetlands

This section describes the vegetation, wildlife, and wetlands that are known to occur in the project area and evaluates the impacts of the Proposed Project on these resources. The discussion of biological resources is based on a focused literature review, informal consultation with resource agencies, and observations made during field visits. Additional information about these resources is contained in Section 4.7 of the Master EIR.

3.7.1 Affected Environment/Environmental Setting

Plant Communities

There are a variety of plant communities present in the project area. The main plant communities known to occur in the project area are listed in Table 12 and shown on Figure 7. The identification and delineation of these habitat types are based on the draft Trinity River Riparian Vegetation Map 2008 Update (TRRP 2009). The habitat and cover types discussed in this section are distinct from the types of jurisdictional wetlands and "other waters" that are discussed in Section 3.7.1.4. The main plant communities present are described below. Those plant communities as well as others that may be present in the project area are discussed in more detail in the Master EIR (Section 4.7).

Table 12. Plant Community Types Within the Project Area Boundaries.

Plant Community Types	Acres
Annual Grassland	33.87
Montane Riparian	14.95
Barren	14.91
Ponderosa Pine	8.98
Douglas-fir	7.55
Valley Foothill Riparian	6.46
Urban	4.26
Blue Oak-Foothill Pine	3.45
Fresh Emergent Wetland	2.39
Montane Hardwood	1.62
Lacustrine	0.53
Mixed Chaparral	0.42
Perennial Grassland	0.23

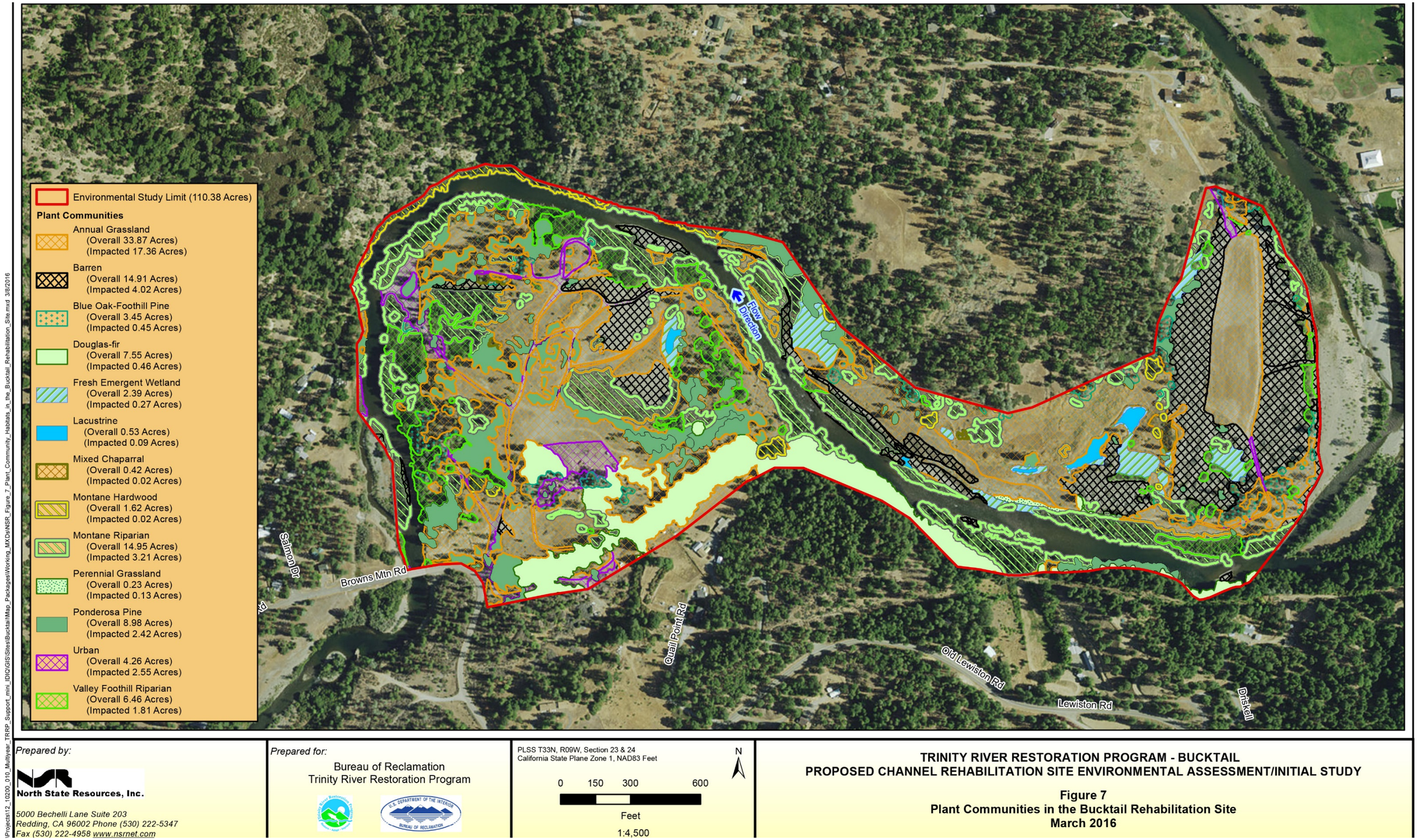


Figure 7. Plant Community Habitats in the Bucktail Rehabilitation Site. (Habitat classification follows the California Wildlife Habitat Relationships model).

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Fresh Emergent Wetland

Fresh emergent wetland communities are present in the project area. Fresh emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Fresh emergent wetland habitat occurs in backwaters and depressions along the river and in tailing pits that are saturated for long periods. Species present in this habitat include American tule (*Scirpus americanus*), narrow-leaved cattail (*Typha angustifolia*), dense sedge (*Carex densa*), and common spikerush (*Eleocharis macrostachya*).

Annual Grassland

Annual grassland communities are present in the project area. Annual grasslands are located on the terraces above montane riparian habitat but below the woodlands. Species present in this habitat include a variety of introduced species, such as Kentucky bluegrass (*Poa pratensis*), wild oats (*Avenafatua*), soft brome (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), cheatgrass (*B. tectorum*), and hare barley (*Hordeum murinum* ssp. *leporinum*); native perennial species, such as creeping wildrye (*Leymus triticoides*); and sedges (*Carex* spp.). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*E. cicutarium*), California poppy (*Eschscholzia californica*), turkey mullein (*Eremocarpus setigerus*), true clovers (*Trifolium* spp.), burclover (*Medicago polymorpha*), and many others.

Montane Riparian

Montane riparian communities occur adjacent to and below the OHWM of the Trinity River, as well as other relatively wet locations, and are a major component of the habitat types within the project area. The montane riparian community is composed of riparian plant species that are typical for Trinity County. Dominant tree species include bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), black cottonwood, and Goodding's black willow (*Salix gooddingii*). Understory species include mugwort (*Artemisia douglasiana*), virgin's bower (*Clematis ligusticifolia*), American dogwood (*Cornus sericea*), Oregon false golden-aster (*Heterotheca oregona*), dalmatian toadflax (*Linaria dalmatica*), white sweet clover (*Melilotus albus*), musk monkeyflower (*Mimulus moschatus*), straggly gooseberry (*Ribes divaricatum*), Himalayan blackberry (*Rubus armeniacus*), California blackberry (*R. ursinus*), narrowleaf willow (*Salix exigua*), arroyo willow, shining willow, and California wild grape (*Vitis californica*).

Blue Oak-Foothill Pine

The blue oak-foothill pine community type occurs as a minor component of the project area. The dominant overstory species present in this habitat is gray pine (*Pinus sabiana*). Blue oak (*Quercus douglasii*) grows among the gray pines and understory vegetation typically includes greenleaf manzanita (*Arctostaphylos patula*), buckbrush (*Ceanothus cuneatus*), skunkbrush (*Rhus aromatica*), and poison oak (*Toxicodendron diversilobum*). The herbaceous layer includes ripgut brome, cheatgrass, and false hedge-parsley (*Torilis arvensis*).

Ponderosa Pine

Ponderosa pine community type occurs in the project area. The dominant overstory species present in this habitat is ponderosa pine. Understory vegetation includes greenleaf manzanita, buckbrush, and poison-oak. The underlying herbaceous layer includes ripgut brome and cheatgrass.

Montane Hardwood

The montane hardwood community type is present in the project area. Dominant tree species observed within this plant community include Pacific madrone (*Arbutus menziesii*), bigleaf maple, canyon live oak (*Quercus chrysolepis*), and black oak (*Q. kelloggii*). Associated shrub species observed include greenleaf manzanita, buckbrush, skunkbrush, snowberry (*Symphoricarpos albus* var. *laevigatus*), and poison-oak. The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye (*Elymus glaucus*), silver bush lupine (*Lupinus albifrons*), purple sanicle (*Sanicula bipinnatifida*), and false hedge-parsley.

Mixed Chaparral

The mixed chaparral community type is present in the project area. Mixed chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. The dominant species typically include greenleaf manzanita and buckbrush.

Douglas-fir

The Douglas-fir community type is present in the uplands of the project area. As the name implies, the dominant overstory species in this community is Douglas-fir. These areas are comprised of greater than 50 percent cover by Douglas-fir regardless of the number of hardwood or conifer species in the overstory.

Valley-Foothill Riparian

The valley-foothill community type is present at the site. This community is found in valleys bordered by sloping alluvial fans, slightly dissected terraces, lower foothills, and coastal plains. They are generally associated with low velocity flows, floodplains, and gentle topography. Dominant species in the canopy layer are cottonwood (*Populus* spp.), California sycamore (*Platanus racemosa*), and valley oak (*Quercus lobata*). Subcanopy trees are white alder, boxelder (*Acer negundo*) and Oregon ash. Typical understory shrub layer plants include wild grape, wild rose (*Rosa woodsii*), California blackberry, blue elderberry (*Sambucus cerulean*), poison-oak, buttonbush (*Cephalanthus occidentalis*), and willows (*Salix* spp.). The herbaceous layer consists of sedges, rushes, grasses, miner's lettuce (*Claytonia perfoliata*), Douglas sagewort (*Artemisia douglasiana*), poison-hemlock, and hoary nettle (*Urtica dioica* spp. *holosericea*).

Barren

Barren land consists primarily of rock, pavement, and sand. Vegetation is usually not present, although sparse opportunistic grasses and forbs or weedy species may occur. Barren land occurs as gravel bars adjacent to the river as well as other areas throughout the project area.

Urban

The urban community type varies by vegetation. Typically this habitat consists mostly of private landscaping and public landscaping including lawns, shrubs, and both evergreen and deciduous trees. The developed campground at the Bucktail site is also considered urban.

Perennial Grassland

Perennial grassland habitat typically occurs on ridges and south-facing slopes, alternating with forest and scrub in the valleys and on north-facing slopes. These areas typically have greater than 50 percent cover of native grasses and less than 10 percent total cover by trees or shrub species. Species present in this habitat include a variety of introduced and native perennial species.

Lacustrine

Lacustrine habitats can be inland depressions or dammed riverine channels containing standing water. They may vary from small ponds less than one acre to large areas covering several square miles. Depth can vary from a few inches to hundreds of feet. Typical lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes (e.g., playa lakes) and ponds (including vernal pools) so shallow that rooted plants can grow over the bottom.

Special-Status Plant Species

In Trinity County, the communities described above provide habitat for a number of special-status plant species. For the purposes of this evaluation, special-status species are (1) designated as rare by the CDFW or the USFWS or are listed as threatened or endangered under the CESA or the federal ESA; (2) proposed for designation as rare or listing as threatened or endangered; (3) state or federal candidate species for listing as threatened or endangered; (4) identified by the CDFW as Species of Special Concern or California Fully Protected Species; (5) designated as sensitive by the BLM or USFWS; or (6) plants designated as California Native Plant Society (CNPS) List 1A, 1B, or 2.

Species designated "BLM sensitive" are not federally or state listed as endangered or threatened, nor are they proposed or candidates for listing; rather, they are designated by BLM's State Director for special management consideration. BLM Manual Section 6840 defines sensitive species as "…those species (1) that are under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) that are inhabiting ecological refugia or other specialized or unique habitats." Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be designated sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management. BLM's policy provides sensitive species with the same level of protection afforded federal candidate species.

A list of special-status plant species considered for the Proposed Project was compiled by performing searches of the CNDDB and CNPS Electronic Inventory database, informally consulting with the CDFW and USFWS, and reviewing biological literature for the project region, including BLM's special-status plants list for the Redding Field Office (USDI BLM 2013). A list of federal special-

status species potentially occurring in Trinity County was obtained from the USFWS. The list includes species potentially occurring in Trinity County that have endangered, threatened, or candidate status. (Refer to Table 4.7-1 in the Master EIR for the list of species considered.) The project area has been surveyed for special status plant species following protocols outlined in the Master EIR. In 2013 and 2014 five special-status plant surveys were conducted on the majority of the Bucktail site (5/7/13, 5/30/13, 7/12/13, 4/29/14, and 5/12/14), but those surveys did not include the upstream portion of the new 2015 proposed ESL that includes the new U-4 area. The upstream portion was surveyed as part of the 2005 surveys for the Dark Gulch site (April 11-15, May 2-6, and June 20-22). On June 17, 2015, a new botanical survey of the expanded ESL was conducted. The botanical studies were conducted in accordance with guidelines developed by the CDFW and the surveys were conducted when special-status plant species were most likely to be identifiable (i.e., the blooming period). No special-status plants were detected in the project area during any of these pre-construction botanical surveys (TCRCD 2015).

Non-Native and Invasive Plant Species

Non-native and invasive species are present in the project area. Information regarding invasive species is presented in the Master EIR (Section 4.7). The approximate location and extent of high priority invasive plants were noted during vegetation surveys conducted for the site in 2013, 2014, and 2015. High priority invasive species present at the site included: Himalayan blackberry, yellow star-thistle (*Centaurea solstitialis*), dalmatian toadflax, and Spanish broom (*Spartium junceum*). Himalayan blackberry was dominant in the understory of the montane riparian habitat type, and yellow star-thistle and dalmatian toadflax were present in the annual grassland habitat type. Other notable invasive weeds detected during the surveys include: Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), Klamath weed (*Hypericum perforatum*), cheatgrass, ripgut brome, and red brome (*Bromus madritensis*).

Information about these plant's biology, habitat, and management strategies is presented in Distribution and Applied Management of Invasive Plant Species at Proposed Rehabilitation Sites along the Mainstem of the Trinity River (North State Resources 2007). This report is available at: http://odp.trrp.net/Data/Documents/Details.aspx?document=1146. The TRRP will continue to work to limit the spread of noxious weeds in the area and to ensure that the seeds of these species are not allowed to reach the river and disperse down-river. Priority will be primarily on those species with noxious status, relatively low abundance in Trinity County, abundant seed production, and adaptability to thrive and spread.

Wildlife Resources

The wildlife species typically associated with the primary plant communities present in the project area (Table 12) are summarized in the Master EIR (Section 4.7). The Trinity River corridor provides habitat and travel corridors for such species as Pacific fisher (*Martes pennanti pacifica*), American marten (*M. americana*), black-tailed deer (*Odocoileus hemionus columbianus*), river otter (*Lontra canadensis*), beaver (*Castor canadensis*), common merganser (*Mergus merganser*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), wood duck (*Aix sponsa*), belted kingfisher (*Megaceryle alcyon*), cliff swallow (*Hirundo pyrrhonota*), bank swallow (*Riparia riparia*), and raccoon (*Procyon lotor)*. The riparian vegetation along the Trinity River, in association with adjacent and/or nearby mixed-conifer and montane hardwood-conifer habitat, provides

connected habitat within an area that has been fragmented by rural residential development and road building.

Special-Status Wildlife Species

In Trinity County, the vegetation communities described above provide habitat for a number of special-status wildlife species. For the purposes of this evaluation, special-status species are (1) designated as rare by the CDFW or the USFWS or are listed as threatened or endangered under the CESA or the federal ESA; (2) proposed for designation as rare or listing as threatened or endangered; (3) identified as state or federal candidate species for listing as threatened or endangered; or (4) designated as sensitive by the BLM.

A list of special-status wildlife species considered for analysis was compiled by performing a CNDDB database search, conducting informal consultations with the BLM and USFWS, and reviewing biological literature for the region. The special-status wildlife species considered are described in Table 13 (more detailed species accounts are provided in Section 4.7 and Table 4.7-1 and Appendix C of the Master EIR). Federal and state designations, general habitat requirements, and information on each species' potential occurrence at the site (based on distributional range and available habitat) are also provided in the table. Conclusions presented are based on the knowledge of local professional biologists and historic survey information.

In northern California, northern spotted owl (*Strix occidentalis caurina*) resides in large stands of old growth, multi-layered, mixed conifer, redwood, and Douglas-fir habitats (Regional Water Board and Reclamation 2009). Nesting stands typically include a moderate to high canopy closure (60 to over 80 percent); a multilayered, multispecies canopy with large (greater than 30 inch dbh) overstory trees; a high incidence of large trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence); large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for northern spotted owls to fly (Thomas et al. 1990). Table 4.7-2 of the Master EIR noted that northern spotted owl habitat does not exist in the project area. Aerial imaging, data interpolation, and pedestrian surveys indicate that habitat within the project area does not possess features associated with suitable nesting, roosting, or foraging habitat for northern spotted owl. Based on informal consultation with the USFWS during production of the Master EIR, known distribution of spotted owl nests in the area (provided by the USFS), and Trinity River bird distribution data provided by the Redwood Sciences Laboratory, Reclamation and the BLM determined that a biological assessment was not required since the Proposed Project would have no effect on the northern spotted owl or its critical habitat.

Riparian habitat, which is considered a sensitive natural community by the CDFW, is present in the project area along the Trinity River. Critical Winter Range for raptors is also present in areas along the Trinity River. Migratory birds and raptors (birds of prey) may nest within, or in close proximity to, the project area. Migratory birds and their nests are protected under the federal Migratory Bird Treaty Act (MBTA; 50 CFR 10 and 21). Most of the birds found in the project area are protected under the MBTA. Raptors are also protected under the CDFW Code. The plant communities at and near the project area provide suitable breeding and foraging habitat for several raptors, such as the red-tailed hawk (*Buteo jamaicensis*) and great horned owl (*Bubo virginianus*).

The Trinity River corridor within the project area provides habitat and travel corridors for the West Coast Distinct Population Segment (DPS) of fisher (*Pekania pennanti*), a candidate for listing as a threatened species under the ESA. The USFWS published a proposed rule in October 2014 to list the west coast population of fisher as threatened under the Endangered Species Act (79 FR 60419). The USFWS is currently reviewing and responding to comments and new information submitted under the proposed rule. A final decision on the proposed rule is due in April 2016. Fishers use forest habitats with dense canopy closure, large diameter live trees (conifers and hardwoods) and snags (dead trees) with cavities and other deformities, large diameter down wood, multiple canopy layers. Mature and late-successional coniferous or mixed forests that contain key habitat and structural components provide the most suitable fisher habitat because they provide abundant potential den sites and preferred prey species. Habitat within the project area is marginal because of past disturbance and the proximity of residences. However, the project area could be used as a migratory corridor.

Jurisdictional Waters (Including Wetlands)

The USACE has regulatory authority over Navigable Waters of the United States pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Waters of the United States, including wetlands, pursuant to Section 404 of the CWA. Eight jurisdictional water types, including wetlands and other waters, occur at rehabilitation sites along the Trinity River. Jurisdictional water types present at the Proposed Project site are shown in Table 14. Each of these is briefly described below.

Within the Bucktail Rehabilitation Site boundaries there are a total of 32.9 acres of jurisdictional waters and 20.43 acres of total wetlands and 12.47 acres of other waters, comprised primarily of the Trinity River riverine feature. Of the wetlands, there are a total of 1.34 acres of riparian wetlands above OHWM and 13.37 acres of riparian wetlands below OHWM. The locations of these features are shown on Figure 8. USACE staff visited the project area on November 7, 2013. A preliminary jurisdiction determination (PJD) letter was received from USACE on February 12, 2014 for the previous design. Current waters and wetlands of the U.S. presented in Figure 8 were submitted to the USACE on December 13, 2015, and an updated PFD was approved in January 2016. A post-project delineation would be performed after five years to verify project impacts to waters of the United States.

Riverine (Perennial Stream)

Riverine habitat occurs within the project area and is characterized as the active Trinity River channel within the OHWM, as defined by the Hydraulic Engineering Center River Analysis System (HEC-RAS) model developed for Reclamation. Riverine habitat is dominated by run and riffle habitats, with boulder, cobble, gravel, and sand substrates. Vegetation within the active river channel is sparse, with occasional clumps of sedges. Riparian habitat that occurs within the OHWM is characterized as a wetland type; riparian habitat above the OHWM is considered an upland habitat (North Wind 2013). The Trinity River is the primary factor influencing wetland features associated with the site. Riverine habitat identified as the river itself, exhibits a distinct bed and bank feature (i.e., scouring), as well as continuous inundation, watermarks, drift lines, and sediment deposits.

Riparian Wetlands

Riparian wetland features line the Trinity River corridor. Riparian wetlands are typically dominated by a complex of woody riparian species and open to dense emergent herbaceous species. These sites include positive field indicators of wetland hydrology and hydric soils. Herbaceous plant species that almost always occur (> 99 percent probability) are designated as obligates (OBL) and herbaceous plant species that usually occur (> 67 percent probability) are designated as facultative wetland (FACW) species. Common vegetation observed in riparian wetland features include: white alder (FACW[3]), Oregon ash (FACW), black cottonwood (FACW), Himalayan blackberry (FACU), California blackberry (FACW), narrowleaf willow (FACW), arroyo willow (FACW), shining willow (NI), American dogwood (UPL), mugwort (FACW), California wild grape (FACW), torrent sedge (*Carex nudata* – OBL), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (*Eleocharis acicularis* – OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinacea* – OBL). Dominant vegetation observed in riparian wetland features at the Bucktail site includes narrowleaf willow, torrent sedge, American wild mint (*Mentha arvensis* – FACW), tufted hair grass (*Deschampsia cespitosa* – FACW), lamp rush (*Juncus effusus* – FACW), and Himalayan blackberry.

[3] FAC = Facultative Plants Estimated probability of occurring in wetland 33 percent to 67 percent
FACU = Facultative Upland Plants Estimated probability of occurring in wetland 1 percent to <33 percent
FACW = Facultative Wetland Plants Estimated probability of occurring in wetland >67 percent to 99 percent
NI = No indicator Insufficient information exists to assign a wetland status indicator
OBL = Obligate Wetland Plants Estimated probability of occurring in wetland >99 percent
UPL = Obligate Upland Plants Estimated probability of occurring in wetland <1 percent

Table 13. Special Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status[1] (Fed/State)	General Habitat	Comments
MAMMALS			
Pacific fisher *Pekania pennanti*	*/S2S3	Dens and forages in intermediate to large stands of old-growth forests or mixed stands of old-growth and mature trees with greater than 50% canopy closure. May use riparian corridors for movement.	There is marginal habitat because the area is disturbed and because of the proximity of nearby residences. However, the project area could be used as a migratory corridor.
Ring-tailed cat *Bassariscus astutus*	—/FP	Occurs in riparian habitats and brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, and woodrat nests.	The habitat in the project area is marginal because of existing disturbance. Because of the limited habitat within the project area, this species is not likely to use the area.
Marysville kangaroo rat *Dipodomys californicus eximius*	*/S1	Desert, chaparral	Absent. No suitable habitat occurs within project boundaries.
San Joaquin pocket mouse *Perognathus inornatus*	*/S2S3	Grassland	Absent. No suitable habitat occurs within project boundaries.
Fringed myotis *Myotis thysanodes*	*/S3	In mesic habitats, roosts in caves, mines, tunnels, and buildings. Roosts typically in valley foothill hardwood and hardwood-conifer habitats, but forages in open, early-successional-stage habitats near water. Generally at 4,000-7,000 feet.	Unlikely. Project area is below the elevational limits of this species.
Long-eared myotis *Myotis evotis*	*/S3	Found in most habitats, but prefers coniferous woodlands. Roosts in buildings, crevices, spaces under bark, and snags. Forages among trees and over brush, usually in close association with water.	May be present. Woodlands along the Trinity River corridor provide suitable roosting and foraging habitats.
Spotted bat *Euderma maculatum*	*/S3	Coniferous woodlands, canyons, and mountains. Roosts in buildings, crevices, spaces under bark, and snags. Forages among trees and over brush, usually in close association with water.	May be present. Woodlands along the Trinity River corridor provide suitable roosting and foraging habitats.

Table 13. Special Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status[1] (Fed/State)	General Habitat	Comments
Pallid bat *Antrozous pallidus*	*/S3	Forages over many habitats; roosts in buildings, large oaks or redwoods, rocky outcrops and rocky crevices in mines and caves.	May be present. Suitable habitat may be present along the Trinity River corridor.
Western mastiff-bat *Eumops perotis californicus*	*/S3S4	Forages over many habitats; roosts in rocky outcrops and rocky crevices in mines and caves in canyon habitat.	May be present. Suitable habitat may be present along the Trinity River corridor.
Townsend's western big-eared bat *Corynorhinus townsendii*	*/S2	Roosts in colonies in caves, mines, bridges, buildings, and hollow trees in a range of habitats. Forages along habitat edges. Habitat must include appropriate roosting, maternity, and hibernacula sites free from disturbance by humans.	May be present. Suitable habitat is present along the Trinity River corridor.
Yuma myotis *Myotis yumanensis*	*/S4	Forages over water such as ponds, streams, and stock tanks in open woodlands. Roosts in buildings, caves, mines, abandoned swallow nests, bridges, and rock crevices.	May be present. Suitable habitat is present along the Trinity River corridor.
BIRDS			
Northern spotted owl *Strix occidentalis caurina*	T/—	In northern California, resides in large stands of old growth, multi-layered, mixed conifer, redwood, and Douglas-fir habitats	Absent. Habitat within the project area does not possess features associated with suitable nesting, roosting, or foraging habitat for northern spotted owl.
Bald eagle *Haliaeetus leucocephalus*	D*/S2	Uncommon to common in riverine and open wetland habitats. Requires large bodies of water or free-flowing rivers with abundant fish for foraging. Nests in large, live trees, usually near water and free from human disturbance.	May be present. Suitable nesting habitat may be present at the site due to the presence of dense, large trees. The moderate level of human disturbance may deter the species, but they may forage on the site.
California spotted owl *Strix occidentalis occidentalis*	*/S3	In northern California, resides in large stands of old growth, multi-layered, mixed conifer, redwood, and Douglas-fir habitats	Absent. No suitable habitat occurs within project boundaries.

Table 13. Special Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status[1] (Fed/State)	General Habitat	Comments
Bank swallow *Riparia riparia*	*/S2S3	Colonial nester on vertical banks or cliffs with fine-textured soils near water.	Absent. Suitable habitat is not present along the portion of the Trinity River being analyzed.
Northern goshawk *Accipiter gentilis*	—/S3	Breeds in dense, mature conifer and deciduous forests, interspersed with meadows, other openings and riparian areas; nesting habitat includes north-facing slopes near water.	May be present. Woodlands along the Trinity River corridor provide suitable nesting and foraging habitats.
Burrowing owl *Athene cunicularia*	*/S3	Occurs in grassland, farmland and urban habitats, documented as occurring in California Desert District species account.	Absent. Suitable habitat is not present along the portion of the Trinity River being analyzed.
California black rail *Laterallus jamaicensis coturniculus*	*/S1	Inhabits tidal marshes and freshwater marshes in the western United States and Mexico	Absent. Suitable habitat is not present along the portion of the Trinity River being analyzed.
Greater sandhill crane *Grus canadensis tabida*	*/S2	The population that occurs in California is known as the Central Valley Population. They occur primarily in the Shasta Valley and California's Central Valley.	Absent. Suitable habitat is not present along the portion of the Trinity River being analyzed.
Swainson's hawk *Buteo swainsoni*	*/S3	Occurs in grassland and farmland habitats. Nesting habitat include cottonwood, oak and willow habitats	May be present. Suitable nesting habitat is present along the Trinity River.
Tricolored blackbird *Agelaius tricolor*	*/S1S2	Marshes, grassland, farmland; limited to cismontane California, and the Central Valley area.	Absent. Site is not within the currently known range of the species.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/S1	Occurs in cottonwood/willow riparian forest.	May be present. Suitable habitat is present along the Trinity River in the project area.
White-tailed kite *Elanus leucurus*	*/S3S4	Open groves, river valleys, marshes, grasslands	May be present. Suitable habitat is present along the Trinity River in the project area.

Table 13. Special Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status[1] (Fed/State)	General Habitat	Comments
AMPHIBIANS			
California red-legged frog *Rana aurora draytonii*	T/S2S3	Requires aquatic habitat for breeding; also uses a variety of other habitat types, including riparian and upland areas.	Absent. Site is not within the current or historic range of this species.
Foothill yellow-legged frog *Rana boylei*	*/S2S3	Cool, fast-moving, rocky streams in a variety of habitats.	May be present. The species is known to occur in the Trinity River from the Lewiston Dam to the North Fork Trinity.
Shasta salamander *Hydromantes shastae*	*/S1S2	This species is restricted to a small area in northern California, in the headwaters of Shasta Reservoir drainage, Shasta County, California	Absent. Not known to occur in Trinity County.
Western spadefoot toad *Scaphiopus hammondi*	*/S3	Wetland, Rivers, Foothills, Mountains	Absent. Not known to occur in Trinity County.
INVERTEBRATES			
Trinity bristle snail *Monadenia setosa*	*/S2	Riparian corridors and canyon slopes with dense deciduous understory in Trinity County.	Absent. Species not detected during surveys of potential Trinity River restoration sites.
Big Bar hesperian snail *Vespericola pressleyi*	*/S1	Old growth, riparian, conifer forests, and hardwood forest, seeps, spring and stable stream habitats in Trinity County	Absent. Species not detected during surveys of potential Trinity River restoration sites.
Hooded lancetooth *Ancotrema voyanum*	*/S1S2	Near streams or intermittent stream channels where substrate is permanently damp	Absent. Species not detected during surveys of potential Trinity River restoration sites.
Klamath shoulderband snail *Helminthoglypta talmadgei*	*/S1S3	Talus and other rocky substrates, rock fissures or large woody debris.	Absent. Species not detected during surveys of potential Trinity River restoration sites.
Siskiyou shoulderband snail *Monadenia chaceana*	*/S2	Moist microhabitats in late-successional forest and talus slopes or rocky areas.	Absent. Species not detected during surveys of potential Trinity River restoration sites.

Table 13. Special Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status[1] (Fed/State)	General Habitat	Comments
Tehama chaparral snail *Trilobopsis tehamana*	*/S1	Rocky tallus under leaf litter and woody debris by limestone outcrops.	Absent. Species not detected during surveys of potential Trinity River restoration sites.

[1]Status Codes: Federal Codes: E = Endangered; T = Threatened; D = Delisted; C = Candidate; * = BLM Sensitive

State Codes: S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state. S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state. S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state. S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors. FP = California Fully Protected species.

Table 14. Summary Acreages of USACE Jurisdictional Waters and Wetlands within the Project Area.

Feature Type	Total Acres (Impacted Acres)	
Perennial Stream / Riverine Trinity River	**Total acres**	12.47
	(Impacted acres)	(1.20)
Total Other Waters	**Total acres**	12.47
	Impacted acres	(1.20)
Riparian Wetland		
Above OHWM	Total acres	1.34
	(Impacted acres)	(0.27)
Below OHWM	Total acres	13.37
	(Impacted acres)	(2.78)
Wet Meadow		
Above OHWM	Total acres	0.00
	(Impacted acres)	(0)
Below OHWM	Total acres	0.03
	(Impacted acres)	(0)
Seasonal Wetland		
Above OHWM	Total acres	0.01
	(Impacted acres)	(0.01)
Below OHWM	Total acres	0.95
	(Impacted acres)	(0.95)
Ponded Wetland		
Above OHWM	Total acres	1.01
	(Impacted acres)	(0)
Below OHWM	Total acres	0.42
	(Impacted acres)	(0.40)
Scrub Shrub		
Above OHWM	Total acres	1.23
	(Impacted acres)	(0.17)
Below OHWM	Total acres	2.07
	(Impacted acres)	(0.41)
Total Wetlands	**Total acres**	**20.43**
	(Impacted acres)	**(4.99)**
Total Jurisdictional Waters	**Total acres**	**32.9**
	(Impacted acres)	**(6.19)**

Emergent Wetland

Emergent wetlands occur adjacent to the riverine system, in backwaters and depressions along the river, and in tailing pits that are saturated for long periods. This wetland type was present in the project area. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Vegetation, typically perennial, is present for most of the growing

season in most years. In the project region, typical dominant plant species include narrow-leaf cattail (OBL), Himalayan blackberry, perennial ryegrass (FAC), and narrowleaf willow. The emergent wetland sites at the Bucktail site are in the high flow channel that flows through a concrete box culvert under Browns Mountain Road into the Trinity River; west of the Trinity River, and north of Browns Mountain Road. The dominant vegetation is tufted hair grass and lamp rush.

Seasonal Wetland

In general, seasonal wetlands often occur in level or low-lying areas that exhibit positive field indicators of long-duration saturation during the growing season. An area identified as a seasonal wetland was identified within the Bucktail site.

Scrub Shrub

Scrub-shrub wetland features are present in the project area. Scrub-shrub wetlands in the ESL are dominated by narrowleaf willow and Himalayan blackberry growing in a cobble substrate.

Wet Meadow

Seasonal wet meadows occur in areas where water does not appear to pond but nevertheless the soil saturates to the surface for sufficient duration to create a wetland habitat. Riparian wet meadow features were found at the Bucktail site in depressions that are not directly adjacent to the river. Seasonal wet meadows are typically composed of herbaceous plant species that tolerate long-duration saturation. At the Bucktail site, riparian wet meadow features are located in a depressional area situated between Browns Mountain Road and the high flow dike west of the Trinity River. This feature is dominated by hydrophytic vegetation that is influenced by the perennial stream. The feature falls mostly within the OHWM. Dominant vegetation observed in riparian wet meadow features at the Bucktail site include tufted hair grass, lamp rush, and Himalayan blackberry.

Ponded Wetland

A ponded wetland feature is located in the project area. This feature is dominated by broad-leaf cat-tail (*Typha latifolia* - OBL) and bulrush (*Schoenoplectus* sp. - OBL) growing in a depression in a tailing pile. Several species of ducks, frogs, and birds were using the pond during the site visit (North Wind 2013).

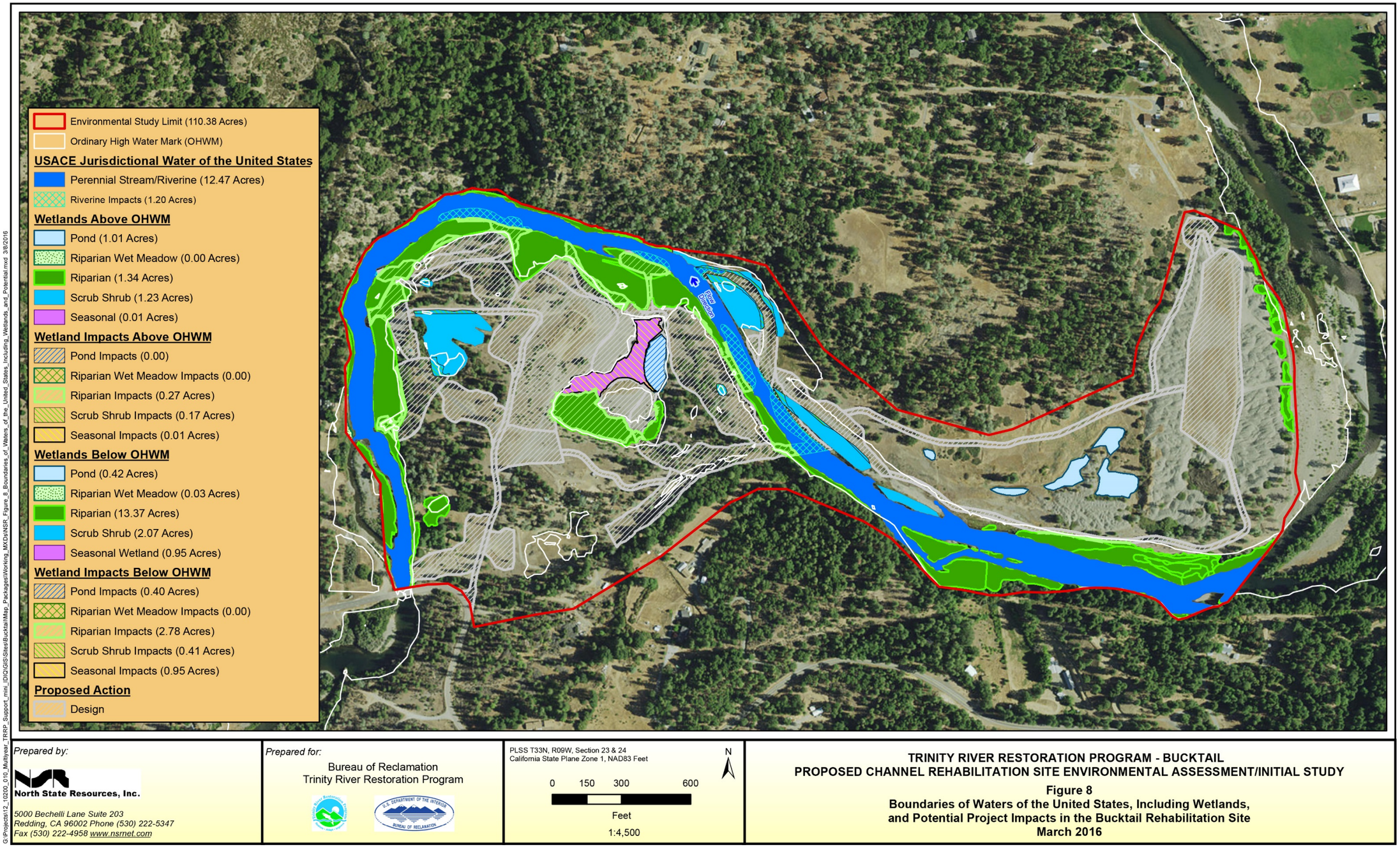


Figure 8. Boundaries of Waters of the United States, Including Wetlands, and Potential Project Impacts in the Bucktail Rehabilitation Site.

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3.7.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Methods used to assess potential impacts of the Proposed Project on vegetation and wildlife resources included a review of pertinent literature and data and field surveys. Evaluation of the presence of special status species and sensitive habitats within the boundaries of the site was conducted by performing a database search of the CNDDB and informally consulting with resource agencies (e.g., CDFW, NMFS, and USFWS) regarding biological resource issues associated with the implementation of rehabilitation projects along the Trinity River. These efforts provided an overview of the quality and character of potential habitat present within the project reach.

CEQA Significance Criteria

Significance criteria used to analyze the potential impacts of the Proposed Project on vegetation, wildlife, and wetland resources include factual and scientific information and the regulatory standards of county, state, and federal agencies, including the CEQA guidelines. These criteria have been developed to establish thresholds to determine the significance of impacts pursuant to CEQA (Section 15064.7) and should not be confused with a "take" or adverse effect under the ESA. The Aquatic Conservation Strategy – Consistency Evaluation is provided as Appendix C of this EA/IS.

Impacts on vegetation would be significant under CEQA if implementation of the Proposed Project would result in any of the following:

- Potential to substantially reduce the number or restrict the range of an endangered or threatened plant species or a plant species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native plant species including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native plant population to drop below self-sustaining levels;
- Potential to eliminate a native plant community;
- Substantial adverse effect, either directly or through habitat modifications, on any plant identified as a sensitive or special status species in local or regional plans, policies, or regulations;
- Substantial adverse effect on the quantity or quality of riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- A conflict with any local policies or ordinances regarding protection or control of vegetation resources;

- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of plant resources; or

- An increased potential for spread of non-native and invasive plant species.

Impacts on wildlife would be significant under CEQA if implementation of the Proposed Project would result in any of the following:

- Mortality of state or federally listed wildlife species, or species that are candidates for listing or proposed for listing;

- Potential for reductions in the number, or restrictions of the range, of an endangered or threatened wildlife species or a wildlife species that is a candidate for state listing or proposed for federal listing as endangered or threatened;

- Potential for substantial reductions in the habitat of any wildlife species, including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;

- Potential for causing a wildlife population to drop below self-sustaining levels;

- Substantially block or disrupt major terrestrial wildlife migration, or travel corridors;

- Substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a sensitive or special status species in local or regional plans, policies, or regulations;

- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;

- A conflict with any state or local policies or ordinances protecting wildlife resources; or

- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wildlife species.

Impacts on wetlands would be significant under CEQA if they would result in any of the following:

- Substantial adverse effect on any riparian habitat;

- Substantial adverse effect on federally protected wetlands as defined by section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;

- A conflict with any state or local policies or ordinances protecting wetland and/or riparian resources; or

- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wetland resources.

Impacts and Mitigation Measures/Project Design Features

Table 15 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No Project alternative and the Proposed Project.

Table 15. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.7-1. Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.		
No impact	Significant	Less than significant
Impact 3.7-2. Implementation of the project would result in the loss of upland plant communities.		
No impact	Less than significant	Not applicable[1]
Impact 3.7-3. Construction of the project could result in the loss of individuals of a special status plant species.		
No impact	Less than significant	Not applicable[1]
Impact 3.7-4. Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.		
No impact	Significant	Less than significant
Impact 3.7-5. Construction activities associated with the project could result in impacts to foothill yellow-legged frog.		
No impact	Significant	Less than significant
Impact 3.7-6. Construction activities associated with the project could result in impacts to western pond turtle.		
No impact	Significant	Less than significant
Impact 3.7-7. Construction activities associated with the project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat.		
No impact	Significant	Less than significant
Impact 3.7-8. Construction activities associated with the project could result in impacts to nesting bald eagle and northern goshawk.		
No impact	Significant	Less than significant
Impact 3.7-9. Construction activities associated with the project could result in impacts to special status bats and the ring-tailed cat.		
No impact	Significant	Less than significant

Table 15. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.7-10. Construction activities associated with the project could result in the temporary loss of non-breeding habitat for several special status birds.		
No impact	Less than significant	Not applicable[1]
Impact 3.7-11. Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.		
No impact	Less than significant	Not applicable[1]
Impact 3.7-12. Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.		
No impact	Less than significant	Not applicable[1]
Impact 3.7-13. Implementation of the project could result in the spread of non-native and invasive plant species.		
No impact	Significant	Less than significant

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.7-1: Construction activities associated with the Proposed Project could result in the loss of jurisdictional waters including wetlands.

No Project Alternative

Under the No Project alternative, no loss of jurisdictional wetlands would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Floodplain values and functions would be enhanced by the Proposed Project in conjunction with ROD flows released by the TRD. Consequently, substantial non-riparian areas beyond those identified in pre-project plant community delineations are expected to convert to riparian habitats (in some cases, jurisdictional wetlands), both seasonal and perennial, within a three to five year post-project window. The TRRP would take advantage of opportunities during or after a project's construction to enhance wetland functions within a site or to create conditions required for functional jurisdictional wetlands (i.e., hydrology, vegetation, and hydric soils) to persist over time. For example, excavation of areas upslope (above the OHWM) to a depth coincident with medium- or low-flow (2,000–450 cfs) conditions may provide opportunities to establish the hydrologic conditions necessary for establishing functional jurisdictional wetlands.

Construction activities associated with the Proposed Project would result in temporary impacts to jurisdictional waters, including wetland features in the project area. These impacts would be considered significant. Figure 8 shows the acres of jurisdictional waters that would be affected by the

Proposed Project. Construction of the Proposed Project would result in a direct temporary impact to 2.75 acres of riparian wetlands and 1.20 acres of riverine habitat. Impacts to wetlands are displayed in Table 14.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in the loss of jurisdictional waters including wetlands. Therefore, mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-2: Implementation of the Proposed Project would result in the loss of upland plant communities.

No Project Alternative

Under the No Project alternative, no construction-related effects to upland plant communities would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The Proposed Project would result in the temporary disturbance of upland plant communities (see Figure 7). While project activities would modify the contour and slope of upland areas, these areas would be subject to natural recruitment of native plants, supplemented by planting programs consistent with the TRRP vegetation management objectives including minimizing invasive species impacts and the enhancement of wildlife habitat. Over time, these upland areas would be revegetated to the degree that site conditions allow.

The TRRP is anticipating intermittently watering the planted areas (especially upland areas) during dry conditions to help assist plants in establishing their roots and restoring the land to its natural condition. A combination of replanting and natural revegetation would occur to ensure that upland habitat values on the Trinity River meet wildlife needs. The need for revegetation would be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas would be restored to their original condition upon completion of work.

Impact 3.7-3: Construction of the Proposed Project could result in the loss of individuals of a special status plant species.

No Project Alternative

Under the No Project alternative, no construction-related impacts to a special status plant species would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The Proposed Project site was surveyed for special status plant species in 2013, 2014, and 2015 following protocols outlined in the Master EIR. No special status plants were detected within the project area during these pre-construction botanical surveys (TCRCD and North Wind 2014, 2015). Therefore, no impacts to special status plant species would occur as a result of the Proposed Project.

Impact 3.7-4: Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher (Empidonax traillii).

No Project Alternative

Under the No Project alternative, no construction-related impacts to the little willow flycatcher would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Suitable montane riparian habitat for the little willow flycatcher may be present in the project area; the species has previously been detected in the region (Wilson 1995; Miller et al. 2003; Herrera 2006). Consequently, little willow flycatcher may nest in the project area. Project activities (e.g., grading, vegetation removal) in montane riparian habitat may result in a temporary reduction of foraging habitat for this species. However, the environmental commitments and project design features listed in Chapter 2, coupled with implementation of mitigation measures 4.6-1a, 4.6-1b, and 4.6-1c described in Appendix B would ensure that there is no net loss of riparian habitat and a long-term increase in riparian habitat diversity. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the Proposed Project is not expected to have a significant impact on habitat for little willow flycatcher. However, the removal of riparian vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the project area. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting little willow flycatchers or any activities resulting in nest abandonment would be considered a significant impact.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher. Therefore, mitigation measures 4.7-4a, 4.7-4b, 4.7-4c, and 4.7-4d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-5: Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog (Rana boylii).

No Project Alternative

Under the No Project alternative, no construction-related impacts to foothill yellow-legged frog would occur. Therefore, there would be no impact.

Proposed Project

The foothill yellow-legged frog is known to occur in the Trinity River from the Lewiston Dam to the North Fork Trinity River (CDFW 2003b). Construction activities associated with the Proposed Project may affect foothill yellow-legged frog directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance of boulders or cobbles that support egg masses, and the loss of riparian vegetation cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be significant. Over the long term, the Proposed Project would benefit the species through the creation of additional and higher quality habitat, such as feathered edges and backwaters that would provide habitat for early life-stages. Habitat for yellow-legged frog would be increased by the proposed creation of a wetland feature as well as other habitat improvements throughout the site.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to foothill yellow-legged frog. Therefore, mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-6: Construction activities associated with the Proposed Project could result in impacts to the western pond turtle (Actinemys marmorata).

No Project Alternative

Under the No Project alternative, no construction-related impacts to the western pond turtle would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Riverine and riparian habitats along the Trinity River provide suitable habitat for western pond turtle. Construction activities associated with the Proposed Project could affect pond turtles directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance to nests in upland areas, and the loss of riparian cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be significant. However, over the long term, the Proposed Project would benefit the species through the

creation of additional and higher quality habitat. For example, removal of riparian berms would improve access to potential upland nesting and overwintering sites, and the creation of a side channels and large wood addition would provide slow-water basking and foraging habitat. Habitat for western pond turtle would be increased by the proposed creation of a wetland feature as well as other habitat improvements throughout the site.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to western pond turtle. Therefore, mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, 4.7-6d, and 4.7-6e described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-7: Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift (Chaetura vauxi), California yellow warbler (Dendroica petechia), and yellow-breasted chat (Icteria virens).

No Project Alternative

Under the No Project alternative, no construction-related impacts to nesting California yellow warbler, yellow-breasted chat, and Vaux's swift would occur. Therefore, there would be no impact.

Proposed Project

The riparian community commonly found along the Trinity River provides suitable nesting and foraging habitat for the California yellow warbler and yellow-breasted chat. The conifer habitat in the region also provides habitat for Vaux's swift. Consequently, project activities may result in impacts to these California Species of Special Concern. The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. However, the environmental commitments and project design features listed in Chapter 2, coupled with implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described in Appendix B would ensure that there is no net loss of riparian habitat. Furthermore, project implementation would result in a long-term increase in riparian habitat diversity, increasing the quality of the habitat for California yellow warbler and yellow-breasted chat. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the Proposed Project is not expected to have a significant impact on habitat for California yellow warbler, yellow-breasted chat, or Vaux's swift. However, the removal of vegetation and the noise associated with construction activities could disturb individuals nesting in or adjacent to the project area. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting individuals or any activities resulting in nest abandonment would be a significant impact.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat. Therefore, mitigation measures 4.7-7a,

4.7-7b, 4.7-7c, and 4.7-7d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-8: Construction activities associated with the Proposed Project could result in impacts to nesting bald eagle (Haliaeetus leucocephalus) and northern goshawk (Accipiter gentilis).

No Project Alternative

Under the No Project alternative, no construction-related impacts to active raptor nests would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The hardwood and conifer communities commonly found along the Trinity River in the project region provide suitable nesting and foraging habitat for the bald eagle, designated by the State of California as endangered, and the northern goshawk, designated as a California Species of Special Concern. The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. Overall, as a result of the temporary nature of the impacts and the regional abundance of similar habitats, the Proposed Project is not expected to have a significant impact on habitat for bald eagle or northern goshawk. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting bald eagles or goshawks, or any activities resulting in nest abandonment, would be a significant impact.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to nesting bald eagle and northern goshawk. Therefore, mitigation measures 4.7-8a, 4.7-8b, 4.7-8c, and 4.7-8d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Due to the removal of the bald eagle from the endangered species list, and the availability of the National Bald Eagle Management Guidelines provided by the USFWS to protect the bald eagle, these mitigation measures are now stricter than those outlined in the 2009 Master EIR, and provide additional protections for the bald eagle to abide by directives within the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Implementation of the Proposed Project, including the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-9: Construction activities associated with the Proposed Project could result in impacts to special status bats and the ring-tailed cat (Bassariscus astutus).

No Project Alternative

Under the No Project alternative, no construction-related impacts to breeding special status bats or the ring-tailed cat would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The Trinity River riparian corridor provides suitable roosting and/or foraging habitat for four bat species: long-eared myotis *(Myotis evotis)*, pallid bat *(Antrozous pallidus)*, Yuma myotis *(Myotis yumanensis)*, and Townsend's western big-eared bat *(Corynorhinus townsendii townsendii)*. Two of these bat species (long-eared myotis bat and pallid bat) may roost in trees (e.g., spaces under tree bark or in cavities) as well as caves and buildings, while the other two species (Townsend's western big-eared bat and Yuma myotis) prefer to nest in structures such as buildings, bridges, caves, and mines. For the long-eared myotis and pallid bat (that roost in trees), habitat preference is typically woodland and forest habitat. It is unlikely that these bats would roost in the willows and alders typically found immediately along the Trinity River. However, they may roost in habitats more likely to contain large trees with cavities or loose bark, such as montane hardwood. Noise and visual disturbances associated with construction activities may disrupt bats roosting within and directly adjacent to the project area.

Each of these bat species has the potential to forage in the rehabilitation site. Foraging habitat typically consists of forested areas in close association with water. Construction activities associated with the Proposed Project could temporarily alter the foraging patterns of these species. However, this would be considered a less than significant impact based on the abundance of suitable foraging habitat in the region. No long-term adverse impacts to foraging habitat associated with Proposed Project implementation are anticipated.

The Trinity River riparian corridor also provides habitat for the ring-tailed cat. The willows and alders found immediately along the river are unlikely to provide suitable den habitat for this species due to the small size of the trees and lack of large cavities or snags. However, other habitats in the project area, such as Douglas-fir and ponderosa pine habitats may provide suitable den sites. Construction activities could result in a short-term reduction in foraging habitat for this species. Due to the abundance of similar habitat in the area, the temporary loss of foraging habitat would be a less than significant impact.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to special status bats and the ring-tailed cat. Therefore, mitigation measures 4.7-9a, 4.7-9b, and 4.7-9c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.7-10: Construction activities associated with the Proposed Project could result in the temporary loss of non-breeding habitat for special status birds.

No Project Alternative

Under the No Project alternative, no construction-related impacts to non-breeding habitat for special status bird species would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

The Trinity River riparian corridor provides both foraging and perching habitat for golden eagle, American peregrine falcon, and black swift, and suitable nesting habitat may be present in some locations. Construction activities associated with the Proposed Project could temporarily alter the foraging patterns of these species. However, this impact would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the Proposed Project site. No long-term adverse impacts to foraging habitat associated with project implementation are anticipated. The loss of potential perch or nesting trees would not affect the abundance of these species or their use of the Trinity River for foraging.

Impact 3.7-11: Construction activities associated with the Proposed Project could result in impacts to BLM and USFS sensitive species.

No Project Alternative

Under the No Project alternative, no construction-related impacts to BLM or USFS sensitive species would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Several of the special status wildlife species with potential to occur in the project area are designated BLM or USFS sensitive species: foothill yellow-legged frog, western pond turtle, northern goshawk, little willow flycatcher, Pacific fisher, long-eared myotis bat, pallid bat, Townsend's western big-eared bat, and Yuma myotis bat. With the exception of Pacific fisher, potential impacts to these species are discussed as separate impacts above. Similar to the ring-tailed cat, the Trinity River riparian corridor and adjoining upland habitat provides habitat for the Pacific fisher. The willows and alders found immediately along the river are unlikely to provide suitable den habitat for this species due to the small size of the trees and lack of large cavities or snags. However, the project area could be used a migratory corridor. Habitat is marginal because the area is disturbed and because of the proximity of residences. Construction activities would result in a short-term reduction in foraging habitat for this species. Due to the abundance of similar habitat in the area, the temporary loss of foraging habitat would be a less than significant impact.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in impacts to BLM and USFS sensitive species. Therefore, the environmental commitments and project design features listed in Chapter 2, in conjunction with the following mitigation measures described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Mitigation measures 4.7-4a, 4.7-4b, and 4.7-4c would reduce impacts to the little willow flycatcher to a less than significant level. Mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d would reduce the impacts to the foothill yellow-legged frog to a less than significant level. Mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, and 4.7-6d would reduce the impacts to the western pond turtle to a less than significant level. Mitigation measures 4.7-8a, 4.7-8b, and 4.7-8c would reduce the impacts to the northern goshawk to a less than significant level, and mitigation measures 4.7-9a and 4.7-9b would reduce the impacts to special status bat species to a less than significant level. These mitigation measures are referenced

here from previous impact sections rather than reiterating them numerous times in an effort to reduce the size of document. Since no significant impacts to the Pacific fisher were identified, no mitigation is required.

Impact 3.7-12: Construction activities associated with the Proposed Project could restrict terrestrial wildlife movement through the project area.

No Project Alternative

Under the No Project alternative, construction-related restriction of terrestrial wildlife movement through the project area would not occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Construction noise and activity would not impede the seasonal migration of the Weaverville deer herd from high-elevation summer habitats to lower elevation critical winter ranges. Construction noise could temporarily alter foraging patterns of resident wildlife species, and vegetation removal along the river could temporarily disrupt wildlife movement through the area. However, no long-term impediments to wildlife movement within the project area are anticipated as a result of implementing the Proposed Project. Therefore, this would be a less than significant impact.

Impact 3.7-13: Implementation of the Proposed Project could result in the spread of non-native and invasive plant species.

No Project Alternative

Under the No Project alternative, the spread of non-native and invasive plant species would not occur as a result of construction activities because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Project implementation could result in the spread of non-native and invasive plant species (e.g., dalmatian toadflax, Himalayan blackberry, yellow star-thistle, cheatgrass, and others) during ground-disturbing activities. This would be considered a significant impact. Implementation of the mitigation measures described below would address the potential for spread of invasive species. Intermittently watering planted areas (especially upland areas) during dry conditions would assist desirable plants in establishing their roots and help to restore the land to its natural condition and reduce the risk of spread of non-native and invasive plants.

Mitigation Measures/Project Design Features

Implementation of the Proposed Project could result in the spread of non-native and invasive plant species. Therefore, mitigation measures 4.7-13a, 4.7-13b, 4.7-13c, 4.7-13d, 4.7-13e, 4.7-13f, and 4.7-13g described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

3.8 Recreation and Wild and Scenic Rivers

This section describes the recreation resources within the boundaries of the site and evaluates the effects of the Proposed Project on these resources. The Proposed Project's conformance with the federal and state WSRA is evaluated, and the Wild and Scenic River Section 7 Analysis and Determination is documented in Appendix E. Recreation resources are further addressed in the Master EIR, Section 4.8.

3.8.1 Affected Environment/Environmental Setting

The federal government manages about 72 percent of the land in Trinity County. BLM is the primary land manager for public lands between Lewiston Dam and the confluence of the North Fork Trinity River, including lands in the corridor of the mainstem Trinity River that comprise portions of the project area. Recreational opportunities are generally available on BLM-managed lands. The Trinity River was designated as a National Wild and Scenic River in 1981. The designated Wild and Scenic reach extends from Lewiston Dam downstream to Weitchpec. Three tributaries to the Trinity River are also designated as Wild and Scenic: the New River, South Fork Trinity River, and North Fork Trinity River. Two scenic byways cross Trinity County: the Trinity Heritage Scenic Byway and the Trinity Scenic Byway. These byways provide scenic travel routes through Trinity County for residents and visitors.

The Trinity River provides year-round recreation opportunities. These opportunities include drift boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, hunting, and sightseeing. Fishing for Chinook salmon, steelhead, and rainbow and brown trout are major recreational activities on the Trinity River throughout the year. Although instream recreational activities occur throughout the year, they are most prevalent between the months of April and February. Access to the Trinity River is available from both public and private lands, and ranges from undeveloped or primitive use areas to fully developed commercial resorts. Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites. Numerous river access sites occur between Lewiston Dam and Weitchpec. Although public use is restricted at most private river access points, public agencies, including BLM, USFS, CDFW, and California DWR offer a number of public river access points throughout the 40-mile reach including a BLM boat ramp at the Bucktail site. Public river access is not only used for a variety of water-based recreational activities, but for other activities as well, such as wildlife viewing and picnicking. River access and recreational development is concentrated around the communities of Lewiston, Douglas City, and Junction City.

Many kinds of development have occurred along the 40-mile reach of the Trinity River. In addition to residential and commercial development, there are a number of recreation developments managed by public agencies. These areas provide a variety of recreation opportunities, such as fishing, whitewater rafting, picnicking, and wildlife viewing. Within the Bucktail site, there is a BLM river access facility that includes a boat ramp and comfort station.

3.8.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The analysis of the potential effect on recreation resources as a result of the Proposed Project consists of identifying recreational resources (e.g., recreation facilities) near the boundaries of the project area and determining whether implementation of the action would impact these resources. This analysis is qualitative. In addition to evaluating the impacts on recreational resources, an evaluation was made of the Proposed Project's consistency with Trinity County recreation objectives and state and federal Wild and Scenic River designations. The WSRA Section 7 Determination for the Bucktail site (Appendix E to this EA/IS) concluded that the Proposed Project would enhance the river's outstandingly remarkable values (i.e., its fishery).

CEQA Significance Criteria

Impacts associated with recreational uses would be significant under CEQA if the Proposed Project would:

- Conflict with established or planned recreational uses within the sites' boundaries;
- Substantially affect existing recreational opportunities; or
- Result in an increase in the use of the existing neighborhood, regional parks, public lands in general, or other recreational facilities such that substantial deterioration of these facilities would occur or be accelerated.

The following criteria were used to determine if the Proposed Project's impacts to riverine recreation would be significant under CEQA:

- A substantial increase in turbidity so as to negatively affect recreation aesthetics;
- Incompatibility with the federal or state wild and scenic river designation, which is defined as jeopardizing the river's scenic, recreational, or fish and wildlife resources; or
- Non-compliance with Trinity County recreation resource objectives.

Impacts and Mitigation Measures/Project Design Features

Table 16 summarizes the potential recreation impacts resulting from the No Project and Proposed Project alternatives.

Table 16. Summary of Potential Recreation Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.8-1. Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.		
No impact	Significant	Less than significant

Table 16. Summary of Potential Recreation Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.8-2. Construction of the project could result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries.		
No impact	Significant	Less than significant
Impact 3.8-3. Construction activities associated with the project could lower the Trinity River's aesthetic value for recreationists by increasing its turbidity.		
No impact	Significant	Less than significant
Impact 3.8-4. Implementation of the project could affect Wild and Scenic River values.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.8-1: Construction associated with the Proposed Project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.

No Project Alternative

Under the No Project alternative, there would be no disruption of recreation activities in the Trinity River, such as boating, fishing, and swimming, because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

During Proposed Project implementation, there would be construction equipment and activity within the active river channel, the floodplain, and adjacent upland areas in close proximity to the Trinity River. Activities would include vegetation removal and grading. Overall, treatments proposed within the activity areas described in Chapter 2 could result in temporary interruptions of public access and use in the immediate vicinity of the activity areas. However, river access at the site would continue to be available because several public and private access points are present in the vicinity. These alternative access points would ensure uninterrupted public access to the river in the vicinity. Potential disruptions to recreational activities within the project area would be temporary, lasting only during construction, but this impact would be significant.

Mitigation Measures/Project Design Features

Construction associated with the Proposed Project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River, as well as camping along the river. The environmental commitments and project design features listed in Chapter 2, in conjunction with mitigation measures 4.8-1a and 4.8-1b described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.8-2: Construction of the Proposed Project could result in an increased safety risk to recreational users or resource damage to lands within the Project boundaries.

No Project Alternative

Under the No Project alternative, there would be no safety risks to recreational users or resource damage to lands within the project area because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

During construction of the Proposed Project, there would be heavy equipment activity and construction vehicle traffic operating within, and immediately adjacent to, the Trinity River. Activities associated with the Proposed Project would require in-river construction work for a short period of time (approximately 3 to 6 weeks) during the in-river work window. These construction-related activities could distract recreational users (e.g., boaters, anglers). The in-river work activities would be accomplished in a way that minimizes impacts to navigation (i.e., safety) but this would still be considered a significant impact, albeit temporary.

Activities associated with in-river work would occur between July 15 and September 15. However, work directly adjacent to the wetted channel might continue for the duration of the construction period. Vehicular access to activity areas, including both uplands and in-river activity areas, would be limited to authorized personnel.

Temporary construction activities associated with the Proposed Project could pose a significant hazard to recreational users of the river and cause resource damage to recreational lands within the project area. Potential hazards to recreationists include the operation of construction equipment and vehicles in and around the site, changes to the bed and banks of the river as a result of excavation and/or placement of alluvium (e.g., gravel), the addition of large wood into the channel, and an increased potential for a hazardous materials spill (e.g., diesel and hydraulic fluid) related to the presence of construction equipment and vehicles operating in and adjacent to the river. Potential hazards to resources on recreational lands within project boundaries include an increased potential for hazardous materials spills and unstable riverbanks and/or uplands resulting from excavation, material addition, road creation, and vegetation removal. These impacts would be temporary, but significant.

Post construction, activity areas would be evaluated by Reclamation in conjunction with land managers to identify specific prescriptions required to minimize any further potential safety risks to recreational users and to ensure the avoidance of any further Project effects to resources occurring on recreational lands within the project area.

Mitigation Measures/Project Design Features

Construction of the Proposed Project could result in an increased safety risk to recreational users or resource damage to lands within the project area. The environmental commitments and project design features listed in Chapter 2, in conjunction with mitigation measures 4.8-1a and 4.8-1b described in Appendix B, will be implemented to reduce the potential for impacts associated with the Proposed Project. These mitigation measures respond to multiple issues. In an effort to reduce the

size of document, they are referred to for multiple impacts rather than reiterating the list numerous times. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.8-3: Construction activities associated with the Proposed Project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity.

No Project Alternative

Under the No Project alternative, turbidity levels in the Trinity River would not increase because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Implementation of the Proposed Project could increase turbidity in the Trinity River for some distance downstream. The level of this increase would be largely dependent on the flow regime at the time of the project. Flows that typically contribute to good fishing tend to be clear, thus nominal increases in turbidity may affect the recreational experience of anglers and the aesthetic values held by other user groups. Water quality objectives for the Trinity River specifically prohibit the discharge of any materials into the river that could cause a nuisance or adversely affect beneficial uses (e.g., recreation).

The Regional Water Board's Basin Plan (Regional Water Board 2011) includes two specific prohibitions directed at construction, logging, and other associated non-point source activities:

- The discharge of soil, silt, bark, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited; and

- The placing or disposal of soil, silt, bark, slash, or sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

Implementation of the Proposed Project would increase the potential for turbidity and total suspended solids during construction activities. Fine sediments could be suspended in the river for several hours following in-channel activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays could be carried several thousand feet downstream of the activity area, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction limit. Increased turbidity and suspended solids levels would adversely affect water quality (refer to Section 4.5, Water Quality, of the Master EIR) and could adversely affect anadromous fish species that are known to occur in the Trinity River (refer to Section 4.6, Fisheries Resources, of the Master EIR), and could have a noticeable effect on the river's aesthetics. Increases in turbidity would be a significant impact.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could reduce the Trinity River's aesthetic values for recreationists by increasing turbidity. The environmental commitments and project design features listed in Chapter 2, in conjunction with mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e identified to protect water quality and described in Appendix B, will be implemented to reduce the potential for impacts associated with the Proposed Project. These commitments, features and measures specifically reduce turbidity but also minimize potential impacts to multiple resource areas (e.g., water quality, fisheries, and recreation). In an effort to reduce the size of document, these mitigation measures are referred to in multiple resource areas rather than reiterating the list numerous times in the appendix. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.8-4: Implementation of the Proposed Project could affect Wild and Scenic River values.

No Project Alternative

Under the No Project alternative, there would be no adverse impacts to Wild and Scenic River values because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Construction and implementation of the Proposed Project would have a temporary effect on the scenic and recreational components of the Trinity River's Wild and Scenic River values. However, this temporary impact would be less than significant because the rehabilitation activities would ultimately enhance the overall form and function of the Trinity River, thereby enhancing the outstandingly remarkable values for which it was designated a Wild and Scenic River. Temporary impacts on the scenic quality of the river are previously discussed under Impact 3.8-3 and in Section 3.12 (Visual Resources). The impact on Wild and Scenic River values would be less than significant because Proposed Project activities would be temporary and would ultimately enhance the "natural" qualities of the river.

3.9 Socioeconomics

This section evaluates potential impacts on socioeconomic conditions, population, and housing from Project implementation. This section is tiered to the detailed discussion of regional socioeconomic conditions, population, and housing in the Master EIR, Section 4.9. Information regarding poverty rates and population by race and ethnicity is included in Section 3.18, Environmental Justice, of this EA/IS. Much of the information in this section is derived from Trinity County 2007: Economic and Demographic Profile (Center for Economic Development 2007). Trinity County is a rural region with substantial amounts of public land and a minimal private land base. As a result, the region is largely dependent on natural resources and recreation-based industries for its economic base.

3.9.1 Affected Environment/Environmental Setting

Labor Market, Population, and Housing

The labor market, population, and housing discussions in the Master EIR (Section 4.9) provide general information that applies to the project area.

Labor Market

The average total labor force in Trinity County between the years of 1991 and 2006 was 5,250 people (California Employment Development Department 2008; Center for Economic Development 2007). Annual variations have ranged from 4,850 people in 1999 to 5,420 people in 2003 (California Employment Development Department 2008; Center for Economic Development 2007). The majority of Trinity County's labor force is concentrated in Weaverville and Hayfork. Trinity County's unemployment rate has been and continues to be consistently higher than the California average. In December 2010, unemployment in Trinity County was 20.5 percent (California Employment Development Department 2011).

Population

Trinity County's population continues to grow at a considerably lower rate than California on average, and was ranked by the U.S. Census Bureau as 54th in total population out of 58 California counties (U.S. Census Bureau 2008). Declines in the timber industry and an attendant loss of jobs have had a significant effect on the county's population. The population of Trinity County is generally characterized by a higher proportion of white and retirement-age persons and lower proportions of Native American, Hispanic, and young working-age persons (Center for Economic Development 2007). The county's demographics are influenced by the large amount of federally owned land in combination with land used for private industrial timber production (10 percent), much of which is restricted from development due to zoning as a Timber Production Zone (Trinity County 2003). Thus, only about 15 percent of the county is private land that is usable for development purposes. The county's rugged terrain and remote location also influence its demographics by limiting the developable area. Most of the population of Trinity County is concentrated in Weaverville, Hayfork, and Lewiston. Education levels of residents are typical of most rural northern California counties, with a greater proportion of high school graduates and a smaller proportion of college graduates (Center for Economic Development 2007).

Housing

The total number of housing units in Trinity County in 2006 was estimated at 8,251 (U.S. Census Bureau 2008). The total number of occupied housing units was estimated at 5,587 (U.S. Census Bureau 2008). During the period of 2000 to 2007, there were 374 single family homes constructed in Trinity County; only two of these were multifamily units (California Employment Development Department 2008). The community of Lewiston offers only limited services, including several commercial enterprises, a U.S. Post Office, and Lewiston Elementary School. The community also has several recreation-based businesses along the river upstream of the Bucktail site, including the Trinity River Resort and RV Park, the Old Lewiston Bridge RV Resort, and the River Oaks Resort. These businesses provide economic benefits to the local community and the county, however, the

Lewiston community is primarily residential. Existing land uses in the general vicinity of the project area are primarily rural residential or lands managed by federal or state agencies and timber management companies.

There is little likelihood that parcels in the vicinity of the project area would be further subdivided because of their location in the floodplain, zoning restrictions, soil conditions, and minimal county services (e.g., community water service). Zoning designations within the community of Lewiston are largely residential, with minimum parcel sizes ranging from 1 to 40 acres (Trinity County 2003). Rural Residential zoning within this community requires a minimum parcel size of 1 to 5 acres to retain the rural character of the area. Many of these parcels do not have access to community services, and rely on individual sewer and water services. In addition, portions of many parcels located directly adjacent to the river are designated as Flood Hazard and Open Space zones, restricting further development in these areas. Therefore, there is little potential for increased development densities in the project area. BLM-managed public lands in and adjacent to the project area are primarily managed for resource and recreation uses, and planned development would need to be consistent with resource and recreation goals and objectives of agency management plans.

3.9.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The following section provides a brief overview of the methods used to assess the potential socioeconomic impacts of the Proposed Project. These methods included qualitative assessments of potential impacts associated with employment, income, conflicts with county and local plans, population growth, displacement of persons and businesses, and community disruption. For this assessment, Trinity County is considered to be the area of potential socioeconomic impact.

CEQA Significance Criteria

For purposes of CEQA, under which "economic or social impacts of the Proposed Project shall not be treated as significant impacts on the environment," impacts on population and housing are relevant only if they either (i) directly relate to an impact on the physical environment, in which case a lead agency may, but need not, consider economic or social impacts in determining whether such physical impacts are significant, or (ii) would result in a reasonably foreseeable indirect impact on the physical environment (See CEQA Guidelines, § 15131). Under CEQA, the Proposed Project would have a significant impact on population and housing if it:

- Induces substantial growth in an area, either directly or indirectly;
- Displaces substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; and/or
- Displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Impacts and Mitigation Measures/Project Design Features

Table 17 summarizes the potential socioeconomic impacts that could result from implementation of the No Project alternative and the Proposed Project.

Table 17. Summary of Potential Impacts on Socioeconomics for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.9-1. Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.		
No impact	Beneficial	Not applicable[1]
Impact 3.9-2. Implementation of the project could result in the disruption or displacement of local businesses.		
No impact	Less than significant	Not applicable[1]
Impact 3.9-3. Implementation of the project would result in an increased demand for housing during construction.		
No impact	Less than significant	Not applicable[1]
Impact 3.9-4. Implementation of the project would result in concentrated population growth.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is beneficial or less than significant, no mitigation is required.

Impact 3.9-1: Construction of the Proposed Project would provide temporary employment opportunities for construction workers in Trinity County.

No Project Alternative

Under the No Project alternative, no employment opportunities would be created because the Project would not occur. Therefore, there would be no impact.

Proposed Project

Project implementation would generate temporary construction-related employment in Trinity County. The generation of employment would create a beneficial effect on the local economy, even if the employment is short-lived. The exact number of design, construction, and clerical positions required to complete the Proposed Project is undetermined, but implementation of the rehabilitation activities is expected to add a small percentage to existing local jobs during implementation. The duration of employment would be dependent on the length of the contracting and construction period (anticipated to be approximately six months). Although the Proposed Project would provide direct local employment opportunities only if workers are hired from the local labor force, this potential impact would be beneficial.

Impact 3.9-2: Implementation of the Proposed Project could result in the disruption or displacement of local businesses.

No Project Alternative

Under the No Project alternative, there would be no disruption or displacement of local businesses because the Project would not occur. Therefore, there would be no impact.

Proposed Project

Local businesses in the vicinity of the project area would not be disrupted or displaced by activities associated with the Proposed Project. Construction equipment and vehicle access would not impair access to local businesses, and business operations would not be impaired. Access to the river and to recreation sites along the river may be temporarily affected because of the presence of equipment. However, because several other public access locations are available in the vicinity of the project area, the impact would be less than significant.

Impact 3.9-3: Implementation of the Proposed Project would result in an increased demand for housing during construction.

No Project Alternative

Under the No Project alternative, there would be no increased demand for housing during construction because the project would not occur. Therefore, there would be no impact.

Proposed Project

The area surrounding the community of Lewiston is primarily rural residential, and few rental opportunities are available. What rental property does occur in adjacent rural residential areas is typically seasonal rental property available for recreational users. More readily available short-term apartment and single-family rentals are concentrated in the nearby community of Weaverville and, to a lesser degree, Hayfork.

Implementation of the Proposed Project would not result in the displacement of any individual from his or her home. It is not anticipated that any short-term increase in the demand for housing in Weaverville would occur as a result of construction workers seeking lodging during the staging and construction period (primarily July through November) for the Proposed Project. Based on the estimated increase in annual employment generated by the Proposed Project (approximately 20 to 30 persons for the whole project as described in the Master EIR), this would be a less than significant impact, both regionally and locally. In addition to accommodating the short-term demands for housing during previous TRRP rehabilitation projects, the nearby communities have been capable of meeting short-term increases in housing demands resulting from a large influx of fire suppression personnel on a recurring basis. The Proposed Project would generate a much smaller number of housing needs in comparison to the housing demands generated by wildland fires, and the impact would occur only in the short term. Therefore, the impact would be less than significant.

Impact 3.9-4: Implementation of the Proposed Project would result in concentrated population growth.

No Project Alternative

Under the No Project alternative, there would not be a population increase because the project would not occur. Therefore, there would be no impact.

Proposed Project

The Proposed Project would require about 20 to 30 individuals during implementation. An increase in population is not anticipated; if any increase were to occur it would likely occur on a temporary basis. Based on current populations in the local communities, the projected number of workers that could move to the greater Weaverville area would result in a localized increase of less than one percent on a temporary basis. This amount would not constitute a significant change in population. Workers would likely be drawn from the local work force, which would further lessen potential population growth associated with the Proposed Project implementation. Overall, this impact would be less than significant.

3.10 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary federal legislation that outlines the federal government's responsibility related to cultural resources. 54 U.S.C § 306108, commonly known as Section 106 of the NHPA, requires the federal government to take into consideration the effects of the undertaking on any historic property, i.e., cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP).

The Section 106 process is outlined in the federal regulations at 36 CFR 800. These regulations describe the process that the federal agency takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, the federal agency must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, the federal agency must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Officer, to seek concurrence on their findings. In addition, the federal agency is required through the Section 106 process to consult with Indian tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties. Pursuant to 36 CFR 800.2 (a)(2), Reclamation has been identified as the lead federal agency for Section 106 for the current proposed undertaking.

CEQA is the primary state statute that guides cultural resources considerations for actions involving state or local agencies. Similar to the NHPA, the CEQA process seeks to identify cultural resources that are significant and are eligible for inclusion in the California Register of Historical Resources (CRHR) (PRC, Section 21084.1). The guidelines for considering impacts to cultural resources under CEQA are located in the CEQA guidelines, Section 15064.5. If actions result in significant and

unavoidable impacts to resources eligible for inclusion in the CRHR, these effects must be mitigated through prescribed procedures. According to CEQA guidelines, if a cultural resource is eligible for inclusion in the NRHP it is eligible for inclusion in the CRHR and a means of mitigating significant and unavoidable impacts under CEQA can be to resolve adverse effects to historic properties using the Section 106 process. In addition to the environmental commitments and project design features listed in Chapter 2, the mitigation measures provided in Appendix B would be incorporated into a Memorandum of Agreement (MoA) to resolve adverse effects to historic properties assuming such impacts are adverse or significant and unavoidable. By completing the Section 106 process, all the steps and considerations for impacts to cultural resources for CEQA are effectively satisfied.

3.10.1 Affected Environment/Environmental Setting

Trinity County was primarily shaped by three economic pursuits: ranching, logging, and mining. Early settlers during the 1840s farmed, logged, and milled lumber (Colby 1982; Cox 1958; Medin and Allen 1998). This lifestyle was disrupted by the discovery of gold in Trinity County at Reading Creek in 1848. Mining on the Trinity River was a significant industrial operation that contributed to the economic development of Trinity County beginning in the 1850s and continuing to the 1960s (Bradley 1941; Jones 1981; Medin and Allen 2007). Boom towns quickly sprang up throughout the basin, with Weaverville and Trinity Center being among the largest, and nearly every flat and bar along the river was subsequently prospected.

Evidence of mining within the vicinity of the Trinity River is easily identified by even the casual observer. Large dredge tailings created by multiple gold dredge operations line the banks of the Trinity River depicting various stages of dredge development and implementation. Remnant placer mine operations also mark the hillsides along with their supporting infrastructure such as roads and ditches that brought people, equipment, and water to the gold operations. Historic mining activities are exceedingly apparent throughout the TRRP including the current project area. Although it is known that Native Americans extensively used the lands in, and immediately adjacent to, the Trinity River, evidence of this use is not easily located within the TRRP project areas as a result of historic mining operations. Archaeological sites containing Native American type artifacts are rare within TRRP project areas.

Cultural resource inventories, including records searches and pedestrian surveys, were conducted for the majority of the Bucktail site in conjunction with TRRP Phase 1 projects at the Dark Gulch and Lowden Ranch sites in 2007 (Reclamation 2007). Subsequently, additional surveys were conducted specific to the current Bucktail APE in 2015 (Reclamation 2015). BLM's Heritage Resources Program Manager was involved as a reviewer of both reports prepared by Reclamation consistent with its role as co-lead for this NEPA process. All known cultural resources have been recorded and documented in the referenced reports. Reclamation has made the determination that none of these cultural resources are eligible for inclusion in the NRHP. Additionally, consultation with representatives of the HVT and Yurok Tribe and other members of the local Native American community did not identify any traditional cultural properties within or adjacent to the APE.

3.10.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The project area's cultural resources identification and significance determination efforts were conducted in consultation with the BLM and the California State Historic Preservation Office (SHPO) pursuant to the NHPA's Section 106 process and its implementing regulations at 36 CFR Part 800.

CEQA Significance Criteria

The activities within the project area were evaluated to determine how they might affect cultural resources. Impacts on cultural resources are considered significant if implementation of the proposed project would potentially disturb unique cultural resources or properties on, or eligible for, the NRHP.

For historical resources, the lead agencies have reviewed both the federal NHPA and CEQA in order to determine thresholds of significance. CEQA provides that a project may cause a significant environmental effect if the project "may cause a substantial adverse change in the significance of an historical resource" (PRC, Section 21084.1). CEQA Guidelines Section 15064.5 defines a substantial adverse change in the significance of an historical resource to mean "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines, Section 15064.5, subd. (b)(1)). CEQA Guidelines Section 15064.5, subdivision (b)(2), states that the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR;

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

With these definitions in mind, the lead agencies considered impacts on historical resources eligible for the NRHP or CRHR to be significant if the project would alter their eligibility for the NRHP or CRHR by:

- Physically destroying or materially altering the characteristics of the historical resource that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR;

- Introducing visual, audible, or atmospheric elements out of character with the historical resource and its setting in such a way as to demolish or materially alter the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR;

- Causing the historical resource to be subject to neglect to such a degree that the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR would be materially impaired; or

- Resulting in the historical resource being transferred, leased, or sold, with the probability that the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR would be materially impaired.

In addition, based on CEQA Guidelines Section 15064.5 and Appendix G of the CEQA Guidelines, the Proposed Project would have significant effects under CEQA if they would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;

- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

- Disturb any human remains, including those interred outside of formal cemeteries.

Impacts and Mitigation Measures/Project Design Features

Table 18 summarizes the potential cultural resource impacts resulting from the No Project and Proposed Project alternatives.

Table 18. Summary of Potential Cultural Resources Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.10-1. Implementation of the project could cause a substantial adverse change in the significance of a known cultural resource.		
No impact	Less than significant	Not applicable[1]
Impact 3.10-2. Implementation of the project could potentially result in disturbance of undiscovered prehistoric or historic resources.		
No impact	Potentially significant	Less than significant
Impact 3.10-3. Implementation of the project could potentially result in disturbance of undiscovered human remains.		
No impact	Potentially significant	Less than significant

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.10-1: Implementation of the Proposed Project could cause a substantial adverse change in the significance of a known cultural resource.

No Project Alternative

Under the No Project alternative, Reclamation would not provide funds towards the restoration efforts along the Trinity River. Because no federal funding or approval of a federal action would occur, there would be no undertaking pursuant to 36 CFR § 800.16(y) and no nexus for initiating Section 106 of the NHPA. Conditions within the project area would not be altered by the proposed federal action resulting in no impact to cultural resources.

Proposed Project

Implementation of the Proposed Project would effectively avoid, minimize or mitigate impacts to cultural resources as described in the Programmatic Agreement (PA; USFWS et al. 2000b). By following the stipulations of the PA, there would be minimal impacts to cultural resources and all actions under CEQA and NHPA would be fulfilled. Reclamation will continue to work with BLM cultural staff to ensure that implementation plans are consistent with the PA. Reclamation commits to fulfilling the stipulations of the PA prior to implementation of the Proposed Project.

Impact 3.10-2: Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources.

No Project Alternative

Under the No Project alternative, there would be no effects on cultural resources because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

TRRP rehabilitation activities have the potential to affect unknown cultural resources that may be present in the project area. Consistent with the environmental commitments and project design features listed in Chapter 2, in the event that any cultural resources are encountered during project implementation, all work in the area of the find would halt and Reclamation's Regional Archeologist would be immediately notified and given the opportunity to determine if the resource requires further study and what steps are necessary to comply with 36 CFR 800.13 (b)(3). Any such impact related to the Proposed Project would be potentially significant.

Mitigation Measures/Project Design Features

Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources. Therefore, mitigation measure 4.10-2a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.10-3: Implementation of the Proposed Project could potentially result in disturbance of undiscovered human remains.

No Project Alternative

Under the No Project alternative, there would be no effects to undiscovered human remains because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

TRRP rehabilitation activities have the potential to affect undiscovered human remains that may be present in the project area. Federal law and regulations (Archaeological Resources Protection Act [ARPA], 16 USC 470 and 43 CFR 7; Native American Graves Protection & Repatriation Act [NAGPRA], 25 USC 3001 and 43 CFR 10; and Public Lands, Interior [43 CFR 8365.1-7]), as well as California state law (California Health & Safety Code 7050.5, *Dead Bodies* and California Public Resources Code 5097.98, *Notification of Discovery of Native American Human Remains*) require all parties that discover human remains in California to follow a well-defined process.

Consistent with the environmental commitments and project design features listed in Chapter 2, in the event that any human remains are encountered during Proposed Project implementation, all work in the area of the find would halt. The remains would be treated with respect and dignity and the area secured. The Trinity County Coroner's office would be immediately notified as well as Reclamation's Regional Archeologist and BLM's Field Office Archaeologist. After the coroner has determined the remains to be archaeological or historic in nature, the proper procedures under ARPA and/or NAGPRA would be initiated to determine the proper disposition of the remains. If the remains are determined to be Native American, the steps as outlined in NAGPRA, 43 CFR 10.6 (*Inadvertent discoveries*) must be followed. Any such impact related to the Proposed Project would be potentially significant.

Mitigation Measures/Project Design Features

Implementation of the Proposed Project could potentially result in disturbance of undiscovered human remains. Therefore, mitigation measure 4.10-3a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

3.11 Air Quality

This section evaluates the air quality impacts associated with implementation of the Proposed Project. Air emissions from project activities are measured against federal and state standards. Air quality in the vicinity of the project area is discussed in detail in the Master EIR (Section 4.11.1). The information below is summarized from that document.

3.11.1 Affected Environment/Environmental Setting

Climate and Topography

Trinity County has a climate characterized by hot, dry summers and cold, moderately wet winters (USDA 1998). Most precipitation in the county results from major storms originating in the Pacific Ocean; however, short thunderstorms resulting from localized climate conditions occur in the summer months. The higher mountain ridges receive precipitation as snow and hold most of it until late spring. Precipitation in the lower elevations is predominantly rainfall, with occasional snow in the winter (NCUAQMD 1995). Trinity County has an average summer high temperature of 93.9°F and winter low of 27.3°F.

Air Quality

The Master EIR summarizes federal, state and local air quality requirements applicable to the project area. The 1977 federal Clean Air Act (CAA) requires the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. Trinity County is part of the North Coast Air Basin (NCAB), and is under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). Similar to federal requirements, the 1988 California Clean Air Act (CCAA) outlines a program to attain the California Ambient Air Quality Standards (CAAQS). The county is currently in attainment with all federal air quality standards and most state air quality standards; however, the county is in non-attainment for the state particulate matter standard for particulate matter less than 10 microns in diameter (PM_{10}). The California Air Resources Board (CARB), California's state air quality management agency, regulates mobile source emissions and oversees the activities of the NCUAQMD. The NCAB is comprised of five counties in northwest California: Del Norte, Humboldt, Trinity, Mendocino, and a portion of Sonoma County. NCUAQMD is responsible for monitoring and reporting air quality for Trinity County as well as two others.

Trinity County's air quality is generally good. The low population density, limited number of industrial and agricultural operations and minimal traffic congestion problems contribute to the good air quality. Ambient air quality data is available from the Weaverville air monitoring station, which is located approximately 15 miles from the Bucktail site. Air quality measured at the Weaverville station may not be a precise representation of ambient air quality in the immediate vicinity of the site but it does provide a good indication of air quality in the general area.

Climate Change and Greenhouse Gases

Climate change refers to a significant change in measures of climate, such as average temperatures, precipitation, and wind patterns, over time. Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to the accumulation of greenhouse gas (GHG) emissions in the atmosphere.

As of August 2007, CEQA lead agencies are required by law to analyze the potential of a project to produce GHG emissions, which consist primarily of carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4) (PRC Section 21083.05). The Governor's Office of Planning and Research released a

Technical Advisory in June 2008 (California Office of Planning and Research 2008) that provides guidance for addressing CEQA GHG environmental impacts. In particular, "Lead agencies should make a good faith effort, based on available information, to calculate, model, or estimate the amount of CO_2 and other GHG emissions associated with vehicular traffic, energy consumption, water usage and construction activities" (California Office of Planning and Research 2008).

Sensitive Receptors

A sensitive receptor is a location where human populations, particularly children, seniors, and sick individuals, are present and where there is a reasonable expectation of continuous human exposure to pollutants. The project area is not located near a hospital or senior housing. However, it is located about 2 miles from the Lewiston Elementary School. Additionally, the site has residential areas adjacent to the boundaries and provides recreation opportunities.

3.11.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Data for the impacts analysis were taken from the following reports on local and regional air quality: Particulate Matter Attainment Plan (NCUAQMD 1995), California Air Quality Data Statistics (California Air Resources Board 2008), North Coast Rules and Regulations (NCUAQMD 2005), and the Trinity County General Plan (Trinity County 2003). Reclamation also considered the conditions that occurred during the previously constructed channel rehabilitation projects in close proximity to the Bucktail site; there were no complaints about air quality for those projects. The air quality analysis is qualitative, and was conducted by assessing anticipated construction-related impacts of the Proposed Project and comparing them to existing and anticipated future air quality conditions.

CEQA Significance Criteria

According to Appendix G of the CEQA Guidelines, a project would normally have an adverse impact on air quality if it would:

- Violate any ambient air quality standard;
- Contribute substantially to an existing or projected air quality violation;
- Conflict with or obstruct implementation of any applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant (e.g., PM_{10}) for which the region is in non-attainment under an applicable state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in substantial air emissions or deterioration of air quality;
- Create objectionable odors;
- Alter air movement, moisture, or temperature, or result in any change in climate, either locally or regionally;
- Produce toxic air contaminant emissions that exceed the air pollution control district's threshold level for health risk; or
- Result in a substantial increase or cumulatively considerable net increase in GHG emissions (e.g., CO_2).

Since the first two criteria include violation of either federal or state air quality standards, these criteria would also be used to determine significance for NEPA compliance. The NCUAQMD has not formally adopted a CEQA threshold of significance for criteria pollutants such as carbon monoxide (CO), nitrogen oxide (NO_x), PM_{10}, and sulfur dioxide (SO_2), but does use the significant emission rates listed in Table 4.11-3 of the Master EIR as a baseline when evaluating a project's potential impacts to air quality.

Impacts and Mitigation Measures/Project Design Features

Table 19 summarizes the potential air quality impacts that would result from the No Project alternative and the Proposed Project.

Table 19. Summary of Potential Air Quality Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.11-1. Construction activities associated with the project could result in an increase in fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$[4]) levels.		
No impact	Significant	Less than significant
Impact 3.11-2. Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.		
No impact	Significant	Less than significant
Impact 3.11-3. Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change.		
No impact	Less than significant	Not applicable[1]
Impact 3.11-4. Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.		
No impact	Significant	Less than significant

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.11-1: Construction activities associated with the Project could result in an increase in fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$) levels.

No Project Alternative

Under the No Project alternative, there would be no construction-related increase in fugitive dust and associated particulate matter levels because the project would not be constructed. Therefore, there would be no impact.

[4] Particulate matter less than 2.5 microns in aerodynamic diameter.

Proposed Project

Rehabilitation activities associated with the Proposed Project would require excavation, grading, disposal of earthen materials, and the use of heavy equipment and travel on unpaved roads, which would temporarily contribute fugitive dust in the project area. Fugitive dust emissions would also result from activities associated with vegetation removal. As discussed previously, these sources of fugitive dust are associated with PM_{10}, a criteria pollutant, for which the air basin is in non-attainment.

High levels of PM_{10} in Trinity County generally coincide with regional wildland fire events during the dry summer months and with periods of cool, wet weather when localized woodstove use and brush burning activities contribute particulate matter to the air. Fugitive dust resulting from project activities would occur during the dry summer and early fall months, when PM_{10} levels may be elevated by wood stove use, brush burning, or wildland fires.

As described in Chapter 2, the Proposed Project includes NCUAQMD-required measures to minimize fugitive dust in and adjacent to the project area. Once rehabilitation activities cease at the site, the resulting impact on air quality would also cease. While the project design minimizes fugitive dust, project-generated fugitive dust would be considered a significant impact because the air basin is in non-attainment status for particulate matter. The impact would be temporary (lasting only during implementation).

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in an increase in fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$) levels. Therefore, mitigation measure 4.11-1a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.11-2: Construction activities associated with the Proposed Project could result in an increase in construction vehicle exhaust emissions.

No Project Alternative

Under the No Project alternative, no increase in construction vehicle exhaust emissions would occur because the Project would not be constructed. Therefore, there would be no impact.

Proposed Project

Construction associated with the Proposed Project would require the use of equipment that would temporarily contribute to air pollution in the Trinity River Basin. Exhaust emissions from heavy equipment during construction could contribute to air pollution. Project construction activities would generate emissions from diesel- and gasoline-powered equipment and vehicles. Diesel particulate is an identified Hazardous Air Pollutant (HAP) and Toxic Air Contaminant (TAC), emissions of which should be minimized. In this regard, construction activities would require the contractor to comply with NCUAQMD Rule 104 (3.0), Particulate Matter, or use portable internal combustion engines

registered and certified under the state portable equipment regulation. Because diesel particulate matter is both a HAP and a TAC, and because these pollutants would be emitted as a result of Proposed Project implementation, there would be a significant impact on air quality.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project could result in an increase in construction vehicle exhaust emissions. Therefore, mitigation measure 4.11-2a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.11-3: Construction and transportation activities associated with the Proposed Project could result in an increase of greenhouse gas emissions and effects on climate change.

No Project Alternative

Under the No Project alternative, the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Transportation and construction activity associated with project implementation would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. Burning vegetation would also emit CO_2, which is a GHG. Several measures are identified in Appendix B that are intended to reduce the impacts relative to climate change and GHGs. These measures are incorporated into the Proposed Project. Additionally, the following measures would be used to enhance the awareness of global warming in conjunction with the Proposed Project:

- Provide Project contractors with educational material about fuel efficiency and incentives;
- Promote incentives for contractors to initiate ride-sharing programs;
- Promote the use of energy efficient and alternative fuel construction equipment and transportation fleets through contract incentives;
- Require contractors to provide recycling bins for on-site waste materials;
- Provide incentives for contractors to use re-usable water containers rather than plastic bottled water;
- Provide incentives for contractors to hire locally; and
- Require re-useable batteries for equipment that can use them.

In order to determine the significance of the impact of a rehabilitation project, a "carbon foot-print" was estimated in the Master EIR based on a project's potential generation of GHGs (primarily CO_2) from project activities at the remaining Phase 1 sites. Project activities that would offset potential impacts were weighed in the equation. The analysis in the Master EIR determined that rehabilitation at all of the remaining Phase 1 sites would produce approximately 3 metric tons of CO_2 per day over

the life of the project. Total GHG emissions resulting from the proposed activities would be approximately 2,050 metric tons of CO_2.[5]

Vegetation replanting and natural re-seeding within the existing riparian area would offset the total project GHG emissions by approximately 20 metric tons of CO_2 over a five-year period. Additionally, project activities may result in opportunities to increase the amount of riparian and upland vegetation.

Based on those calculations, the Master EIR determined that rehabilitation at the remaining Phase 1 sites would not generate significant increases in GHGs or an ongoing increase in the demand for off-site energy production because there would be no new facilities constructed. While a project's GHG emissions associated with the use of heavy equipment would be measurable over the course of the project, GHG emissions and any effects on global climate change would not be cumulatively significant considering the amount of GHG emissions generated by the rehabilitation and the current local air quality conditions. Overall, the impacts of rehabilitation activities would be less than significant with respect to GHG. As a result, the Proposed Project would result in impacts that would be less than significant because it represents a much smaller action than that analyzed in the Master EIR.

Impact 3.11-4: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.

No Project Alternative

Under the No Project alternative, no construction or transportation activities would occur because the Project would not be implemented. Therefore, there would be no impact.

Proposed Project

Construction activity associated with the Proposed Project would generate fugitive dust, gas, and diesel emissions and could generate smoke from vegetation burn piles, all of which could expose a number of adjacent residents, recreational users, and nearby elementary school to air pollutants. Schools and residences are considered sensitive receptors. Therefore, this would be a significant impact.

Mitigation Measures/Project Design Features

Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences, recreational users, and schools. Therefore, mitigation measures 4.11-5a, 4.11-5b, 4.11-5c, and 4.11-5d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

[5] The mobile combustion CO_2 Emissions Calculation Tool was used to calculate GHG emissions for combustible fuel (Greenhouse Gas Protocol Initiative 2005), and the Construction Carbon Calculator was used to calculate GHG emissions for vegetation loss (BuildCarbonNeutral 2007). The calculation is based on 23 days of construction per site as estimated for the Remaining Phase 1 sites and includes diesel fuel combustion and loss of vegetation.

3.12 Visual Resources

This section describes the scenic values and visual resources that are known to occur within the project area and evaluates the effect that the Proposed Project could have on these values and resources. The BLM is responsible for managing public lands for multiple uses while ensuring that the scenic values and open space character of the public lands are considered before authorizing actions on public lands. The BLM accomplishes this through the Visual Resource Management (VRM) system. The VRM system classifies land based on visual appeal, public concern for scenic quality, and visibility from travel routes or observation points. VRM classes are used to identify the degree of acceptable visual change within a landscape based on the physical and sociological characteristics: Classes I and II are the most valued, Class III represents a moderate value, and Class IV is of least value. The Proposed Project would affect BLM administered public lands in the project area with the VRM Class Objective of II (USDI BLM 1993).

The BLM Manual 8431, Visual Resource Contrast Rating, provides the following management objectives for this VRM class (BLM 1986):

Class II Objective: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

More details about this resource are described in the Master EIR (Section 4.12). In the long term, the Proposed Project would maintain the Visual Resource Class II Objective.

3.12.1 Affected Environment/Environmental Setting

Visual Environment

The visual environment, or character, is a function of both the natural and artificial landscape features that make up a view. Geologic, hydrologic, botanical, wildlife, recreational, and urban features, such as roads, homes, and earthworks, directly influence the visual character of an area. The perception of the visual character of an area can vary significantly by season and even by hour as light, shadow, weather, and the elements that compose the view change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments. The dominance of each of these components on the landscape serves to form the viewer's impression of the area. The visual character of the Trinity River as a whole is typified by the river channel, bordered by bands of riparian vegetation interspersed between homes, businesses, and, occasionally, deposits of dredge tailings. The riparian vegetation transitions to upland vegetation as the viewer moves away from the river. The location and boundaries of the project area are illustrated in Figure 2.

Viewer Groups

The project area may be subject to the perceptions of the following three distinct viewer groups: motorists, residents, and recreationists. Motorists are those persons who would view the project area

from a moving vehicle and may be drivers or passengers. Views of the river corridor from area roads in the project vicinity are limited and would only be visible to a small number of people because of the remoteness of the area. Residents are people whose homes and/or property are in close proximity to, and may have a view of, the project area. The individual sensitivity of residents to aesthetics and changes within a viewshed is highly variable. Recreationists are members of the community or the general public who use the recreational resources available within or adjacent to a site. The Trinity River provides a myriad of recreational opportunities that are discussed in Section 3.8 (Recreation). Typically, recreational users are highly sensitive to the visual character of the river corridor since most are drawn to the area by an appreciation of its scenic nature.

Light and Glare

Because of the rural nature of the Trinity River corridor, the primary sources of artificial light are limited to vehicles passing through the area on state, local, and private roads; concentrations of commercial/residential buildings; and, to a lesser degree, recreational features and facilities. Glare may occur during the daylight hours as the sun is reflected off the river or light-colored alluvium associated with the Trinity River floodplain.

Key Observation Points

Key observation points[6] (KOPs) are identified along commonly traveled routes or other likely observation points from which a representative group (i.e., residents, recreationists, or motorists) could view the project area (Figure 9). KOPs for the Proposed Project were based on potential visibility from surrounding homes, public access areas, including for recreationists within the Trinity River channel and along Old Lewiston Road and Browns Mountain Road (Figure 9). Although the river channel is somewhat obscured from the view of motorists by vegetation and topography, some portions of the construction areas are visible from these roads. Table 20 provides a brief description of the KOPs and representative photographs of the site are included in Table 21.

[6] Points from which the project boundary or portions thereof are visible from sensitive receptor areas, such as major travel routes and/or surrounding homes.

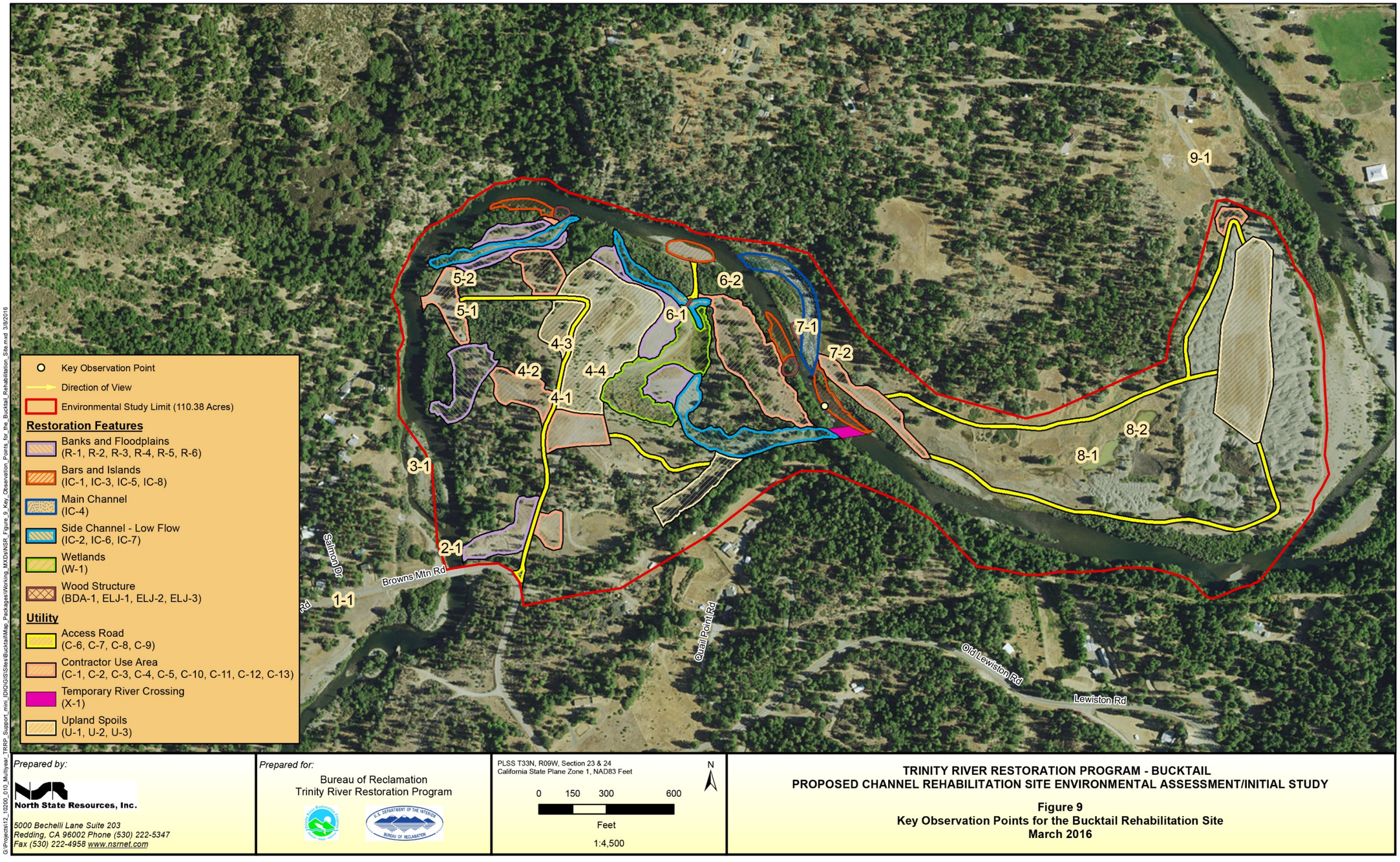


Figure 9. Key Observation Points for the Bucktail Rehabilitation Site.

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Table 20. Key Observation Points for the Proposed Project.

KOP	Description of Key Observation Points
1-1	View, looking east into the project area from Browns Mountain Road.
2-1	View looking upstream into project area from Bucktail Bridge.
3-1	View of Trinity River from residential area on right bank between the Bucktail Hole boat launch and Bucktail Bridge.
4-1	View of open area east of the Bucktail Hole River Access, looking south.
4-2	View of open area east of the Bucktail Hole River Access, looking west toward Trinity River.
4-3	View of open area east of the Bucktail Hole River Access, looking north toward Trinity River.
4-4	View of open area east of the Bucktail Hole River Access, looking east.
5-1	View from point upstream of Bucktail Hole boat launch, looking east into project area.
5-2	View looking upstream from point upstream of Bucktail Hole boat launch.
6-1	View looking into project area, from area east of the Bucktail Hole River Access.
6-2	View of river looking upstream, from area east of the Bucktail Hole River Access.
7-1	View looking downstream at river, from private property access road on river right.
7-2	View looking perpendicular to river, from private property access road on river right.
8-1	View looking west toward pond on private property on river right.
8-2	View looking northeast toward ponds and dredge tailings on private property on river right.
9-1	View from north of ESL on river right, looking downstream toward project area.

Table 21. Photographs of Views from Various Key Observation Points for the Bucktail Rehabilitation Site



Photo 1. KOP 4-3, East of the Bucktail Hole River Access, looking northeast toward Trinity River.



Photo 2. KOP 2-1, Bucktail Bridge, looking upstream (north).



Photo 3. KOP 3-1, Upstream view from access at Bucktail Bridge, right bank of river.



Photo 4. KOP 8, View from ponded area in tailings.

Wild and Scenic Rivers

The project area is located within the corridor of the Trinity River designated under the federal and state WSRA. A review of the consistency of the Proposed Project with federal and state Wild and Scenic River designations is documented in Appendix E. consistent with the requirements for a National Wild and Scenic River Section 7 Analysis and Determination.

3.12.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Analysis of potential impacts to aesthetic and visual resources relative to the Proposed Project is based on the significance criteria described in Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008). The Regional Water Board, acting as the CEQA lead agency, has used these criteria to develop significance thresholds. Significance thresholds are used to evaluate the Proposed Project's potential impact on the visual character of the project area with an emphasis on KOPs that are selected to characterize the aesthetic values and visual resources. This section provides a general discussion of the type and magnitude of impacts that could occur as a result of the Proposed Project. The assessment is qualitative, with the potential impacts of activities in the project area evaluated in the context of the viewshed of the Trinity River corridor. A review of the consistency of the Proposed Project with federal and state Wild and Scenic River designations is presented in Appendix E of this EA/IS.

CEQA Significance Criteria

The Proposed Project would have a significant impact under CEQA if it:

- Obstructs a scenic view from public viewing areas;
- Has a substantial adverse effect on a scenic vista;
- Substantially damages scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrades the existing visual character or quality of the rehabilitation sites and their surroundings;
- Introduces physical features that are substantially out of character with adjacent residential areas;
- Alters the sites so that the scale or degree of change appears as a substantial, obvious, and disharmonious modification of the overall scenes (to the extent that they clearly dominate the view);
- Creates substantial daytime glare associated with new construction;
- Disrupts adjacent residential areas because of new night-time lighting;
- Creates a new source of substantial light or glare that would adversely affect day or nighttime views in the sites;
- Is inconsistent with the policies of the Trinity County and local general plans relating to aesthetics; or
- Is inconsistent with the goals and objectives of either the federal or state WSRA with regards to the Trinity River.

Impacts and Mitigation Measures/Project Design Features

Table 22 summarizes the potential impacts to visual resources resulting from implementation of the No Project alternative and Proposed Project.

Table 22. Summary of Potential Visual Resource Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project with Mitigation
Impact 3.12-1. Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.		
No impact	Significant	Less than significant
Impact 3.12-2. Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.		
No impact	Less than Significant	Not applicable[1]
Impact 3.12-3. The project may be inconsistent with federal and state WSRA or Scenic Byway requirements.		
No impact	Less than significant	Not applicable[1]
Impact 3.12-4. The project could generate increased daytime glare and/or nighttime lighting.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.12-1: Implementation of the Proposed Project could result in the degradation and/or obstruction of a scenic view from key observation areas.

No Project Alternative

Under the No Project alternative, the degradation and/or obstruction of a scenic view from key observation areas would not occur as a result of construction activities because the Project would not be constructed. Therefore, there would be no impact.

Proposed Project

Potential impacts of project activities would include changes brought about by the removal of vegetation, the construction of inundated surfaces, the creation of access roads, and the presence of equipment in the project area, as described in Chapter 2. The proposed activities are intended to restore the form and function of an alluvial river, thereby enhancing the overall aesthetic values and visual resources associated with the Trinity River and the surrounding landscape. The environmental commitments and project design features intended to reduce impacts to the environment are also described in Chapter 2. While the adverse impacts are expected to be temporary in nature and the long-term outcome should improve the visual diversity of the corridor, the short-term impacts would persist for some time.

KOP 1-1 illustrates views of the project area from Browns Mountain Road and KOP 2-1 illustrates the views of the project area from the Bucktail Bridge (Table 21; Photo 2). Most of the proposed activity areas would be obscured from view from the road and bridge because of intervening vegetation but some project activities could be visible in background views. Several homes front the river downstream of the Bucktail Hole boat launch and upstream of the Bucktail Bridge; KOP 3-1

illustrates views of the project area from the backyards of adjacent homes where some equipment may be visible in the background. Photo 3 in Table 21 shows vegetation present in this area that would obscure views of the activity areas. Views upstream from the river bank would be mostly obscured by vegetation as well, although some equipment may be visible in background views.

KOPs 4-1, 4-2, 4-3, and 4-4 are within the BLM's Bucktail Hole river access area. This area supports dense stringers of riparian vegetation along both sides of the river, which obscures much of the river when viewed from the uplands (Table 21; Photo 1); however, the frequent use of this river access by fishermen and rafters/boaters would result in Proposed Project activities being visible to a number of individuals visiting the river access. Project activities could be visible in the background from KOPs 4-1 through 4-4. Users of the Bucktail Hole boat launch and fishermen accessing the river in the vicinity of KOPs 5-1 and 5-2 would have a view of the Proposed Project. Work is not proposed in the river channel in this area but would be visible in the uplands in the background. Recreationists in the area could also view portions of the project area from KOPs 6-1 and 6-2, although vegetation is thick in this area and would obscure background views.

KOPs 7-1, 7-2, 8-1, 8-2, and 9-1 represent potential views from river right. The right bank of the river in this location is privately owned and largely undeveloped. Private land owners could see portions of the project area from KOPs 7-1 and 7-2 when accessing the river from their home. Because the home is some distance from the activity areas and because of the presence of screening vegetation, visual impacts would be less than significant. KOPs 8-1 and 8-2 are located in the portion of the site that encompasses a large accumulation of dredge tailings deposited during the bucket-line dredge era. Views of proposed activity areas would be partially obstructed by distance, topography, and vegetation. Proposed activity in this area would have little or no visual impact on homes in the vicinity due to the distance of homes from the activity area, topography, and the presence of stands of vegetation. Activity areas C-12 and U-3 could be visible from KOP 9-1, although they would also be obscured by vegetation, topography, and distance.

Other than the views of the project area from Bucktail Bridge, motorists traveling on roads in the vicinity of the site would have views screened by vegetation, topography, and distance. Proposed rehabilitation activities would be visible to occasional rafters/boaters passing by via the channel in this reach of the river (e.g., via raft/boat).

Project-related visual changes at the site would be apparent to in-channel recreationists. In-channel recreationists such as rafters would have unobstructed views of much of the in-channel construction as well as some of the upland project activities where they are not blocked by dense riparian vegetation that is common to the Trinity River.

Impacts to visual resources would be potentially significant, however because Proposed Project activities are intended to restore the form and function of an alluvial river, potentially adverse visual impacts occurring during construction would be temporary, lasting only until natural processes take over.

Mitigation Measures/Project Design Features

Project implementation could result in degradation and/or obstruction of a scenic view from key observation areas. In order to minimize impacts to visual resources resulting from the removal of

vegetation, the environmental commitments and project design features listed in Chapter 2, as well as mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c, as described in Section 3.7 (Vegetation, Wildlife, and Wetlands) and in Table B-1 in Appendix B, will be implemented where applicable. Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) would be addressed by applying the environmental commitments and project design features listed in Chapter 2, as well as the implementation of mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e (described in Table B-1 in Appendix B), as discussed for Impact 3.8-3 (in Section 3.8, Recreation), where applicable. These particular commitments, design features, and mitigation measures minimize potential impacts to multiple resource areas (e.g., vegetation, water quality, and fisheries in addition to visual resources). In an effort to reduce the size of this document, these mitigation measures are referred to in multiple resource areas rather than reiterating the list numerous times in the appendix. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.12-2: Implementation of the Proposed Project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.

No Project Alternative

Under the No Project alternative, no construction would occur in the project area. No changes would occur to the character or harmony of aesthetic features and existing land uses. Therefore, there would be no impact.

Proposed Project

Activities associated with the Proposed Project are intended to be not only functional (e.g., enhance fisheries and restore river sinuosity), but to complement the aesthetic values and visual resources associated with the project area. Overall, the Proposed Project incorporates the diversity of landscapes and vegetation types to define the location, character, and magnitude of the rehabilitation activities. For example, materials excavated from riverine areas would be removed to upland areas or used as a source of coarse sediment to enhance the alluvial function of the river. Material transported to upland activity areas would be placed in a manner that blends the materials into the contours of the topography. Retention of existing topographic features would lessen the degree of visual impact.

The activities described in Chapter 2 provide a framework for reestablishing the physical processes necessary to enhance the alluvial attributes of the river channel and floodplain over time, particularly those attributes that are flow dependent. Over time, the Proposed Project would produce gradual, ever-improving changes in the aesthetic quality of this reach of the Trinity River, while maintaining the character of the surrounding land uses. Because changes associated with the Proposed Project would retain the character of existing land uses and features, implementation would result in a less than significant impact on visual resources.

Impact 3.12-3: The Proposed Project may be inconsistent with the federal or state WSRA or Scenic Byway requirements.

No Project Alternative

Under the No Project alternative, no construction activities would occur. No changes would occur that would be inconsistent with the federal or state WSRA or Scenic Byway requirements. Therefore, there would be no impact.

Proposed Project

Under Section 7 of the WSRA, direct and adverse effects to the values for which the Trinity River was recognized as a Wild and Scenic River are prohibited. Project implementation would be consistent with these values because the activities would not be considered substantially out of character with the current aesthetic conditions. Implementation of the Proposed Project would result in a less than significant impact to WSRA and Scenic Byway requirements.

Impact 3.12-4: The Proposed Project could generate increased daytime glare and/or nighttime lighting.

No Project Alternative

Under the No Project alternative, no changes in daytime glare or nighttime lighting would occur because the project would not be implemented. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, significant increases in daytime glare and/or nighttime lighting are not anticipated to occur. Construction activities would not take place during nighttime hours; therefore, nearby homes and motorists traveling on roads adjacent to the river corridor would not be subjected to the headlights of construction equipment or stationary spotlights. Material removed from the floodplain and deposited at various activity areas is generally not reflective and would not increase the level of daytime glare observable to the viewer. Some changes may occur in the locations and amounts of glare produced by water over the constructed inundation surfaces, but, overall, these changes would be short-lived and variable by day, as well as season. The impacts of these changes would be less than significant. Occurrences of daytime glare produced by the sun reflecting off the water or construction equipment would be of short duration. Such an impact would be less than significant.

3.13 Hazards and Hazardous Materials

3.13.1 Affected Environment/Environmental Setting

This section evaluates hazards and hazardous materials that may currently be present within the project area. The potential for using hazardous materials or generating hazardous waste in conjunction with rehabilitation activities is discussed in the Master EIR (Section 4.13). Hazardous

materials and the potential for health hazards to be generated by implementation of the Proposed Project are also assessed in this section.

Hazardous Material and Hazardous Waste

Federal, state, and local agencies regulate hazardous materials and hazardous waste. Nonetheless, illegal storage and disposal and unintentional releases of hazardous materials or waste from leaks and accidents can occur when hazardous materials are used or hazardous waste is generated by a project. Regional roadways including SR-299 and SR-3 are frequently used to transport hazardous materials throughout Trinity County. Under 13 CCR, Section 1150-1194, and 49 CFR, the California Highway Patrol (CHP) regulates the transport of hazardous materials. When a spill of hazardous material or waste occurs on a highway, the CHP is responsible for directing cleanup and enforcement (California Vehicle Code 2450-2453b).

Roadways and Evacuation Routes

Access to the site would be made from SR-299, Lewiston Road, Browns Mountain Road, and Trinity Dam Boulevard. These roads would also serve as the primary evacuation routes for the site.

Wildland Fire

Steep topography and a mosaic of mixed-conifer, hardwood, and chaparral woodlands coupled with typically hot, dry summers create extreme fire danger throughout most of Trinity County. Human-caused fires, particularly along roadways and other developed areas, are relatively common, although the county is also frequently subject to lightning-caused fires. Wildland fire, regardless of the cause, can be detrimental to watershed function, killing vegetation, burning the organic matter in litter and soil, and forming impervious soil layers, factors that contribute directly to accelerated runoff and erosion from the watershed during and immediately after a storm event. However, it is important to note that fire is also a natural disturbance that the landscape has evolved with over centuries. Habitat modification occurs as a result of fire as well as from a lack of fire.

Trinity County fire protection needs are met by 16 volunteer fire departments (VFDs) dispersed throughout the county, and Cal Fire and the USFS. Fire protection on BLM lands occurs under an annual local operating plan that is tiered under a multi-party agreement (the California Master Cooperative Wildland Fire Management and Stafford Act Response Agreement) between the USFS, Cal Fire, National Park Service, USFWS, and Bureau of Indian Affairs. The Lewiston Community Services District (LCSD) provides services within the Lewiston general plan area, and is responsible for structural fire protection and rescue services in Trinity County throughout the year.

Flooding and Seismic Events

A review of the FEMA FIRMs indicates that the project area is within an area for which the BFEs have been determined and the site is in a designated floodway. Areas designated by FEMA as being within “Zone X,” are subject to a 100-year flood with average depths of less than 1 foot or with drainage areas of less than 1 square mile. Trinity River flows through the project area are moderated by the TRD below Lewiston Dam.

Infrequently, seismic events occur in the region generally in the form of low to moderate levels of ground shaking associated with nearby or distant earthquakes. The potential for landslides triggered by seismic events is not significant within the corridor of the mainstem Trinity River, due to the low level of historical occurrence of seismic activity in the region. However, the steep topography and shallow, erosive soils found in much of the region increase the potential for landslides and rockfalls triggered by seismic events, precipitation, or other types of disturbances. Seismic activity known to occur in the region is discussed in the Master EIR (Sections 4.3 and 4.13), including a detailed discussion of geologic hazards that could be associated with rehabilitation activities.

3.13.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Hazards and hazardous materials associated with the project area were assessed in the field by TRRP staff. In addition, Trinity County Planning Department and Environmental Health Department staff will be consulted regarding the potential for hazardous substances to occur in the general vicinity of the site boundaries.

CEQA Significance Criteria

An impact related to hazards and hazardous materials would be significant under CEQA if the Proposed Project would:

- Involve the use, production, or disposal of materials that pose a hazard to people or to animal or plant populations in the area affected;
- Create a substantial potential public health or safety hazard due to risk of upset (accidents);
- Create a substantial potential public health or safety hazard due to a reasonably foreseeable release of hazardous materials and/or hazardous waste (i.e., from contaminated soil);
- Violate applicable laws intended to protect human health and safety or expose employees to working situations that do not meet health standards;
- Physically interfere with, or impair implementation of, emergency response plans or emergency evacuation plans;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; or

- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Impacts and Mitigation Measures/Project Design Features

Table 23 summarizes the potential hazards and hazardous materials impacts that could result from implementation of the No Project alternative and Proposed Project.

Table 23. Summary of Hazards and Hazardous Materials Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.13-1. Implementation of the project could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.		
No impact	Less than significant	Not applicable[1]
Impact 3.13-2. Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.		
No impact	Less than significant	Not applicable[1]
Impact 3.13-3. Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area.		
No impact	Less than significant	Not applicable[1]
Impact 3.13-4. Implementation of the project may contribute to an increased risk of landslides and flooding.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.13-1: Implementation of the Proposed Project could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.

No Project Alternative

Under the No Project alternative, construction activities that could potentially release hazardous substances (e.g., oil, gas, diesel, and mercury) into the environment at levels that could pose a health or safety hazard to the public would not occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Activities associated with the Proposed Project would utilize potentially hazardous materials (e.g., oil and fuels) associated with the operation of vehicles and construction equipment during project implementation. These materials are similar to those routinely used for other types of construction projects throughout Trinity County. The widespread use and associated transport of these materials along the highways and county roads that traverse Trinity County, combined with the low level of

incidents (spills), suggest that impacts related to rehabilitation activities would be similar to that elsewhere in Trinity County. Implementation of BMPs would minimize the potential for any project-related hazardous materials becoming a public hazard. This impact would be less than significant; therefore, no mitigation is required.

Impact 3.13.2: Construction activities associated with the Proposed Project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.

No Project Alternative

Under the No Project alternative, construction activities that could interfere with emergency response and evacuation plans would not occur because the Project would not be implemented. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, construction traffic would include the mobilization and demobilization of construction equipment (e.g., scrapers, excavators, and bulldozers) to and from the project area over the course of the construction period. Once the equipment is on site, construction traffic would be limited to daily trips for personnel and routine service and supply vehicles. Construction activities would be managed to ensure that emergency response and evacuation plans are not impeded. The impacts created would be less than significant; therefore, no mitigation is required.

Impact 3.13.3: Implementation of the Proposed Project may contribute to wildland fire potential and catastrophic fire behavior in the Project area.

No Project Alternative

Under the No Project alternative, there would be no impact on wildland fire potential or catastrophic fire behavior because the project would not be implemented. Therefore, there would be no impact.

Proposed Project

The proposed activities described in Chapter 2 would occur within or adjacent to the riparian corridor of the Trinity River. Potential fuels within the boundaries of the project area (e.g., grasses and herbaceous weeds) are generally noncontiguous and the river serves as a substantial natural firebreak. The types and amounts of fuels and their continuity may be decreased temporarily by implementation of this alternative, particularly in areas subject to vegetation removal, but any such changes would not be significant with respect to fire potential and behavior. In the long-term, potential fire conditions would be similar to those that currently exist (e.g., potential fuels would be limited to riparian vegetation, sporadic grasses, and herbaceous weeds). Proposed Project implementation would have a less than significant impact on wildland fire potential and behavior; therefore, no mitigation is required.

Impact 3.13.4: Implementation of the Proposed Project may contribute to an increased risk of landslide or flooding.

No Project Alternative

The No Project alternative would have no impact on the potential for landslides or flooding because the Project would not be implemented. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, most of the activities described in Chapter 2 would take place in the river channel or floodplain, in areas that have relatively flat topography. Furthermore, the alternative does not involve alteration of toe-slopes adjacent to any geologically unstable areas (e.g., landslides). Proposed Project implementation would result in either no change to the BFE or a reduction of the BFE, since stockpiled excavated material would be stored in the adjacent uplands. The potential for flooding would not be increased in the project area. These impacts would be less than significant; therefore, no mitigation is required.

3.14 Noise

This section evaluates the potential noise impacts associated with implementation of the Proposed Project. The evaluation is based on a review of local land use plans and policies pertaining to noise and field reconnaissance used to identify potential sensitive receptors within and adjacent to the project area boundaries. A detailed discussion of methodology used to quantify noise is provided in the Master EIR (Section 4.14).

3.14.1 Affected Environment/Environmental Setting

Noise is generally defined as excessive and unwanted sound emanating from noise-producing objects. Total environmental noise exerts a sound pressure level that is generally measured with an A-weighted decibel scale (dBA), which approximates the range of sound audible to the human ear (where 10 dBA is at the low threshold of hearing and 120-140 dBA is the threshold of pain). Human responses to noise are subjective and can vary. The subjective effects of noise are difficult to measure as are the corresponding reactions of annoyance and dissatisfaction. Individual tolerance thresholds vary widely based on an individual's past experiences with noise. Intensity, duration, frequency, time pattern of noise, and existing background noises are some factors that can influence individual responses to noise. Table 4.14-1 of the Master EIR lists examples of dBA levels for a range of noises and Table 4.14-2 of the Master EIR lists the U.S. General Services Administration maximum noise levels allowed for government contract construction activities. Typical construction noise levels that could occur in the project area are shown in Table 24. The noise levels shown in this table assume the operation of various types of construction equipment, as shown in Table 25.

Table 24. Typical Construction Noise Levels.

Construction Stage	Noise Level (dBA, L_{eq})[1]
Ground clearing	84
Excavation	89
Hauling	88
Revegetation	65

[1] Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction stage. Noise levels correspond to public works projects (50 dBA ambient environments) (Bolt et al. 1971).

Table 25. Construction Equipment Noise.

Type Of Equipment	Maximum Level (dBA At 50 Feet)
Truck	75
Scrapers	80
Bulldozers	75
Backhoe	75
Pneumatic tools	80

Source: Sincero and Sincero 1996.

Noise is not considered a problem in Trinity County. A community noise survey was conducted in Trinity County in 2002 (Brown-Buntin 2002) as part of an update that was being developed for the noise element of the County's General Plan. The community noise survey results indicate that typical noise levels in noise-sensitive areas range from approximately 44 to 52 decibel (dB) L_{dn}[7]. These are low noise levels and are typical of small communities and rural areas. Maximum noise levels observed during the survey were generally caused by local automobile traffic or heavy trucks. Other sources of maximum noise levels included occasional aircraft and construction activities. Background noise levels in the absence of these maximum-noise generating sources are largely attributable to distant traffic, water, wind, livestock, birds, and insects.

Noise-sensitive receptors that have been identified in the general vicinity of the project area include private residential areas; commercial facilities; persons, primarily recreationists (e.g., hikers, picnickers, anglers, and rafters); and wildlife that use the Trinity River corridor. Noise tolerance levels for these groups are subjective, varying widely between individuals.

The Bucktail site is located adjacent to Browns Mountain Road, Steelhead Circle, and Quail Point Road. Traffic from these roads would be heard passing by the site; traffic-generated noise would be buffered by vegetation and topography. The residential developments near the site represent sensitive

[7] dB L_{dn} = The average equivalent sound level during a 24-hour day, obtained after addition of 10 A-weighted decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m. A-weighted decibels, abbreviated dBA, or dBa, or dB(a), are an expression of the relative loudness of sounds in air as perceived by the human ear.

noise receptors. Residential areas are subjected to varying degrees of ambient noise levels from the river (including recreationists) and intermittent traffic using roads in the vicinity. To varying degrees, construction vehicles entering and leaving the site would temporarily increase traffic levels and, thus, ambient noise levels along the roads adjacent to the site. Homes in the area may experience some increased ambient noise levels during construction, but in general, noise levels would be buffered somewhat by distance, topography, and vegetation.

3.14.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Since the Proposed Project would not result in a noticeable increase in traffic volume, construction-related noise is the focus of this impact analysis. Construction noise impacts are based on an assumed mixture of construction equipment and related noise levels. Assumptions related to construction equipment and industry noise averages were used to evaluate construction-related noise impacts, including noise levels at the nearest sensitive receptors. Previous TRRP channel rehabilitation actions in the immediate vicinity of the Bucktail site did not result in any noise-related complaints from residents or recreational users.

CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008) the Proposed Project would have a significant direct noise impact under CEQA if it would result in:

- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels; or
- Exposure of persons to, or generation of, noise levels in excess of standards established in the Trinity County General Plan noise element, or applicable standards of other agencies.

Impacts and Mitigation Measures/Project Design Features

Table 26 summarizes the potential noise impacts resulting from implementation of the No Project alternative and Proposed Project.

Table 26. Summary of Potential Noise Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.14-1. Construction activities associated with the proposed project would result in noise impacts to nearby sensitive receptors.		
No impact	Significant	Less than significant

Impact 3.14-1: Construction activities associated with the Proposed Project would result in noise impacts to nearby sensitive receptors.

No Project Alternative

Under the No Project alternative, no change in ambient noise levels would occur because the project would not be implemented. Therefore, there would be no impact.

Proposed Project

During the construction phase of the Proposed Project, noise from construction activities would temporarily dominate the noise environment in the project area. Construction activities would generate maximum noise levels ranging from 65 to 84 dBA at a distance of 50 feet, although intervening terrain and vegetation could reduce these noise levels. Construction noise would be temporary and is expected to occur primarily between the months of July and December. There would be no permanent noise impacts resulting from implementation of the Proposed Project.

Residences located near the site would be subjected to varying degrees of construction noise. It is not anticipated that ground vibration created by project activities would be detectable at any sensitive receptor location nor would it result in any structural damage. Recreational users in the general vicinity of the site could encounter increased ambient noise levels during construction activities. While such an increase in noise would be significant, its impact would be temporary and localized.

Mitigation Measures/Project Design Features

Construction activities associated with the Proposed Project would result in noise impacts to nearby sensitive receptors. Therefore, mitigation measures 4.14-1a, 4.14-1b, and 4.14-1c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.15 Public Services and Utilities/Energy

This section addresses the public services and utilities associated with the project area and evaluation of the impacts on these resources from implementation of the Proposed Project. These resources are described in the Master EIR, Section 4.15.

3.15.1 Affected Environment/Environmental Setting

Water Supply and Distribution

Mutual and private water systems, wells, springs, and river intake systems serve development in the Lewiston community. Lewiston has two small water companies that serve the community core area, the Lewiston Park Mutual Water Company and the Lewiston Valley Water Company. Bucktail Mutual Water Company is a community system that serves the entire Bucktail subdivision.

Development outside of the Lewiston community core area and Bucktail subdivision relies primarily on individual and shared wells, springs, and river intake systems; several small community well systems are also maintained. Surface water, which tends to be less expensive to develop, is more frequently used in this area for domestic purposes than deep wells. Water supplies that serve small subdivisions and private residences often have filtration and treatment systems that are used to address local water quality concerns.

Surface Water

The Trinity River is the primary surface water body in the project area. Surface water is used primarily for domestic purposes, including gardens, livestock, and fire protection. The TRRP has been working with landowners in the general vicinity of the rehabilitation sites to relocate surface water intake systems affected by post-ROD flows and to upgrade on-site wastewater treatment facilities that were subject to inundation. Surface water sources are more frequently used for domestic purposes along the river corridor than groundwater sources and often require varying levels of treatment prior to use.

Groundwater

Groundwater wells provide water for domestic and commercial purposes in the vicinity of the project area. Due to the location and nature of the terrain, groundwater levels respond generally to river stage. Geologic investigations conducted for the Proposed Project suggest that groundwater levels fluctuate seasonally with river flows. Some domestic water sources collect groundwater from deep wells. Project activities have been designed to ensure that known groundwater wells are avoided.

Solid Waste Collection and Disposal

Trinity County operates nine solid waste transfer stations throughout the county, where waste is collected for shipment by truck to the Anderson Landfill in Shasta County. Solid waste collected from the project area would be transported by truck either to the Weaverville transfer station or to the landfill located in Anderson.

Fire Protection and Emergency Services

Cal Fire, BLM, and USFS provide fire protection services throughout Trinity County. Cal Fire generally provides fire protection services between May and late October. During the winter, Cal Fire responds from Weaverville with one engine, if personnel are present. During the summer, Cal Fire is equipped to provide three engines with 2,250 gallons of water and 12 to 13 firefighters. Minimum response time is 15 to 20 minutes on average. Half of the responses are typically for structure or flue fires and half are for wildland fires.

The LCSD provides fire protection for the Bucktail area. LCSD maintains three engines, a rescue vehicle, and an ambulance at its Texas Street station and responds to fires and aid calls year-round. The station has a 23-person volunteer crew and chief. LCSD crews respond to approximately four structure fires (not including flue fires) and 10 wildland fires a year.

Schools

The Lewiston Elementary School consists of grades kindergarten through eight. The Lewiston Elementary School District provides bus services for residents in that community. Bus service is provided throughout the community for students attending Trinity High School in Weaverville.

3.15.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The analysis addresses potential impacts from implementation of the Proposed Project on a number of public services and facilities that are described in detail in the Master EIR. The analysis qualitatively addresses potential impacts on energy resources resulting from substantial or wasteful energy use during project construction. The analysis is based on a review of planning documents applicable to the project area and field reconnaissance.

CEQA Significance Criteria

The Proposed Project would normally have a significant impact on public services or utilities under CEQA if it would:

- Not comply with published national, state, or local statutes, regulations, or standards relating to solid waste;
- Interfere with emergency services;
- Degrade the level of service of a public service or utility;
- Require relocating infrastructure;
- Result in substantial adverse physical impacts associated with the provision of, or 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 fire protection, police protection, schools, parks, or other public services;
- Require substantial improvements to the infrastructure or level of staffing of a public service or utility to maintain its existing level of service;
- Require or result in the construction of new water treatment, wastewater treatment, or storm water drainage facilities, or the expansion of such existing facilities, the construction of which could cause significant environmental effects;
- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Disrupt utilities service to create a public health hazard or extended service disruption; or

- Encourage activities that result in the use of large amounts of fuel or energy, or would use fuel or energy in a wasteful manner.

Impacts and Mitigation Measures/Project Design Features

Table 27 summarizes the potential impacts on public services and utilities that could result from implementation of the No Project alternative and Proposed Project.

Table 27. Summary of Public Services and Utilities Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.15-1. Implementation of the project could disrupt existing electrical and phone service during construction activities.		
No impact	Less than significant	Not applicable[1]
Impact 3.15-2. Construction of the project could result in the generation of increased solid waste.		
No impact	Less than significant	Not applicable[1]
Impact 3.15-3. Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.		
No impact	Significant	Less than significant
Impact 3.15-4. Construction of the project could result in a substantial use of nonrenewable energy resources.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.15-1: Implementation of the Proposed Project could disrupt existing electrical and phone service during construction activities.

No Project Alternative

Under the No Project alternative, no construction-related disruption to existing electrical or telephone service would occur because the project would not be implemented. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, no activities would occur to disrupt electrical or telephone service within or adjacent to the project area. Utility poles and/or underground lines located within the project area boundaries would be identified by the TRRP, and activities described in Chapter 2 have been designed to avoid impacts to these facilities. A number of electrical and phone lines cross access roads to the site, typically in a manner that provides adequate vehicular clearance for phone and utility lines. These clearances would be adequate to allow access by construction equipment.

Potential impacts on electrical and phone utilities and services as a result of Proposed Project implementation would be less than significant; therefore, no mitigation is required.

Impact 3.15-2: Construction of the Proposed Project could result in the generation of increased solid waste.

No Project Alternative

Increased quantities of solid waste would not be generated under the No Project alternative because there would be no construction activities. Therefore, there would be no impact.

Proposed Project

Under the Proposed Project, construction would result in the generation of solid waste associated with the removal of vegetation and other construction-related waste (e.g., garbage, containers, and oil). Vegetative materials (e.g., stumps, roots, and branches) would be disposed of within the project area. Disposal methods for vegetative materials could include chipping to provide mulch, burial, piling to provide wildlife habitat on site, or integration into the activity areas to provide structural habitat for juvenile fish. Solid waste generated by construction activities would either be disposed of at a local transfer station (Weaverville) or transported by truck to the Anderson Landfill in Shasta County. The Anderson Landfill currently has sufficient capacity and the necessary permits to accommodate non-hazardous construction waste. The contractor would be responsible for ensuring appropriate disposal of any hazardous waste, as approved by Reclamation. Disposal of potentially hazardous waste is evaluated in Section 3.13, Hazards and Hazardous Materials.

Temporary access routes built for Proposed Project implementation would be closed and/or decommissioned to ensure that the number of public access points on public lands would not increase, which could require the provision of public services (e.g., solid waste disposal) at locations that are inconsistent with agency management plans, guidelines, and policies. Therefore, this impact would be less than significant.

Impact 3.15-3: Implementation of the Proposed Project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.

No Project Alternative

Since there would be no construction activities associated with implementation of the No Project alternative, emergency services, school bus routes, and student travel routes would not be disrupted. Therefore, there would be no impact.

Proposed Project

Construction activities would be confined within the project area boundaries. Construction personnel and service vehicles would use designated routes to and from the project area. Traffic control associated with activities would be minimal and is not expected to cause more than minimal disruptions to public services, if any. Access for mobilization and demobilization of heavy equipment, however, may require a higher level of traffic control for local roadways and may disrupt

traffic flow and circulation before, during, and after construction. Therefore, effects on emergency services, school bus routes, and student travel routes resulting from heavy equipment would be significant.

No road/bridge closures are planned for project implementation; however, in the event that it becomes necessary to temporarily close a road or bridge as a result of proposed activities, the road/bridge closures would occur during non-peak hours to avoid traffic circulation impacts associated with emergency services and school bus services. A closure, even during non-peak hours (i.e., 11:00 p.m. to 6:00 a.m.) could have the potential to increase significantly the response time for law enforcement, fire protection, and other emergency services. In the event that road closures would be required during the school year (mid-August through mid-June), these closures could delay school bus service, where it exists. While this impact would be temporary, it could interfere with student access to bus service and, thus, school attendance. Because of the potential for temporary traffic controls on local roadways, increased response time for emergency services, and interference with student travel, the impact would be significant.

Mitigation Measures/Project Design Features

Implementation of the Proposed Project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities. Therefore, mitigation measures 4.15-3a, 4.15-3b, and 4.15-3c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.15-4: Construction of the Proposed Project could result in a substantial use of nonrenewable energy resources.

No Project Alternative

No use of nonrenewable energy resources would occur under the No Project alternative because construction activities would not occur. Therefore, there would be no impact.

Proposed Project

Energy expenditures associated with construction at the site would include both direct and indirect uses of energy. Combustion of the refined petroleum products needed to operate construction equipment would be part of the direct energy use. Indirect energy use typically represents about three-quarters of total construction energy usage, with direct energy use constituting the remaining quarter. Though construction energy would be consumed only during the construction phase, it would represent an irreversible consumption of finite natural energy resources.

Construction would directly consume fuel and electricity. Construction would also indirectly consume fuel and electricity because of the energy used to provide the materials necessary for construction. Fuel would be consumed by both construction equipment and construction-worker vehicle trips. Minor electrical use might be required for some construction equipment, such as welding machines, power tools, and pumps.

Construction energy consumption would be a short-term impact and would not be an ongoing drain on finite natural resources. Construction would consume energy primarily in the form of fuel from local commercial sources and would not have a significant effect on local or regional energy sources. Therefore, this impact would be less than significant.

3.16 Transportation/Traffic Circulation

This section describes the existing transportation and traffic conditions in proximity to the project area and evaluates the potential impacts to transportation resources and traffic circulation from implementation of the Proposed Project.

3.16.1 Affected Environment/Environmental Setting

Regional and local roadways and circulation in the vicinity of the project area are described in Section 4.16 of the Master EIR. Table 28 identifies and characterizes the access roads for the project area. Based on reconnaissance information provided by TRRP staff and members of the design team, the roads identified in the table are maintained to varying degrees by the responsible party. No improvements to these roads are anticipated from proposed activities. SR-299 is a designated truck route between the Sacramento Valley and the coastal communities of northern California. It is the main access corridor to Trinity County and provides primary access to the Trinity River.

Table 28. Roadway Characteristics for Potential Access Roads Serving the Proposed Project Sites.

Road Name	Ownership	Surface Type	Roadway Class	Traffic Counts (ADT)
SR-299	State	Paved	Highway/ Scenic Byway	2,950 east of Junction City 1,900 west of Junction City
Trinity Dam Boulevard	County	Paved	Major Collector	441 at Rush Creek 897 at SR-299
Browns Mountain Road	Trinity County/BLM	Paved	Local/ Residential	Not available
Old Lewiston Road	Trinity County	Paved	Minor Collector	827
Bucktail Boat Ramp	BLM	Paved	Local/Recreation	Not Available

Sources: California Department of Transportation (Caltrans) 2007: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007; Smith, pers. comm. 2008.

The Lewiston community is a collection of residential and commercial areas accessed by Trinity Dam Boulevard, Lewiston Road, and Rush Creek Road. These roads connect to either SR-3 or SR-299, and provide access from several directions to the area encompassed by the Lewiston Community Plan. Old Lewiston Road and Browns Mountain Road are located near the Bucktail site. Old Lewiston Road provides access to residential, resource, and commercial areas, and Browns Mountain Road provides access to residential areas and federal and private lands. These roads are part of the Trinity County road system. BLM maintains a single-lane paved road that accesses the Bucktail Boat Ramp from Browns Mountain Road. The development pattern in the vicinity of Lewiston includes a number of private roads maintained by individuals or associations. Public access is often restricted by private land owners.

Bicycle, pedestrian, and equestrian circulation is limited in the communities and residential neighborhoods that have developed along the Trinity River below Lewiston Dam. The Lewiston Community Plan contains a goal to provide a pedestrian and bicycle circulation system in the Lewiston community core and Historic District areas. Although bike lanes are not available on other roads in the general vicinity of the site, bicyclists, pedestrians, and equestrians use area roads for access, exercise, and recreational pursuits.

In addition to using existing roads to access the project area, roads within the boundaries of the site would be used to support various activities. New temporary access roads would be required to provide access for construction and monitoring activities. The BLM road through the site will be rehabilitated to its current standard; the temporary access roads throughout the site will be decommissioned and revegetated.

3.16.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

A qualitative assessment of traffic impacts was performed, based on the construction procedures and equipment that would be used, local transportation policies, site review of existing conditions, and traffic levels on key roadways.

CEQA Significance Criteria

Significance criteria were developed based on Appendix G of the CEQA Guidelines, as well as project-specific issues identified during the scoping process (e.g., access during construction). Significant construction-related impacts would result under CEQA if the Proposed Project would:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county for designated roads or highways;
- Affect the form or function of SR-299, specifically bridges extending over the Trinity River and its tributaries;
- Affect the form or function of bridges under the jurisdiction of Trinity County or private parties;
- Disrupt existing traffic operations, including vehicular and bicycle traffic;
- Significantly degrade the existing conditions of local private roads;
- Obstruct access to adjacent land uses, including emergency access;
- Affect the operation of the local transit system;

- Conflict with adopted policies, plans, or projects supporting alternative transportation;
- Pose a safety hazard to motorists, bicyclists, equestrians or pedestrians;
- Cause substantial damage to or wear of public and private roadways; or
- Reduce available parking capacity.

Impacts and Mitigation Measures/Project Design Features

Table 29 summarizes the potential transportation and traffic impacts that would result from the No Project and Proposed Project alternatives.

Table 29. Summary of Potential Transportation Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.16-1. Construction activities would reduce/close existing traffic lanes.		
No impact	Less than significant	Not applicable[1]
Impact 3.16-2. Construction activities would generate short-term increases in vehicle trips.		
No impact	Significant	Less than significant
Impact 3.16-3. Implementation of the project would obstruct access to adjacent land uses.		
No impact	Less than significant	Not applicable[1]
Impact 3.16-4. Construction activities would increase wear and tear on local roadways.		
No impact	Significant	Less than significant
Impact 3.16-5. Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.		
No impact	Significant	Less than significant
Impact 3.16-6. Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.16-1: Construction activities would reduce/close existing traffic lanes.

No Project Alternative

Under the No Project alternative, there would be no construction-related reduction or closure of traffic lanes. Therefore, there would be no impact.

Proposed Project

Construction activities associated with the Proposed Project would be managed to ensure that SR-299, Old Lewiston Road, Trinity Dam Boulevard, and Browns Mountain Road, the primary roads serving as access for the project area, would remain open to through-traffic. The paved BLM road may be subject to short, intermittent closures while active construction occurs in the adjacent activity areas. Temporary traffic control may be necessary during the mobilization and demobilization of heavy equipment; however, no road closures are planned other than the BLM Boat Ramp Road. Passage for emergency vehicles would not be restricted. The adequate passage of traffic within and through the construction areas in the event of an emergency evacuation is discussed in Section 3.13, Hazards and Hazardous Materials. Because any traffic control requirements associated with access roads would be temporary, this impact would be less than significant.

Impact 3.16-2: Construction activities would generate short-term increases in vehicle trips.

No Project Alternative

Under the No Project alternative, short-term increases in vehicle trips would not occur because there would be no construction activities. Therefore, there would be no impact.

Proposed Project

Construction activities associated with the Proposed Project could require truck and worker vehicle trips on SR-299, Old Lewiston Road, Trinity Dam Boulevard, and Browns Mountain Road leading to and from the project area; thus, vehicle trips would increase on these roads. Construction equipment (e.g., large trucks, excavators, and back-hoes) would be mobilized to the project area prior to rehabilitation activities and would be removed upon completion of these activities. During the construction period, when the greatest number of workers and trucks would be required, 20 to 30 construction workers and their vehicles would need access to the site daily. These vehicle trips would be added to area roads on a recurring basis for the duration of rehabilitation activities at the site.

Throughout construction, Reclamation would limit the amount of daily construction equipment traffic by staging the construction equipment and vehicles in the project area boundary for the duration of work. Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access for 3 to 5 years. Existing traffic volumes along these area roads are low to moderate, and the potential increase in traffic generated from construction would be potentially significant.

Mitigation Measures/Project Design Features

Construction activities would generate short-term increases in vehicle trips. Therefore, mitigation measure 4.16-2a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-3: Implementation of the Proposed Project would obstruct access to adjacent land uses.

No Project Alternative

Under the No Project alternative, access to adjacent land uses would not be affected because no construction activities would occur. Therefore, there would be no impact.

Proposed Project

As described in Section 3.1, land uses in and adjacent to the project area consist mainly of public and private forestry and other resource lands and private residential areas. Land uses in the Lewiston Community Plan area that are adjacent to the Bucktail site include residential, resource, commercial, recreational, and agriculture. As previously described, activities associated with this site would use primary access points on Browns Mountain Road, the BLM Boat Ramp Road, and various private roads.

Access to adjacent public and private lands could be restricted for short periods of time using traffic control measures. Short-term access to the Trinity River for recreational use could be restricted, to varying degrees, during construction activities. However, several public access points would be available around this stretch of the river during the Project implementation period, both upstream and downstream. Reclamation would provide information on these alternate locations as part of it public outreach program using local media and website notifications. Impacts related to recreational access and other recreational resources are discussed under Section 3.8, Recreation. Short-term access limitations coupled with the construction criteria described in Appendix B (Traffic Control/Detour) would result in an impact that is less than significant.

Impact 3.16-4: Construction activities would increase wear and tear on local roadways.

No Project Alternative

Under the No Project alternative, there would be no increased wear and tear on local roadways. Therefore, there would be no impact.

Proposed Project

SR-299 is a designated truck route that was built to withstand occasional use by heavy equipment. Other local roads over which project-related trucks and heavy equipment must pass may not be constructed or maintained to support substantial volumes of truck traffic. Numerous local roadways would provide access for construction-related activities, including roads under the jurisdiction of federal, state, and local agencies. Use of these roads by project-related trucks and heavy equipment would increase wear and tear on the local roadways and could result in adverse impacts on road conditions. The degree of impact would depend on roadway design and existing condition prior to the onset of TRRP activities. Because SR-299 was designed to accommodate a mix of vehicle types, including heavy trucks, the Proposed Project is not expected to add significantly to roadway wear-and-tear on this highway.

While construction equipment would generally be staged on-site during construction, additional truck travel on local roads, including roads managed by BLM and Trinity County, would be required. It is estimated that 40 trips would be required to bring wood to the project area and over 700 trips would be required to bring gravel and boulders to the area for use in activity area features. Trucks transporting materials to the site would operate within the legal weight limits as determined by the state. The number and types of activities could require some level of road reconstruction at select locations before or after project implementation. The level of construction traffic could also require additional maintenance for some road segments in conjunction with various activities. Although standard construction and transportation practices would be implemented to reduce the potential for adverse impacts on roadway conditions, the potential wear and tear on some roads under the Proposed Project would be a significant impact.

Mitigation Measures/Project Design Features

Construction activities would increase wear and tear on local roadways. Therefore, mitigation measure 4.16-4a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.

No Project Alternative

The No Project alternative would not pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians because there would be no construction activities. Therefore, there would be no impact.

Proposed Project

Traffic safety hazards could arise for motorists, bicyclists, pedestrians, and equestrians in the vicinity of the construction access routes for the Proposed Project as a result of the movement of project-related trucks and heavy construction equipment. Truck and equipment access to the Trinity River during construction activities would be limited to designated routes to minimize public exposure to construction traffic. Trucks entering and exiting access roads off SR-299, Old Lewiston Road, and Browns Mountain Road may pose a particular hazard to motorists, cyclists, and equestrians using the roadway. The safety hazard would be limited to brief and intermittent time periods; nevertheless, it would be significant.

Mitigation Measures/Project Design Features

Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians. Therefore, mitigation measure 4.16-5a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.

No Project Alternative

The No Project alternative would not affect bridges under the jurisdiction of Caltrans, Trinity County, or private parties because there would be no construction activities. Therefore, there would be no impact.

Proposed Project

A number of bridges over the Trinity River and/or its tributaries could be used to access the project area, depending on where the equipment is coming from. The hydraulic model (HEC-RAS) described in the Master EIR, Section 4.4, Water Resources, has been used to integrate the hydraulic controls established by these constructed features. Modification of the form or function of these structures would not be affected by rehabilitation activities in close proximity to these areas. Therefore, this impact would be less than significant.

3.17 Tribal Trust

The United States has a trust responsibility to protect and maintain rights reserved by, or granted to, federally recognized Indian tribes and individual Indians by treaties, statutes, and executive orders. The Secretary of the Interior is the trustee for the United States on behalf of Indian tribes and individuals. The trust responsibility requires that all federal agencies, including Reclamation, take all actions reasonably necessary to protect and maintain Indian trust assets.

Indian trust assets are legal interests in property held in trust by the federal government for federally recognized Indian tribes or individual Indians. "Assets" are anything owned that has monetary value. "Legal interest" means that a property interest exists for which there is a legal remedy, such as compensation or injunction, if there is improper interference. Indian trust assets can be real property, physical assets, or intangible property rights, such as a lease or a right of use. While most Indian trust assets are located on-reservation, they can also be located off-reservation. Examples of Indian trust assets include, but are not necessarily limited to, land, natural resources, native plants and wildlife, cultural resources, minerals, hunting and fishing rights, water rights, and instream flow. Tribal trust resources are discussed in Section 7.17 of the Master EIR.

3.17.1 Affected Environment/Environmental Setting

The need to restore and maintain the natural production of anadromous fish in the mainstem Trinity River is derived in part from the federal government's trust responsibility to protect the fishery resources of the region's Indian tribes. The Trinity River Basin Fish and Wildlife Restoration Act of 1984 (Public Law 98-541) expressly acknowledges tribal interests in the basin's fishery resources by declaring that the measure of successful restoration of the Trinity River fishery includes the "ability of dependent tribal…fisheries" to participate fully, through enhanced in-river "harvest opportunities, in the benefits of restoration." In addition, the 1992 CVPIA specifically recognizes the federal trust responsibility in regard to the Trinity River fishery. The Proposed Project could potentially affect

anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health; these impacts in turn could affect the sociocultures and economics of tribes.

This section focuses principally on the interests of the HVT and YT because, of the Indian tribes of the Klamath/Trinity Region, their interests could be the most directly affected by the Proposed Project. It should be understood, however, that potential impacts are important to the Karuk and Klamath people as well, since they share a common regional heritage.

Regional Setting

In 1855, President Pierce established the Klamath River Reservation. The reservation was designated as a strip of territory commencing at the Pacific Ocean and extending 1 mile in width on each side of the Klamath River for a distance of approximately 20 miles. Although the federal government's intent was to eventually move all the region's Indians onto the Klamath River Reservation, only some Yurok and Tolowa were moved. In 1864, the USDI issued a proclamation and instructions that established the Hoopa Valley Reservation on the Trinity River pursuant to legislation enacted by Congress that same year. The reservation is 12 miles square and bisected by 15 miles of the river (it has often been called the Square or the 12-mile Square). In 1876, President Grant issued an Executive Order formally establishing the boundaries of the Hoopa Valley Reservation.

Efforts soon began to provide a single contiguous homeland for the region's Indian people by connecting the Klamath River Reservation to the Hoopa Valley Reservation. In 1891, President Harrison extended the Hoopa Valley Reservation from the mouth of the Trinity River to the ocean, thereby encompassing and including the Hoopa Valley Reservation, the original Klamath River Reservation, and the intervening connecting strip. In 1988, Congress, under the Hoopa-Yurok Settlement Act, separated the Hoopa Valley Reservation into the present Yurok Reservation (a combination of the original Klamath River Reservation and other lands) and Hoopa Valley Reservation.

Indian Federally Reserved Rights

The United States has a trust responsibility to protect tribal trust resources. In general, this tribal trust responsibility requires that the United States protect tribal fishing and water rights, which are held in trust for the benefit of the tribes (USDI 1995). This trust responsibility is one held by all federal agencies. For projects under the auspices of the TRRP, Reclamation is obligated to ensure that their actions do not interfere with tribes' senior water rights. Pursuant to its trust responsibility and consistent with its other legal obligations, Reclamation must also prevent activities under its control that would adversely affect tribal fishing rights, even when those activities take place off-reservation.

Fishing Rights

Salmon, steelhead, sturgeon, and lamprey that spawn in the Trinity River pass through the Hoopa Valley and Yurok Reservations and are harvested in tribal fisheries. The fishing traditions of these tribes stem from practices that far pre-date the arrival of non-Indians. Accordingly, when the federal government established what are today the Hoopa Valley and Yurok Indian Reservations on the Trinity and Lower Klamath Rivers, it reserved for the benefit of the Indian tribes of those reservations a right to the fish resources in the rivers running through them. The federally reserved fishing rights

of the YT and HVT entitle them to take fish for ceremonial, subsistence, and commercial purposes. The federal government, as trustee, has an affirmative obligation to manage federally reserved Indian rights for the benefit of federally recognized Indian tribes. Federally reserved Indian fishing rights are vested property rights held in trust by the United States for the benefit of Indians.

Water Rights

In addition to fish, the tribes have reserved rights to water. The concept of reserved rights in general, and Indian reserved water rights specifically, originated just after the start of the 20th century[8]. The ruling in this case, commonly referred to as the Winters Doctrine, states that when the federal government established a reservation, it implicitly reserved a quantity of water necessary to fulfill the purpose of said reservation. The USDI Solicitor's office reaffirmed these rights with respect to Reclamation's activities, stating "Reclamation is obligated to ensure that project operations not interfere with the tribes' senior water rights."

Rights to Wildlife and Vegetation Resources

While the focus of the legal history surrounding Indian rights to resources has concentrated on water and fisheries, other resources, such as wildlife and vegetation, are also extremely important to the tribes, and the tribes have assessed that these resources are no less reserved. In the case of the HVT and YT, the decline in the health of the region's rivers has limited the availability of grasses and other plants important to traditional basketry, art, and medicine. Thus, while anadromous fish are the focus of the TRRP, other trust assets, such as vegetation, are embodied in the federal government's trust responsibility and, accordingly, need to be considered in the decision-making process.

Cultural Environment

Native uses of natural resources and the cultural significance of those resources have developed over many centuries, during the time that native people have lived in the heavily forested drainages of the Klamath and Trinity rivers and adjacent streams in northwestern California. Hunting, fishing, and gathering were the foundation of their societies. Tribes in the area included the Chilula, Hoopa Valley, Nongatl, Tsnungwe, and Whilkut, which spoke Athabascan languages; the Chimariko, Karuk, and Shasta, which spoke Hokan languages; the Wintun, which spoke a Penutian language; and the Wiyot and Yurok, which spoke Algonkian languages.

Some of these tribes, such as the Chilula, no longer exist. Others, including the Chimariko and Wintu, have not been officially recognized by the United States as a distinct and sovereign people. Among the Indian peoples still present in the region, only the Hoopa Valley, Yurok, Karuk, and Klamath tribes have received this recognition.

Strong social, cultural, and economic ties have existed through history among the tribes of the Klamath/Trinity Basin, based in large part on a shared reliance on the region's rivers and associated resources, particularly salmon. This reliance extends well beyond subsistence and commerce to the cultural and social fabric of their societies, as evidenced by their traditional, ceremonial, and spiritual ways of life that focus and center on the rivers and the fish, wildlife, and vegetation they support. For

[8] *Winters v. United States,* 207 U.S. 564 (1908).

Indians of the Klamath/Trinity Basin, the interaction and identification with the natural environment define their cultures, lifestyles, and religions; therefore, the degradation of the natural environment has had a profoundly devastating impact.

Proposed Project Site

Based on consultation between the tribes and Reclamation, the Proposed Project site contains trust assets, including fish, vegetation, and wildlife. Corresponding sections of this document provide discussions of these resources. While no specific use of the site by the tribes has been identified, the Trinity River provides a valuable corridor that connects these resources to the HVT and YT.

3.17.2 Environmental Consequences/Impacts and Mitigation Measures

The purpose of this section is to evaluate the potential impacts of the alternatives on tribal trust assets and the subsequent effects those impacts may have on the Indian tribes of the Klamath/Trinity Basin.

Methodology

While the Proposed Project is aimed at improving the river's anadromous fisheries, an assessment of how implementation may actually affect the Indian trust assets of the HVT and YT must be performed, as directed in the USDI Departmental Manual (Part 512, Chapter 2) and Reclamation's Indian Trust Asset Policy. Toward this end, the Indian trust asset impact evaluation focuses on the potential effects of the rehabilitation activities described in Chapter 2 on the health of the Trinity River. Because the river's overall health is a primary factor in determining the availability of fish, the potential tribal trust impacts are not evaluated on an asset-by-asset basis.

CEQA Significance Criteria

Under CEQA, lead agencies are not explicitly required to consider a project's impacts on tribal trust assets as a distinct category of impacts. With its focus on the physical environment, CEQA requires agencies to focus on impacts to environmental resources, some of which, like fish, wildlife, and water quality, would be indirectly related to tribal trust values. Therefore, the significance criteria applied in this evaluation of potential consequences on tribal trust assets are general and based on the potential for components of the Proposed Project to result in any modification of, or change in, the quantity or quality of tribal trust assets.

Although CEQA does not expressly require the application of specific significance criteria for potential impacts to Indian trust assets, federal lead agencies evaluating proposed actions under NEPA typically include the evaluation of potential impacts to Indian trust assets as a distinct category of impacts. Accordingly, this evaluation assessed the impacts of the proposed activities described in this document relative to any modification or change in the value, use, quantity, quality, or enjoyment of downstream Indian trust assets.

Impacts and Mitigation Measures/Project Design Features

Table 30 summarizes potential impacts on Indian trust assets that would result from implementation of the No Project and Proposed Project alternatives.

Table 30. Summary of Potential Tribal Trust Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.17-1. Implementation of the project may reduce the quantity or quality of tribal trust assets.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.17-1: Implementation of the Proposed Project may reduce the quantity or quality of tribal trust assets.

No Project Alternative

Under the No Project alternative, mechanical channel rehabilitation activities would not be implemented at the Proposed Project site; therefore, no direct impact to tribal trust assets would occur as a result of the Proposed Project. However, implementation of other activities to improve the fishery and other resources of the mainstem Trinity River could still be undertaken. Thus, under the No Project alternative, the overall benefits to tribal trust assets gained through implementation of the overall TRRP would likely be achieved but the benefits associated with river rehabilitation at the Bucktail site would not be realized.

Proposed Project

Under the Proposed Project, the Trinity River would continue to support tribal trust assets. The short-term impacts described in sections pertaining to geology, fluvial geomorphology, and soils; water quality; fishery resources; and vegetation, wildlife, and wetlands would occur if the Proposed Project is implemented. These impacts are expected to be short-term and to be outweighed by the overall benefits to tribal trust assets gained through implementation of the overall TRRP and the Proposed Project. Therefore, this impact is less than significant.

3.18 Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 11, 1994, requires federal agencies to identify and address adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group of people should bear a disproportionate share of negative impacts from an environmental action.

To comply with the environmental justice policy established by the Secretary of the Interior, all USDI agencies are to identify and evaluate any anticipated effects, direct or indirect, from a project, action, or decision on minority and low-income populations and communities, including the equity of the distribution of the benefits and risks. Accordingly, this section examines the anticipated impacts of the Proposed Project with respect to potentially affected minority and economically disadvantaged groups. Socioeconomic issues, including population and housing, are evaluated in this document in Section 3.9, Socioeconomics. This section does not function as part of the IS portion of this joint document, because CEQA does not require state or local agencies to address environmental justice concerns in an IS.

3.18.1 Affected Environment/Environmental Setting

The Trinity River is a valuable economic resource for Trinity County. Its popularity as a recreation destination, particularly for fishing, white-water recreation, gold panning, and as an access point to the Salmon-Trinity Alps, directly benefits communities such as Lewiston, Douglas City, and Junction City through increased business patronage. Businesses benefit during peak recreation-use periods (e.g., rafting, kayaking, and fishing). Other economic opportunities such as agriculture are severely limited by the surrounding topography; thus, minimizing the attraction for a transitional labor pool.

The U.S. Census uses a set of income limits that vary by family size and composition to determine who is in poverty. If a family's total income is less than the income limit, then that family, and every individual in it, is considered to be in poverty. Poverty income level thresholds are nationwide standards set by the Census. The formula for the poverty rate is the number of persons below the poverty level divided by the number of persons for whom poverty status is determined. For the period 2008-2012, 17.7 percent of the population in Trinity County was living in poverty compared to 15.3 percent for the state of California as a whole. The median household income for the period 2008-20013 for Trinity County was $36,569, compared to the median California income of $61,400 (U.S. Census Bureau 2014).

The 2013 population estimate for Trinity County showed that the vast majority of the population (approximately 88.8 percent) consisted of white individuals (U.S. Census Bureau 2014). The largest minority population in the county is Hispanic. The 2012 estimate showed that the Hispanic population was 7.0 percent of the total, compared to 38.2 percent in California as a whole. The American Indian population constitutes the next largest minority group. In 2012, American Indians constituted 4.9 percent of the total county population, compared to 1.7 percent for California as a whole (U.S. Census Bureau 2014). The percentage of black and Asian residents in the county is small (each less than 1 percent).

The Lewiston community is predominately white (89.1 percent) (2007-2011 estimate; U.S. Census Bureau 2013) and the proportion of people living below the poverty level is 20.8 percent. The Junction City census designated place is also predominately white (96.1 percent) and the proportion of people living below the poverty level is 15.9 percent (2007-2011 estimate; U.S. Census Bureau 2013). The 2012 estimate of people living below the poverty level for the United States is 15.9 percent (U.S. Census Bureau 2013).

3.18.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The EPA compares three factors—minority representation, low-income representation, and environmental burden—for a community of concern and one or more reference areas—for example, an entire county—to analyze potential environmental justice impacts. A community of concern can be defined in a number of ways, including a municipality, a census block group, a user-defined radius around a source of pollution, or a boundary drawn along physical features such as streets, streams, or railroad tracks. The demographic data for the community of concern can then be analyzed to determine whether there would be a potential environmental justice concern in the area. As part of this analysis, poverty levels and minority population levels were examined for Trinity County.

CEQA Significance Criteria

Because environmental justice is not a CEQA issue, specific significance criteria were not applied in evaluating potential environmental justice consequences. Instead, any modification or change in environmental justice factors that would occur in response to the Proposed Project is evaluated in accordance with NEPA requirements.

Impacts and Mitigation Measures/Project Design Features

Table 31 summarizes the potential environmental justice impacts that would result from implementation of the No Project and Proposed Project alternatives.

Table 31. Summary of Potential Environmental Justice Impacts for the No Project and Proposed Project Alternatives.

No Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.18-1. Implementation of the project could adversely affect a minority or low-income population and/or community.		
No impact	Less than significant	Not applicable[1]

[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.18-1: Implementation of the Proposed Project could adversely affect a minority or low-income population and/or community.

No Project Alternative

Under the No Project alternative, no impact to a minority or low-income population or community would occur because the Project would not be implemented. Therefore, there would be no impact.

Proposed Project

Although minority and low-income residents live in the vicinity of the Proposed Project, the impacts would generally be experienced by residents in relationship to their proximity to the site, regardless of their racial or income characteristics. There is no evidence to suggest that the Proposed Project would cause a disproportionately high adverse human health or environmental effect on minority and low-income populations compared to other area residents. The known health risks to residents that could be associated with the Proposed Project are evaluated in the Water Quality, Air Quality, Hazardous Materials, and Noise sections of this document. For the most part, these health risks are associated with construction aspects of the Proposed Project, in that residents and construction workers could be exposed to hazardous materials that may be associated with project activities. Possible health risks also include construction-related accidents. Reclamation would manage the Project to minimize these risks, as required by applicable federal and state safety regulations. Therefore, no disproportionate or specific health risks or other impacts to low-income groups would be associated with the Proposed Project.

Chapter 4. Cumulative Effects and Other CEQA and NEPA Considerations

The analysis in this chapter tiers from the "statutory considerations" discussion in Chapter 5 of the Master EIR; the EA incorporates that discussion by reference. That discussion addressed certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the Proposed Project, the significant effects that cannot be avoided if the Proposed Project is implemented, and the growth-inducing effects of the Proposed Project. Additional discussions are also required under NEPA, such as the significant irreversible and irretrievable commitments of resources and the relationship between local short-term uses of the environment and the maintenance of long-term productivity. These are incorporated by reference from the Master EIR and are summarized below; see the Master EIR for complete discussions of these topics. This section also provides updated information on cumulative impacts for additional projects that were not identified in the 2009 Master EIR.

4.1 Cumulative Impacts

The regulatory framework for the assessment of cumulative impacts under CEQA is discussed in Chapter 5, Section 5.2.1, of the Master EIR, and the regulatory framework for NEPA is discussed in Chapter 8, Section 8.2.1. Under the CEQA Guidelines (Section 15355), the term "cumulative impacts" refers to two or more individual impacts that, when considered together, are considerable or that otherwise compound or increase other environmental effects. Cumulative environmental impacts arise from the incremental impacts of the Proposed Project when added to other closely related past, present, and reasonably foreseeable future projects.

The CEQ NEPA implementing regulations (40 CFR 1508.7) state that cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) undertakes the other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.1.1 Methodology and Analysis

The methodology for the cumulative impact analysis is described in section 5.2.2 of the Master EIR. As discussed in that section, the methodology involved the assessment of the potential cumulative effects of the Proposed Project when considered in combination with a list of related projects within a defined geographical area. This assessment of cumulative impacts is considered in the same cumulative context; however, the list of related projects and programs considered in this analysis has been updated to include those closely related past, present, and reasonably foreseeable future projects listed in Table 32.

The cumulative impacts section provided in Chapter 5 of the Master EIR identified related projects through the list approach, based on input from the lead and cooperating agencies. The geographic

scope of the area examined in that assessment for cumulative effects was the Trinity River corridor between Lewiston Dam and the confluence of the North Fork Trinity River (at Helena, California). The following projects were considered in that section and are still considered timely and relevant:

- Fish Habitat Management
- Trinity River Mainstem Fishery Restoration Project
- California Coastal Salmonid Restoration Program/Five-Counties Salmonid Conservation Program
- Clean Water Act Section 303(d) Total Maximum Daily Load Requirements Program

Since 2009, the TRRP has implemented projects at all eight of the remaining Phase 1 Channel Rehabilitation Sites and implemented projects at seven of the Phase 2 sites. Concurrently, the TRRP has continued to implement coarse-sediment (gravel) augmentation at a number of locations downstream of Lewiston Dam, and fine sediment has been removed from both the Hamilton Ponds and Grass Valley Creek Reservoir. In addition, the TRRP-managed flows have been implemented yearly for the past 7 years. Ongoing monitoring efforts by the TRRP and its partners continue to document improvements in habitat use and restoration of alluvial processes and riparian vegetation. (Reclamation 2015).

Since 2009, there have been a number of watershed restoration and road sediment reduction projects implemented by various agencies and organizations throughout the Trinity River basin. While some of these were listed and considered in the Master EIR, the Forest Service and the Trinity County Resource Conservation District have completed a wide array of additional projects intended to improve watershed conditions, restore aquatic habitat, improve aquatic connectivity, and reduce road-related sediment delivery to streams and rivers.

The Trinity Public Utility District Direct Interconnection Project was authorized in 2009. It has been constructed and went on line subsequent to the issuance of the Master EIR. This electrical transmission project is primarily upstream from Lewiston Dam, but the construction of towers and access roads occurred in the Deadwood Creek watershed, resulting in short-term impacts to the tributaries of Deadwood Creek as a result of clearing and grading actions.

Since 2009, there have been a number of large fires in watersheds throughout the Trinity River basin. In 2015 alone, there were more than 240 fires that started from one lightning storm; seven of these ended up burning more than 195,000 acres of the Shasta-Trinity and Six Rivers National Forests and about 17,000 acres of acres of private lands in Trinity and Humboldt counties. More than half of the acres burned were in the Trinity River basin (Shasta-Trinity National Forest and Six Rivers National Forest 2015). As part of the overall 2015 fire suppression effort, more than 300 miles of containment line was constructed and ultimately rehabilitated. Although the Forest Service is still in the planning phase for fire salvage efforts, salvage is occurring on private lands throughout the basin. Cumulatively, these fires and related activities have resulted in substantial changes in watershed conditions throughout the Trinity River basin.

Construction and improvements to existing infrastructure were raised as a potential cumulative impact to consider in this section. The Bucktail Bridge was identified as a design constraint in the EA/IS due to its potential to capture coarse sediment from constructed alluvial features upstream. As a result, the TRRP is working closely with Trinity County to explore funding mechanisms to replace

this bridge with a structure that would not be affected by the changes in flow and sediment regimes. While replacement of this bridge is considered a foreseeable action with respect to need, there is no definitive plan to implement the project at this time.

The issue-specific analysis of cumulative impacts in Chapter 5 of the Master EIR identifies the potential cumulative impacts related to the Remaining Phase 1 and Phase 2 sites for a variety of resource areas. Table 32 provides an update to the summary prepared for the Master EIR.

The Dark Gulch project was completed on the upstream part of the Bucktail project area in 2008 and the Lowden Ranch project was completed on the downstream portion of the project area in 2010. Therefore, there is the potential for cumulative impacts from redisturbance of this area. It is assumed, however, that the impacts from those earlier disturbances have diminished because of the amount of time that has lapsed since they were completed. There is also the potential for new disturbance in the area if the Bucktail Bridge is replaced. That project would increase the amount of time for soil and vegetation disturbance as well as other impacts, such as those to noise, air quality, and visual resources. Those impacts would be analyzed in the environmental document for the new bridge. The previous issue-specific analysis in Chapter 5 sufficiently addresses the cumulative impacts of the Proposed Project, and no substantial differences arise in consideration of the Proposed Project separately.

Table 32. Summary of Cumulative Impacts Considering Past, Present and Reasonable Foreseeable Actions in the Trinity River Basin.

Land Use	Implementation of the Proposed Project, in combination with other related projects, would not have a cumulative impact in terms of planning policies, nor would river rehabilitation activities result in cumulative effects in terms of local or federal land use planning policies.
Geology, Fluvial Geomorphology, and Soils	No significant cumulative impacts associated with geologic hazards, geomorphic processes, or erosional processes are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. While large fires and construction of electrical transmission projects have occurred throughout the basin, these impacts are not in close proximity to the Proposed Project. Appropriate implementation of environmental commitments, project design features, and CEQA-specific mitigation measures would reduce potential impacts to a less than significant level.
Water Resources	Implementation of the Proposed Project in combination with other river rehabilitation activities would not have cumulatively considerable impacts on beneficial uses of the river or result in changes in the quantities of water available for any of those uses.
Water Quality	No significant cumulative impacts to water quality are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects, The TRRP implementation schedule acknowledges the need to stagger implementation of channel rehabilitation projects along the river to ensure that project sites have the opportunity to stabilize and revegetate. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of environmental commitments, project design features, and CEQA-specific mitigation measures would reduce potential impacts to a less than significant level.

Table 32. Summary of Cumulative Impacts Considering Past, Present and Reasonable Foreseeable Actions in the Trinity River Basin.

Fishery Resources	No significant, adverse, cumulative impacts to fisheries resources are anticipated to occur as a result of implementation of the Proposed Project. The effect of the Proposed Project, in conjunction with other projects and programs such as the Five Counties Salmonid Restoration effort, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the Proposed Project as designed, in conjunction with CEQA-specific mitigation measures, would benefit, rather than adversely affect, the fishery resources of the Trinity River in the long term.
Vegetation, Wildlife, and Wetlands	No significant cumulative impacts to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. The Project as designed, in conjunction with CEQA-specific mitigation, would benefit rather than adversely affect vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs (e.g., Five Counties Salmonid Restoration). Implementation of the Proposed Project would contribute to long-term ecological benefits in terms of vegetation, wildlife, and wetlands.
Recreation	No significant cumulative impacts to recreational resources are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Benefits to recreational values may be achieved through implementation of the TRRP over time.
Socioeconomics, Population, and Housing	No significant cumulative impacts to socioeconomics, population, and housing are anticipated to occur as a result of implementation of the Proposed Project. The related projects and programs described in the preceding discussion are expected to benefit the Trinity River fishery, with moderate projected economic and social benefits to the residents and communities along the Trinity River.
Cultural Resources	No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of the Proposed Project. The environmental commitments, project design features, and implementation of prescribed CEQA-specific mitigation measures (e.g., surveys of potential impact areas by a professional archaeologist prior to construction, protection of potentially significant cultural sites, and coordination with local tribes), in coordination with the SHPO, would adequately address potential impacts, including cumulative impacts.
Air Quality	No significant cumulative impacts to air quality are anticipated to occur as a result of implementation of the Proposed Project. The NCUAQMD requirements would be addressed by implementation of environmental commitments, project design features, and prescribed CEQA-specific mitigation measures. The Proposed Project, in conjunction with the other projects and programs occurring within the Trinity River Basin, would contribute cumulatively to global climate change. Thus, the Proposed Project would contribute to an adverse cumulative contribution to global climate change. Implementation of the Proposed Project in conjunction with mitigation measures would reduce the cumulative contribution to global climate change to a less than significant level.
Visual Resources	No significant cumulative impacts to visual resources are anticipated to occur as a result of implementation of the Proposed Project. Implementation of the Proposed Project would benefit, rather than adversely affect, visual resources in the long term, as would most of the other related projects described in the cumulative effects analysis in the Master EIR.

Table 32. Summary of Cumulative Impacts Considering Past, Present and Reasonable Foreseeable Actions in the Trinity River Basin.

Hazardous Materials	No significant cumulative impacts related to hazardous materials are anticipated as a result of implementing the Proposed Project in combination with other related projects.
Noise	No significant cumulative impacts related to noise are anticipated through implementation of the Proposed Project in combination with other projects. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.
Public Services and Utilities/Energy	No significant cumulative impacts related to public services and utilities/energy are anticipated as a result of implementation of the Proposed Project in combination with other related projects. The rehabilitation activities are designed in ways that ensure that emergency services would not be disrupted; that public services (e.g., school bus routes) would not be adversely affected; and that waste material generated from Project activities would be transported appropriately to authorized locations.
Transportation/ Traffic Circulation	No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of the Proposed Project in combination with other related projects. While replacement of the Bucktail Bridge was identified as a need during the initial design stages of this project, the Proposed Project was revised prior to scoping to address this design constraint. Traffic increases would be localized and temporary.
Tribal Trust Assets	No significant cumulative impacts to tribal trust assets are anticipated to occur as a result of implementation of the Proposed Project. The related projects and programs described in Chapter 5 of the Master EIR, in combination with the Proposed Project, are expected to cumulatively result in beneficial effects to the tribal trust assets, including the overall health of the Trinity River and its fishery resources.
Environmental Justice	No disproportionate environmental effects on minority or low-income populations have been identified the Proposed Project, and no significant cumulative impacts to environmental justice are anticipated to occur as a result of the implementation of the Proposed Project. Implementation of the Proposed Project, in conjunction with the other related projects and programs discussed previously in this section, is anticipated to provide a net benefit to the local communities by helping to restore the Trinity River's fishery resources.

4.2 Irreversible and Irretrievable Commitments of Resources

NEPA (Section 102) and the CEQ NEPA implementing regulations (40 CFR 1502.16) require a discussion of "any irreversible and irretrievable commitments of resources which would be involved in a Proposed Action should it be implemented."

Section 15126.2(c) of the CEQA Guidelines also requires a discussion of the significant irreversible environmental changes that would result from the Proposed Project should it be implemented. This section of the CEQA Guidelines states:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also,

irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The No Project alternative would not directly involve the use of resources or cause significant irreversible environmental effects other than those previously described in the Trinity River FEIS/EIR (USFWS et al. 2000a) and incorporated by reference in other sections of this document.

Implementation of the Proposed Project would not involve the substantial use of nonrenewable resources in such a way that would result in conditions that would be irreversible through removal or nonuse thereafter. Future generations would not be committed to irreversible consequences or uses; the effect on future generations would be beneficial as a result of the enhanced and maintained river system and related fishery resources. No irreversible damage from environmental accidents would be foreseeable in association with the Proposed Project.

Implementation of the Proposed Project would result in the use of fossil fuels, a nonrenewable form of energy. A relatively minor amount of nonrenewable resources would be used in the mechanical rehabilitation of the river channel, transport of gravel and other materials, and related construction and management activities in the project area. The material requirements for the Proposed Project would be relatively minor compared to the overall demand for such materials, and the use of these materials would not have a significant adverse effect on their continued availability.

4.3 Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Section 102 of the CEQ NEPA Regulations and 40 CFR 1501.16 require that an environmental document include a discussion of "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity." This discussion was included in Section 8.4 of the Master EIR and incorporated by reference.

The Proposed Project does not involve a trade-off between a "local short-term use" of the environment and the maintenance and enhancement of the environment in the sense contemplated by NEPA. Implementation of the Proposed Project is intentionally aimed at maintaining and enhancing the long-term biological and environmental productivity of the river system. Implementation of the Proposed Project would not sacrifice the long-term productivity of the project area for short-term uses during construction.

The short-term impacts on the environment associated with implementation of the Proposed Project are considered minimal compared to the long-term benefits and productivity that would result from the Proposed Project in conjunction with other objectives of the TRRP. Construction-related impacts and land use conflicts would be short-term, occurring only during the construction phase of the Proposed Project. The Proposed Project, including the environmental commitments and project design features, would ensure that the maintenance and enhancement of the fisheries resources offset the short-term impacts.

4.4 Growth-Inducing Impacts

Section 5.3 of the Master EIR evaluated the potential for growth that could be induced by implementation of the Proposed Project and assessed the level of significance of any expected growth inducement. Under CEQA, growth itself is not assumed to be particularly beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth inducing, an evaluation is made to determine whether significant impacts on the physical environment would result from that growth.

Implementation of channel rehabilitation activities in the project area would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. The Proposed Project would improve habitat for anadromous fish and, thus, improve conditions for fishing and recreation; however, the improved fishery resources resulting from implementation of the Proposed Project are not likely to directly or indirectly result in substantial development or population growth. Therefore, implementation of the Proposed Project would not result in a significant growth-inducing impact.

4.5 Environmental Commitments and Mitigation Measures

Reclamation's NEPA implementation guidance recommends that a list of environmental commitments for the preferred alternative be included in an EA. Chapter 2 of this EA/IS includes a list of environmental commitments and project design features as part of the Proposed Project. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant CEQA impacts in compliance with CEQA requirements. Under CEQA, lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required be made part of the project and other measures required to mitigate or avoid significant environmental effects. The MMRP provides the comprehensive list of CEQA mitigation measures and identifies requirements for timing, responsible parties, and compliance verification. A site-specific MMRP for the Proposed Project is included as Appendix B of this document.

4.6 Significant Effects under CEQA

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible (CEQA Guidelines Section 15021), and determinations of significance play a critical role in the CEQA process (CEQA Guidelines 15064). Section 5.4 of the Master EIR addresses several types of potentially significant effects.

Potentially significant effects have been identified in the areas of geology, geomorphology, soils, and minerals; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; cultural resources; air quality; visual resources; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in each resource. As part of the environmental impact assessment for each resource area, mitigation measures/design features have been identified that reduce these impacts to less than significant levels. The environmental analysis conducted for the Proposed Project did not identify any effects that, after mitigation/design features, remained significant and therefore unavoidable; no significant irreversible effects were identified associated with the Proposed Project.

4.7 Connected Actions

The CEQ regulations for implementing NEPA (40 CFR 1508.25) state that some actions (other than unconnected single actions) may be interdependent parts of a larger action and depend on the larger action for their justification. These connected actions are closely related and should be addressed when discussing the larger action.

Comments on this topic received during the public review process suggesting that replacement of Trinity County's Bucktail Bridge should be considered a connected action. While this project is considered as foreseeable in the discussion of cumulative effects, any decision on the Proposed Project would not depend on future decisions related to replacement of the Bucktail Bridge. Connected actions that would occur related to implementation of the Proposed Project include activities that are required for construction of the Proposed Project, such as transportation of logs, salvaged large woody debris, boulders, and alluvial materials from locations outside the project boundary, and the related vehicle trips, increases in traffic circulation, and wear and tear on local roadways. These activities were analyzed in the Master EIR, and supplemental analysis on these actions is provided in Chapter 3 of this EA/IS. The environmental analysis did not identify any effects that, after incorporation of environmental commitments, project design features, and CEQA mitigation measures, remained significant.

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APPENDIX A

Comments and Responses to Comments
on the Draft EA/IS

Appendix A

Comments and Responses to Comments on the Draft EA/IS

Introduction

This appendix contains comments received by the Trinity River Restoration Program (TRRP) on the Draft EA/IS for the Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45–107.0) Environmental Assessment/Initial Study and the TRRP's responses to those comments.

List of Commenters

Table A-1 identifies local property owners and representatives of agencies and organizations who submitted comments on the draft EA/IS:

Table A-1. Commenters on Draft EA/IS

Commenter	Individual or Signatory	Agency/Affiliation	Date Prepared	Date Received
1	Al Lilleberg	Local property owner	N/A	December 25, 2015
2	Concerned Citizen of Trinity County (Anonymous)	Unknown	December 15, 2015	December 22, 2015
3*	Brad Henderson	California Department of Fish and Wildlife	December 24, 2015	December 24, 2015
4	Dave Hillemeier	Yurok Tribe	December 8, 2015	January 4, 2015

Note: Responsible and trustee agencies under CEQA are noted with **bold** text.
*Letter of support. No response required.

Comments and Responses to Comments

The four letters commenting on the draft EA/IS are reproduced on the following pages. Immediately following each of the comment letters are the responses to each letter. No response is provided to the letter written by the California Department of Fish and Wildlife because the letter expressed support for the project and does not require a reply.

To assist in referencing comments and responses, each commenter has been assigned a number and each specific comment a letter of the alphabet. Responses are coded to correspond to the codes used in the margin of the comment letters. Comments that present opinions about the project or that raise issues not directly related to the substance of the draft EA/IS are noted without a detailed response. None of the comments require changes to the EA/IS.

Commentary on the presentation given at the Moose Lodge during late Nov or early December of 1015

Al Lilleberg, long time observer of the "Buck Tail" area previously referred to as the "Big Rock" and 'Gravel pit" and no doubt previously had another name for the area as there had been a high bridge extending from the big Rock to the two steel towers on the N side.
My parents bought 10 acres from the Gooding family back in 1953 or 2. I think the idea was to introduce country living to me, but they aren't here now to ask for certain. I feel qualified to tell about the region because I was observing from outside the local social view. The neighborhood I roamed in on weekends, summer stays, spring breaks, extended from the Salt Flats and Indian "village", including their cemetery, down stream to just below Grass Valley Creek. from the mountain tops on each side.

Not only was I there physically through out the last 62 years, the neighborhood served as my undergraduate Biology/ecology laboratory and my graduate Earth sciences laboratory. It is safe to say that I have examined the neighborhood in detail. I was shocked at the changes wrought by the dam. When I realized the river was dead, I quit a life long hobby of fishing.
FISH
Your report on plans for restoring the fisheries and to address most aspects of anadromous populations. But there are other fish present! Resident rainbow trout and sun perch to name the most common. In those days I have no counts, but I do have an observation that cannot be seen in anywhere near the numbers that used to be present. a

In the late afternoons of June, July and August a little preceding the retiring of the swallows and the appearance of the bats When looking down river across an expanse of about 400 feet of water surface, you could see fish jumping at insects. All sizes of fish from about 2 inches to about 16 inches were jumping at a rate that was uncountable. Single syllable numbers could keep up, but larger syllable numbers just fall hopelessly behind. This display would continue until dark. / Now that description supports high numbers of vertebrates feeding on insects. A very high majority of these insects were aquatic insects. This brings to question of what we are b

b

doing to increase the numbers of aquatic insects?

AQUATIC PLANTS & INSECTS

c

Well. you are providing some feather edging and some point bars where the resulting shallow waters provide a foothold for filamentous algae and lesser size algae. The algae are the basis of the aquatic food chain. / This warm water region supports the entire aquatic system. It is not just Shallow warm water. In early afternoon the shallows were painfully hot! We used to step quickly through the 0 to 3 inches of water because of the physical discomfort. / I remember turning rocks over in that environment by the light of a colman lantern. We were collecting Aquatic insect larvae to use as bait. The rocks were not cemented into position, but were loosely resting on others with lots of space beneath. Each space beneath such rocks was occupied by numbers of aquatic animal life from nematodes insect larva, gastropods, mollusks crayfish , pollywogs, etc.

d

Today, there are almost no such cobbles providing shelter.

Cementing of the bottom occurred during the dam construction when the Trinity ran paper bag brown for three months because of some unforeseen tunneling problem. Visibility in the region was less than 2 inches most of the time. Subsequent annual floods only moved sediments in some locations. Gone are the days of feeling/hearing the bedrock vibrate up to a half mile on either side of the river during exceptional winter rains.

CRUSTACEANS & MOLLUSKS

e

Walking the river edge a person commonly saw Crayfish claws or pieces and river clam shells. In a hundred feet of riverbank, you could easily find evidence of something preying on the crayfish . and the river clam. Now, you see no sign of crayfish at all! In fact, I took one of my high school students on a search for crayfish on the trinity. He was doing a term paper on Calif. crayfish at my high school in Napa. This was in the 80s. It took us 4 hours to find two crayfish!

f

Today, occasionally you will find a clam shell after searching a half mile of riverbank. Who was feeding on these? I notice the Killdeer are found in much lower numbers than in the 50s or 60s. Now the river clam is still filter feeding on the river bottom. They exist in larger numbers than before the dam project! Nobody is preying on them!

PACIFIC LAMPREY &

The numbers of pacific lamprey and the river suckers are down, like as not its a cemented bottom that is limiting the spawning opportunities. I am not sure. g

SUN PERCH & SUCKERS

These species have all but disappeared from the river system. I have some suspicions, but am unsure. The sun perch may have disappeared because the shallow annual ponds are gone. The suckers, I do not know enough about them. Sun perch used to abound in the dredge ponds adjacent to Gold Bar died out due to a change in the salt drainage from salt flat. But that isn't the main problem with their survival in the river. I have personally seen them in deep pools of the river, but you have to know how to look for them. h

It looks to me that your project is going to help restore the damage done to the river by the dam project. I am of the opinion that vacuum dredging on the river would increase fish habitat immensely at no cost to local agencies while increasing economic gains for the community as a whole. / The valley does not rumble at high water anymore, and habitat for the natural food chain suffers as a result. i j

I much appreciate the efforts you are making to restore the river ecology. / Thank You for the opportunity to speak. k

Response to Comment Letter 1

Comment letter 1 contains 12 distinct comments and remarks made at the TRRP's December 2nd public meeting in Lewiston, California, where the existing conditions and Proposed Project were described. The following is a summary of the comments and responses to the comments in Letter 1:

Comment 1a. – Inclusion of native aquatic species in addition to salmonids.

Section 1.5 of the Draft EA/IS provides a comprehensive discussion of the TRRP's intent to implement the 2000 ROD in order to increase habitat for all life stages of naturally produced anadromous fish native to the Trinity River. A key element of the proposed project is to create habitat for native anadromous fish while ensuring that habitat complexity and quantity increase as the alluvial processes of the Trinity River are enhanced or restored. These processes also maintain and/or enhance habitat for other native aquatic and riparian-dependent species that use the Trinity River and adjacent riparian habitat.

Section 1.6 of the Draft EA/IS provides a comprehensive discussion, using the best available information, of the fishery resources that are known to occur in the Trinity River downstream of Lewiston Dam. Although occurrences of native rainbow trout are well documented in the Trinity River, it is unclear which species the commenter refers to as "sun perch." Information on non-native warm water fish species (e.g., *Lepomis cyanellus* – Green Sunfish) is limited with respect to distribution and abundance.

Comment 1b. Affects on aquatic insect populations.

The 2014 review by the TRRP's independent Scientific Advisory Board (Buffington et al. 2014) states that one of the objectives of the channel rehabilitation projects is to increase and maintain macroinvertebrate populations. The commenter supports the TRRP's interest in ensuring that program actions continue to maintain and/or increase a diverse assemblage of aquatic insects that are available as prey to both fish and vertebrate species. Like salmonids, many of these insect species rely on functional alluvial habitat. As improvements to alluvial and riparian habitat occur, it is expected that the associated insect populations will persist or increase.

Comment 1c. Creation of shallow water habitat that affects water quality.

Trinity River water temperature in the Bucktail area is largely controlled by cold water releases from Lewiston dam. Water from the dam maintains the river at much colder than historic temperatures during summer. Adequate reservoir levels in Trinity Lake deliver cold water to the Trinity River, and the river remains cold at the constant base flows. The Trinity River temperature is measured at Douglas City and upstream of the confluence with the North Fork Trinity River to determine compliance with the following State Water Resources Control Board Order:

> *WR 90-5 (SWRCB 1990).* This order set temperature targets to protect holding salmon. Reclamation constantly monitors temperature to ensure compliance with the summer (July 1 – September 15) regulatory target of 60°F at Douglas City, California. This temperature target is rarely exceeded during normal and wet years; in 2015 (dry water year) this temperature target was exceeded 11 of the 55 days monitored. However, the maximum temperature recorded during this monitoring period was 61.2°F. Based on TRRP monitoring efforts to-date, no changes in water temperature have been linked to gravel augmentation.

While salmonids require cool, well-oxygenated water to thrive, constant and uniformly cold water can reduce the growth rates of fish and amphibians growth. The growth rates of fish are largely dependent on water temperature, much like the growth rates of other aquatic organisms such as foothill yellow-legged frog and western pond turtle. Adult salmon that hold in the river in the fall waiting to spawn do require consistently cold temperatures but growing juvenile salmon and steelhead prefer warmer temperatures than those preferred by adults. Furthermore, yellow legged frog and western pond turtle prefer even warmer temperatures than young salmon; therefore, cold but spatially variable temperatures rather than uniformly cold conditions are desired downstream of Lewiston dam.

One management strategy for maintaining cold water temperatures downstream to the North Fork (and beyond), while providing relatively warm water pockets in the Lewiston area, is to promote the growth and movement of gravel bars. Bars and other topographic features that result from the fluvial transport of coarse sediment influence temperature, making some areas colder or warmer than the mainstem. This creates natural thermal heterogeneity and local temperature refugia for various riverine species. Augmenting the gravel supply that is limited by the dams allows the river to transport sediment and create deposition, scour, and other processes that produce temperature variances. Aquatic organisms, including young salmonids, take advantage of this diversity of microenvironments while the main channel water temperature remains more constant.

Comment 1d. Historic changes in substrate composition.

The ROD directs the TRRP to implement a gravel augmentation program in the reaches below the dam. The original intent of introducing coarse sediment (gravel) downstream of the dams was to replace gravel that had washed downstream and not been replenished naturally since closure of the dam. Current evaluations now indicate that the post-dam coarse sediment deficit has been substantially reduced or possibly eliminated by TRRP' gravel augmentation activities (Gaeuman 2013); however, there will be a perpetual need to replace gravel that moves downstream from the Lewiston dam. The TRRP is now working to develop a long-term strategy to balance river transport with appropriate gravel augmentation. The plan will recommend a strategy and rationale to meet reach specific coarse sediment needs between Lewiston and Indian Creek so that ecological requirements to sustain biological and physical processes are met.

This strategy was used to develop the objectives of the proposed designs described in Chapter 2 of the Draft EA/IS. These objectives are to:

- Increase fry and juvenile salmonid rearing habitat;
- Increase or maintain adult salmonid holding habitat;
- Increase adult salmonid spawning habitat;
- Increase and enhance wildlife habitat;
- Increase and enhance riparian and wetland habitat, and enhance upland habitats;
- Increase channel complexity;
- Promote fluvial processes;
- Minimize adverse impacts to existing infrastructure; and
- Minimize uncertainty related to project performance.

A number of these objectives are intended to enhance the development of functional, high-quality aquatic habitat with variability in the size and abundance of alluvial material (e.g., sand, gravel, cobble). For the Bucktail project area, actions within various activity areas are proposed to develop or enhance attributes necessary to maximize aquatic habitat for juvenile salmonids (e.g., suitable depth, velocity, cover, and substrate) consistent with the flow regime established under the 2000 ROD. In addition, the proposed project also includes placement of boulders and large wood structures to provide additional hydraulic and habitat complexity under various flows.

Comment 1e & 1f. Crustacean and mollusk populations in the Trinity River.

Populations of crayfish (e.g., signal crayfish *Pacifastacus leniusculus*) and mollusks (e.g., western pearlshell [*Margaritifera falcate]*) that use alluvial habitat in the Trinity River have been affected by changes in the flow and sediment regimes. The TRRP acknowledges the commenter's personal observations of diminishing crustacean and mussel populations at specific locations along the Trinity River; however, little quantitative data exist on these species. Recent surveys for western pearlshell mussels have located widespread mussels but the health of their population needs further study (B. Gutermuth, personal communication).

The TRRP's channel rehabilitation projects involve more than just providing immediate alluvial habitat gains for juvenile salmonids and other aquatic organisms. They also create a floodplain and channel geometry that flow and sediment regimes can interact with, and one that will maintain a diversity of hydraulic conditions that perform naturally. The suite of TRRP activities is intended to work together to restore the natural processes most affected by the upstream dams—those that are critical to sustain salmonid populations and other aquatic organisms during their riverine life stages.

While the TRRP has not performed specific studies of these species, ongoing monitoring continues to document the ecological benefits of TRRP actions to alluvial habitat and aquatic organisms, including managed flow releases, channel rehabilitation efforts, and sediment management projects.

Comment 1g & 1h. Habitat for lamprey and other non-salmonid fish species.

Native non-salmonid species that inhabit the Trinity River basin include Pacific lamprey (*Entosphenous tridentatus*) and Klamath smallscale sucker (*Catostomus rimiculus*). The abundance of resident native species and the factors affecting their abundance within the basin are not well understood; however, all these species evolved and existed in the Trinity River prior to construction of Trinity and Lewiston dams and are presumably adapted to those conditions. Pacific lamprey are also known to occur in the Trinity River downstream of Lewiston Dam in each of its freshwater life stages (i.e., adult, embryo, larval ammocete, metamorphosed and emigrating juveniles). In addition to using habitat in the Trinity River and its tributaries, the Hamilton Ponds, a series of sediment retention ponds at the confluence of Grass Valley Creek and the Trinity River, are also known to support lamprey ammocetes.

The 2009 Master EIR – EA/EIR acknowledged that potential impacts and benefits to lamprey populations would be similar to those previously described for salmon and steelhead. Adult lampreys migrate upstream to spawn from spring through early summer and again in the fall. The removal of riparian vegetation that contributes to shaded riparian area habitat within the boundaries of various channel rehabilitation sites could have a temporary impact on adult lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the

implementation of TRRP's riparian vegetation management plan is expected to alleviate this impact over the longer term and, in fact, improve alluvial habitat for lamprey and other non-salmonid fish species.

In addition to the Hamilton Ponds, additional off-channel aquatic habitat occurs as ponds associated with historic dredging operations. Depending on the hydrology and related water quality, these ponds do provide habitat for a diverse assemblage of native aquatic organisms. In some instances, the TRRP has worked with land owners and/or land managers to change the form and function of these features consistent with relevant plans and policies. For instance, BLM's Resource Management Plan has specific management direction to manage public lands to support viable populations of native organisms. Hydrology in some ponds on public lands has been modified to exclude habitat for bull frogs, an invasive, non-native species considered detrimental to native frog and turtle populations.

Comment 1i. Suction dredging as a tool for channel restoration.

Restoring the spawning and adult holding habitat lost due to sand accumulation was the major focus of the early restoration efforts in the 1970s and 1980s. Pool dredging was one of the primary management actions used to control sand accumulation in the Trinity River. Pool dredging using suction dredges, excavators, and draglines was conducted between 1976 and 1991. (Krause, A.F. 2012. History of Mechanical Sediment Augmentation and Extraction on the Trinity River, California, 1912–2011. Technical Report TR-TRRP-2012-2 (Revised). Bureau of Reclamation, Trinity River Restoration Program, Weaverville, California.) During the same time frame, Reclamation realized that the input of fine sediment from highly erosive granitic watersheds was occurring at much higher rates than could be removed efficiently with dredging/excavation techniques. Consequently, a multi-agency effort was initiated to restore the Grass Valley Creek watershed in order to reduce the amount of fine sediment delivered to the Trinity River.

The flow evaluation study and subsequent authorization of the TRRP, including implementation of flow regimes intended to mobilize and transport fine sediment were determined to be a more efficient approach to rehabilitation of the Trinity River. Though cleaner substrates likely have resulted from both watershed restoration and increased mainstem (ROD) flows, recent substrate sampling on the Trinity River (between Lewiston and Junction City) indicates that gravel conditions at all 2001 sample sites have improved since the earlier study (Graham Matthews and Associates 2010). Although suction dredging was used prior to authorization of restoration flows, the post-ROD flow regime is now the preferred method by the TRRP to manage fine sediment in a more natural way.

Comment 1j. – Changes in Flow Regime and Relationship to Aquatic Productivity

The Trinity River Flow Evaluation Report (USFWS and HVT 1999) specifically noted the decrease in Trinity River rearing habitat at flows of between approximately 300 and 2,000 cfs as a limiting factor for anadromous salmonids. These effects of these flow conditions are not evaluated or reported in the SAB Draft Phase I review report. This habitat bottleneck between 300 and 2,000 cfs, which is a result of the degraded "U-shaped" Trinity River channel, necessitates the need for mechanical channel rehabilitation as part of the strategy to restore the riverine habitats and eventually the fishery resources of the Trinity River. Another component of the TRRP is to restore, within physical infrastructure and private property constraints, the flows and coarse sediment required to reestablish the fluvial processes that will create and maintain riverine habitats. Because there has been only one extremely wet water year since the Program began mechanical channel rehabilitation, there has been

limited ability to study the benefits of high flows at the project sites. The only maximum restoration flow of 11,000 cfs occurred in 2011, after the Phase I activities had been completed.

Channel rehabilitation projects involve more than just providing immediate rearing habitat gains for juvenile salmonids. They also create a floodplain and channel geometry that flow and sediment regimes can interact with, and one that will maintain a diversity of hydraulic and ecologic conditions that are designed to perform naturally. The suite of TRRP activities are intended to work together to restore the natural processes most affected by the upstream dams—processes that are critical to sustain salmonid populations and other aquatic organisms during their riverine life stages.

Comment 1k. Appreciation of restoration efforts.

Thank you for your support.

Concerned Citizen of Trinity County

December 15, 2016

Brandt Gutermuth
Environmental Scientist
Trinity River Restoration Program
PO Box 1300, 1313 S. Main ST.
Weaverville CA 96093

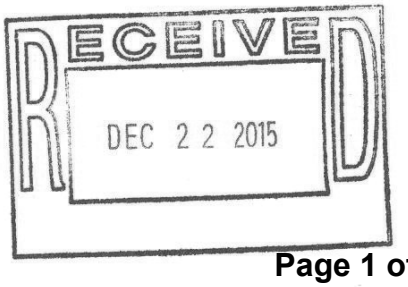
RE: Bucktail Restoration

Dear Mr Gutermuth,

I attended the public meeting at the Moose Lodge in Lewiston on December 2, 2016. After listening to the presentation, I do not have concern over the scope of the Bucktail restoration project. However I have serious concern over the Bucktail Bridge. I understand that funding was not secured for a new bridge. That is what it is. However I do not like how the Bureau of Reclamation is hedging its bet with the project design and implementation with the current bridge in place. I understand that your models predict that the bridge will be okay, but those are models and not reality. a

What I would like your team to address is creating a deeper channel downstream of the bridge to accommodate debris load at high flows. I would like to see at deepening of at least 4 to 6 feet in the channel for at least 1/4mile downstream. b

Please do not use your models to gamble with our bridges and infrastructure.



Response to Comment Letter 2

This comment letter contains two distinct comments. Following are the responses to those comments.

Comment 2-a. Modeled data vs. mapped data.

Modeling is a well-recognized and widely used scientific approach. As the commenter notes, modeling used for the proposed project indicates that the form and function of upstream rehabilitation activities would not affect the Bucktail Bridge.

Within the general confines of the project area, the design engineers use models to inform themselves of the potential effects that changes in site topography could have on existing and constructed features and how those elements function under variable flow conditions. The designers also use these models to assess the potential impacts on features that exist both upstream and downstream of the project (e.g., Bucktail Bridge) using model parameters such as water depths, velocities, and sheer stresses under both pre- and post-construction conditions and how the results might affect long-term maintenance/evolution of the features. These modeling results are also being used to ensure that TRRP projects comply with the requirements of Trinity County's Floodplain Ordinance so that there would be no increase in the elevation of the 100-year flood.

Results of empirical observations (e.g., monitoring) are being used to select optimal configurations for maximum aquatic habitat quality for juvenile salmonids (e.g., depth, velocity, and proximity to cover) in as-built conditions and as conditions evolve (e.g., erode, aggrade, or vegetate) under envisioned ROD flow conditions.

Comment 2-b. – Restoration Site Downstream of Bucktail Bridge

The environmental study limits for the proposed Bucktail Project do not extend downstream of the existing Bucktail Bridge. The project as proposed is intended to restore the form and function of alluvial features at a number of activity areas. The Proposed Project will function with the current bridge and will not affect the structure. The hydraulic modeling results used by the design team have documented that the proposed rehabilitation activities would comply with the requirements of Trinity County's Floodplain Ordinance with respect to the current conveyance capacity of the Bucktail Bridge for both high flows and debris loads.

Accommodating passage of debris through a channel reach can be addressed by engineers in the design plan using different methods and features. If a deeper channel is determined by the TRRP to be an objective for the reach downstream of the Bucktail Bridge, this could be accomplished by constructing various features at some future time that woukd create complexity and roughness, allowing the river itself to do the work of scouring the channel.

The TRRP acknowledges that fundamental changes in the flow regime, coupled with site-specific channel rehabilitation and sediment management actions, will result in changes to areas throughout the 40-mile restoration reach. Reestablishing high flows, reducing riparian berms, increasing channel complexity, and adding roughness, in conjunction with the existing hydraulic controls within the river (e.g., Bucktail Rock) provide opportunities for the river to re-adjust itself. These types of readjustments can lead to changes in how sediment is scoured, stored, and transported over time.

The specific site that the commenter has identified—the ¼-mile reach downstream of Bucktail Bridge—is not one of the specific sites identified in the 2000 ROD and is beyond the scope of the current Bucktail project.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Region 1 – Northern
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

December 24, 2015

Mr. Gil Falcone
North Coast Regional Water Quality Control Board
3330 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Subject: Review of the Trinity River Channel Rehabilitation Sites: Bucktail Project Initial Study, Trinity County

Dear Mr. Falcone:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Project Initial Study, State Clearinghouse Number 2015112039 (Project). The Project is located on the Trinity River near the Bucktail Bridge and extends approximately 1.5 miles upstream. Proposed work consists of similar activities already implemented throughout the restoration reach of the Trinity River. The Department supports ongoing habitat improvement projects associated with the Trinity River Restoration Program and has no additional comment at this time.

If you have any questions, please contact me at 530-225-2362 or by email at Brad.Henderson@wildlife.ca.gov.

Sincerely,

Brad Henderson
Senior Environmental Scientist

ec: Mr. Brandt Gutermuth, TRRP
bgutermuth@usbr.gov

State Clearinghouse
State.clearinghouse@opr.ca.gov

Michael R. Harris and Amy Henderson
California Department of Fish and Wildlife
Michael.R.Harris@wildlife.ca.gov and Amy.Henderson@wildlife.ca.gov

Conserving California's Wildlife Since 1870

Response to Comment Letter 3 – Acknowledgement of Support

Thank you for your support.

YUROK TRIBE

190 Klamath Boulevard • Post Office Box 1027 • Klamath, CA 95548
Phone: (707) 482-1350 • Fax: (707) 482-1377

December 8, 2015

To:

Brandt Gutermuth
Trinity River Restoration Program
P.O. Box 1300
Weaverville, CA 96093

Re: Yurok Tribe Comments on the Draft Environmental Assessment/Initial Study (DOI-BLM-CA-N060-2015-0057-EA and TR-EA0215) for the Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45-107.0)

I submit these technical comments on behalf of the Yurok Tribe in response to the recent request for public comment on the Environmental Assessment for the Bucktail channel rehabilitation project. The Yurok Reservation is located on the lower 44 miles of the Klamath River, from near the confluence of the Trinity and Klamath Rivers downstream to where the river joins the ocean. Restoration of the Trinity River is of utmost importance to the Yurok People, as the fishery resource is integral to the Yurok way of life for cultural, subsistence, and economic purposes. The Yurok Tribe is the single largest harvester of Klamath River fish populations, including those from the Trinity River, the largest tributary to the Klamath.

During recent decades, the Yurok Tribe has put substantial effort into restoring the Trinity River, to address the impacts of the Trinity and Lewiston Dams upon fish habitat and associated populations. Following the signing of the Trinity River Record of Decision (ROD) in 2000, full implementation of the Trinity River Restoration Project was delayed due to legal challenges; these legal issues were not resolved until 2004, resulting in full implementation being delayed until 2005. Completion of the channel rehabilitation projects has extended far beyond the original estimate of 6 years, further delaying the restored fisheries promised by the ROD.

The Yurok Tribe supports construction of the Bucktail project as it will significantly improve the amount and quality of salmonid habitat. Specific comments on the Environmental Assessment include: a

1. The entire project should be built in 2016. TRRP has considered phasing construction across multiple years. Doing so imposes additional expense (e.g. multiple mobilization costs) and additional public inconvenience. A multi-year construction also further delays the important fisheries benefits. b
2. The project benefits significantly outweigh the sedimentation risk at IC-7 imposed by the existing Bucktail Bridge during a 100-year flow event. The project should be built with or without the proposed bridge replacement. Trinity County and TRRP should continue to seek funding for the proposed bridge replacement. c

d

e

f

3. Use construction phasing and other techniques to maximize safe public access of site during construction. For example, consider constructing R-5 first and using it as a temporary boat launch while the rest of the site is constructed.
4. BLM should purchase the in-holding of private land
5. the cover page photo is confusing because it shows a completely different project site. Change the cover photo to be Bucktail specific.

Sincerely,

Dave Hillemeier, Fisheries Director

Response to Comment Letter 4

This comment letter contains six distinct comments. Following are the responses to those comments.

Comment 4-a. – Acknowledgement of Support.

Thank you for your support.

Comment 4-b. – Project Implementation Schedule.

The TRRP acknowledges the importance of completing the project in the shortest amount of time possible while still addressing all federal, state, and local requirements. The tentative construction schedule for the proposed project is described in section 2.4.4.3. As indicated, construction of the Proposed Project is scheduled to take place in 2016 if funding is available.

Comment 4c. – Effects of Existing Bucktail Bridge on the project.

The TRRP acknowledges the importance of evaluating the effects of the exiting Bucktail Bridge on the proposed action. Bucktail Bridge was identified as a design constraint in the EA/IS (section 1.3.1.1). While replacement of the current bridge is under consideration, bridge replacement at this location is not considered a connected action; it is, however, considered in the discussion of cumulative effects in the EA/IS. The TRRP will continue to coordinate with Trinity County to explore funding opportunities to replace the existing Bucktail Bridge, but any decision on the proposed action will not depend on future decisions related to a bridge replacement project.

Comment 4d. –Safe Public Access

The TRRP acknowledges the commenter's suggestion. Recognizing the importance of ensuring temporary public access (e.g., a boat launch) throughout the construction season, the TRRP will take into consideration the recommendation of constructing activity area R-5 early in the construction process while ensuring that in-channel activities have a limited operating period (July 15 to September 15).

Comment 4e. – Acquisition of private land by BLM.

Prior to construction, formal realty agreements would be made between Reclamation, land managers for BLM and Trinity County, and private landowners whose property would be affected. These agreements would clarify the terms and conditions under which Reclamation would work on private property. In addition, these agreements would compensate landowners, based on fair market value of identified temporary access and construction agreements, and would hold property owners harmless during construction activities. Figure 2 in the EA/IS illustrates the location of public and private lands within the ESL for the project.

Any actions related to BLM's land acquisition or disposal program are not associated with the proposed project and are excluded from consideration in the NEPA/CEQA process. According to the Federal Land Policy and Management Act (FLPMA), the Redding RMP, and BLM policy, the BLM must work with willing sellers and is limited to offering the appraised market value to purchase lands.

Comment 4f. – Replacement of Cover Photograph

The TRRP acknowledges the request to replace the cover photograph with an image that is specific to the Bucktail project. The cover has been replaced.

APPENDIX B

Mitigation Monitoring and Reporting Program and Project Design Features

APPENDIX B

Bucktail Rehabilitation Project
Mitigation Monitoring and Reporting Program and Project Design Features

Project Proponent and Federal Lead Agency for NEPA
U.S. Department of the Interior
Bureau of Reclamation– Trinity River Restoration Program
PO Box 1300
1313 Main Street
Weaverville, CA 96093

California Lead Agency for CEQA
North Coast Regional Water Quality Control Board
5550 Skylane Blvd, Suite A
Santa Rosa, CA 95403

Federal Co-Lead Agency for NEPA
U.S. Department of Interior – Bureau of Land Management
Redding Field Office

Applicant's Consultant
North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002

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APPENDIX B

Bucktail Rehabilitation Project
Mitigation Monitoring and Reporting Program and Project Design Features

Introduction

The first part of this document comprises the MMRP for the Trinity River Channel Rehabilitation Site: Bucktail (RM 105.45-107.0) Project (the Proposed Project). The purpose of providing the MMRP as an appendix is to facilitate its use as a stand-alone document, which clearly expresses to the reader the mitigation responsibilities of the Bureau of Reclamation (Reclamation), and Regional Water Quality Control Board – North Coast Region (Regional Water Board) in implementing the project. The mitigation measures listed herein, which are an updated version of those included within the Master EIR/Programmatic EA (North Coast Regional Water Board and Reclamation 2009), are required by law or regulation and will be adopted by the Regional Water Board when it issues it Notice of Applicability for the project. The second part of this document is comprised of project design elements that shall be implemented as part of the Proposed Project. In general, Chapter 3 mitigation measures identified in the EA/IS correspond to Chapter 4 mitigation measures in the Master EIR. The Appendix A mitigation measures in this EA/IS are meant to mitigate the same impacts as those identified in the Master EIR. Consequently, these mitigation measures are only different to the extent necessary to tailor the mitigation measures to the site specific conditions.

Mitigation is defined by the CEQA – Section 15370 as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; and
- Compensates for the impacts by replacing or providing substitute resources or environments.

The mitigation program identified in the MMRP to reduce potential project impacts consists of mitigation measures, project design elements, and construction criteria and methods. Mitigation measures provided in this MMRP have been identified in Chapter 3, Affected Environment and Environmental Consequences of the Proposed Project EA/IS, as feasible and effective in mitigating project-related environmental impacts. This MMRP includes discussion of the following: legal requirements, intent of the MMRP, development and approval process for the MMRP, the authorities and responsibilities associated with the implementation of the MMRP, a description of the mitigation summary table, project design elements, construction criteria and methods, and resolution of noncompliance complaints.

Legal Requirements

The legal basis for the development and implementation of the MMRP lies within CEQA (including the California PRC). Sections 21002 and 21002.1 of the California PRC state:

- Public agencies are not to approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of such projects.

- Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.

- Section 21081.6 of the California PRC further requires that: the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.

- The monitoring program must be adopted when a public agency makes its findings under CEQA so that the program can be made a condition of project approval in order to mitigate significant effects on the environment. The program must be designed to ensure compliance with mitigation measures during project implementation to mitigate or avoid significant environmental effects.

Intent of the Mitigation Monitoring and Reporting Program

The MMRP is intended to satisfy the requirements of CEQA as they relate to the project. It is anticipated to be used by Reclamation and Regional Water Board staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project.

The primary objective of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as needed, on-site identification and resolution of environmental problems, and proper reporting to lead agency staff.

Development and Approval Process

The timing elements for implementing mitigation measures and the definition of the approval process have been provided in detail through this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

Authorities and Responsibilities

As the Project proponent, Reclamation, functioning as the TRRP, will have the primary responsibility for the execution and proper implementation of the MRRP. The Regional Water Board may provide Reclamation with support, as warranted. Reclamation will be responsible for the following activities:

- Coordination of monitoring activities,
- Management of the preparation and filing of monitoring compliance reports, and
- Maintenance of records concerning the status of all approved mitigation measures.

Summary of Monitoring Requirements

Table A-1, which follows, summarizes the mitigation measures and associated monitoring requirements for the Proposed Project. The mitigation measures are organized by environmental issue area (i.e., Soils, Water Quality, etc.). Table A-1 is composed of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Draft EA/IS for the project. The mitigation numbering system used in the Draft MEIR/Draft EIR is carried forward in this MMRP.

- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure will need to be implemented.

- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., "implementation" or "monitoring").

- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

Resolution of Noncompliance Complaints

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the project. The complaint shall be directed to Reclamation at the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, CA 96093) and to the Regional Water Board at 5550 Skylane Boulevard, Suite A, Santa Rosa, California, 95403, in written form, providing detailed information on the purported violation. Reclamation and the Regional Water Board shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure is verified, Reclamation shall take the necessary action(s) to remedy the violation. The complainant shall receive written confirmation indicating the results of the investigation or the final corrective action that was implemented in response to the specific noncompliance issue.

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
3.3 Geology, Fluvial Geomorphology, and Soils			
Impact 3.3-2: Construction activities associated with the Proposed Project could result in increased erosion and short-term sedimentation of the Trinity River.			
4.3-2a Reclamation will implement the following measures during construction activities: • Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation. • All vehicular construction traffic will be confined to the designated access routes and staging areas. • Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. • All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.		Reclamation (implementation) Regional Water Board (Storm Water Pollution Prevention Plan [SWPPP] review and approval) BLM (SWPPP review)	
4.3-2b Reclamation will prepare an erosion and sedimentation control plan (SWPPP). Measures for erosion control will be prioritized based on proximity to the river. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, the Regional Water Board, NMFS, and CDFW) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following measures will be used as a guide to develop this plan: • Restore disturbed areas to pre-construction contours to the fullest extent feasible. • Salvage, store, and use the highest quality soil for revegetation. • Discourage noxious weed competition and control noxious weeds. • Clear or remove roots from steep slopes immediately prior to scheduled construction. • Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. • To the fullest extent possible, cease excavation activities during significantly wet or windy weather. • Use bales, wattles, and/or silt fencing as appropriate. • Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. • Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway. • Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be graded and vegetated to			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
reduce the potential for erosion. • Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day.			
4.5 Water Quality			
Impact 3.5-1: Construction of the proposed project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.			
4.5-1a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011), is summarized below. • Turbidity levels will not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. • Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.5-1b To ensure that turbidity levels do not exceed the thresholds described above (4.4-1a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. • If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
4.5-1d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels or other water bodies. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.5-2: Construction of the proposed project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.			
4.5-2a Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River Basin (North Coast Regional Water Quality Control Board 2011).			
4.5-2b To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed. • If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. • If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed.			
4.5-2c To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in at the end of this appendix (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.			
Impact 3.5-3: Construction of the proposed project could cause contamination of the Trinity River from hazardous materials spills.			
4.5-3a Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.			
4.5-3b Reclamation will ensure that any construction equipment that will come in contact with the Trinity River be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option.			
4.5-3c Reclamation will ensure that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling,			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Gas pumps and engines will be stored and maintained on impermeable barriers so that any leaking petroleum products are isolated from the ground. In addition, the construction contractor will be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.			
Impact 3.5-5: Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.			
Water quality Mitigation Measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, 4.5-1e, 4.5-2a, 4.5-2b, 4.5-2c, 4.5-3a, 4.5-3b, and 4.5-3c described above shall be implemented to protect the beneficial uses of the Trinity River.			
3.6 Fishery Resources			
Impact 3.6-1: Implementation of the proposed project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.			
4.6-1a The proposed construction schedule avoids in-channel work during the period in which it could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000), Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15).		Reclamation (implementation)	
4.6-1b Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
Impact 3.6-2: Implementation of the proposed project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon.			
4.6-2a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011), is summarized below. • Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
• Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-2d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			
Impact 3.6-3: Construction activities associated with the Proposed Project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.			
4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: • Equipment and materials will be stored away from wetland and surface water features. • Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier. • The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.6-4: Construction activities associated with the Proposed Project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.			
4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.			
4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.			
4.6-4c Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area.			
4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area.			
4.6-4f Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5- year or less frequent event (i.e., $Q \geq$6,000 cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.		Reclamation (implementation)	
Impact 3.6-5: Implementation of the Proposed Project would result in the permanent and temporary loss of SRA for anadromous salmonids.			
4.6-5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the projects to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and wetland waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain flagged areas on a regular basis throughout the construction phase.			
4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be redelineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.		Reclamation (implementation)	
Impact 3.6-6: Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase.			
4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.			
4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage.			
4.6-6c The number of vehicle and equipment crossings of the Trinity River will be minimized.			
4.6-6d Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion (National Marine Fisheries Service 2000), or result in a temporary impairment to fish passage related to a bridge.			
3.7 Vegetation, Wildlife, and Wetlands			
Impact 3.7-1: Construction activities associated with the Proposed Project could result in the loss of jurisdictional waters including wetlands.			
4.7-1a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. Monitoring and maintenance of planted vegetation will take place in the first several years after planting. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of wetlands at the end of a 5 year period and no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be re-delineated 5 years after project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after planting and wetland delineation 5 years after project implementation will provide Reclamation with needed data in a timely			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.			
Impact 3.7-4: Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher (*Empidonax traillii*).			
4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, Mitigation Measure 4.7-4b will be implemented.		Reclamation (implementation)	
4.7-4b Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation Measures 4.7-4c and 4.7-4d will be implemented.			
4.7-4c A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey(s) will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. To the extent possible given timing for construction and with the contract award, pre-construction surveys will conform to methodologies identified in a Willow Fly Catcher Survey Protocol for California available online at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Birds . If an active nest is found, CDFW will be contacted prior to the start of construction to determine the appropriate mitigation measures.			
4.7-4d If vegetation is to be removed by the projects and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			
Impact 3.7-5: Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog (*Rana boylii*).			
4.7-5a If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-5b In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until qualified personnel have moved the frog(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.			
4.7-5c Mitigation measures identified in Section 3.5 (Water Quality) of this EA/IS for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the foothill yellow-legged frog due to sedimentation and accidental spills.			
4.7-5d Mitigation measures associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a, 4.7-1b, and 4.7-1c) will be fully implemented.			
Impact 3.7-6: Construction activities associated with the Proposed Project could result in impacts to the western pond turtle (*Actinemys marmorata pallida*).			
4.7-6a A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits.		Reclamation (implementation)	
4.7-6b Prior to construction in open water habitat, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats.			
4.7-6c During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until qualified personnel have moved the turtle(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.			
4.7-6d Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.			
4.7-6e The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a, 4.7-1b, and 4.7-1c) will be fully implemented.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.7-7: Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift (C*haetura vauxi*), California yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).			
4.7-7a Prior to the start of construction, a qualified biologist will conduct surveys of the rehabilitation sites to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented.		Reclamation (implementation)	
4.7-7b Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.			
4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction surveys will be used to ensure that no nests of these species within or immediately adjacent to the rehabilitation sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest.			
4.7-7d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			
Impact 3.7-8: Construction activities associated with the Proposed Project could result in impacts to bald eagle (*Haliaeetus leucocephalus*) and northern goshawk (*Accipiter gentilis*).			
Due to the removal of the bald eagle from the endangered species list, and the availability of the National Bald Eagle Management Guidelines provided by the US Fish and Wildlife Service to protect the bald eagle, additional measures are outlined below. These measures are now stricter than those outlined in the 2009 Master EIR/Programmatic EA, and provide additional protections for the bald eagle to abide by directives within the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d):			
4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-8b Construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks will be expected. If it is not possible to schedule construction during this time, mitigation measures 4.7-8c and 4.7-8d will be implemented.			
4.7-8c Pre-construction surveys for bald eagles and nesting northern goshawks will be conducted by a qualified biologist to ensure that no disturbance will occur during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. The biologist will conduct surveys immediately adjacent to the impact areas for bald eagles and northern goshawk nests. If eagles or an active nest are found within 500 feet of the construction areas to be disturbed by these activities, the biologist, in consultation with the CDFW and the National Bald Eagle Management Guidelines, will determine the extent of a construction-free buffer zone to be established.			
4.7-8d If vegetation is to be removed as part of the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts. Directives under the Bald and Golden Eagle Management Protection Act will be adhered to.			
Impact 3.7-9: Construction activities associated with the Proposed Project could result in impacts to special status bats and the ring-tailed cat (*Bassariscus astutus*).			
4.7-9a Pre-construction surveys for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The surveys will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, Mitigation Measures 4.7-9b and/or 4.7-9c will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones.		Reclamation (implementation)	
4.7-9b If an active maternity roost or hibernaculum is found, the projects will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the projects cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during darker hours.			
4.7-9c Ring-tailed cats are fully protected species under Fish and Game Code Section 4700. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. If an active ring-tailed cat nest is found, the projects will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the projects cannot be redesigned to avoid removal of the occupied tree, the CDFW will be contacted for their input. If approved by CDFW, demolition of the tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, prior to disturbance, the CDFW will be notified to review and approve proposed procedures to ensure that no take occurs as a result of the action. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.			
Impact 3.7-11: Construction activities associated with the proposed project could result in impacts to BLM and USFS sensitive species.			
Mitigations measures identified previously would reduce impacts to BLM and USFS sensitive species to less than significant. Mitigation measures 4.7-4a, 4.7-4b, and 4.7-4c would reduce impacts to the little willow flycatcher to a less than significant level. Mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d would reduce the impacts to the foothill yellow-legged frog to a less than significant level. Mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, and 4.7-6d would reduce the impacts to the western pond turtle to a less than significant level. Mitigation measures 4.7-8a, 4.7-8b, and 4.7-8c would reduce the impacts to the northern goshawk to a less than significant level. Mitigation measures 4.7-9a and 4.7-9b would reduce impacts to special status bats and the ring-tailed cat to less than significant.		Reclamation (implementation)	
Impact 3.7-13: Implementation of the proposed project could result in the spread of non-native and invasive plant species.			
4.7-13a When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-13b Preclude the use of rice straw in riparian areas.			
4.7-13c Limit any import or export of fill to materials to those that are known to be weed free.			
4.7-13d Ensure all construction equipment is thoroughly washed prior to entering and leaving the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.			
4.7-13e Use a mix of native grasses, forbs, and non-persistent non-native species for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.			
4.7-13f Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species.			
4.7-13g Within the first 3 to 5 years post-project, if it is determined that on-site revegetation/post-project conditions do not meet landowner requirements, opportunities to revisit the site and remedy the concern will be considered.			
3.8 Recreation			
Impact 3.8-1: Construction associated with the proposed project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.			
4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction.		Reclamation (implementation)	
4.8-1b Reclamation will repair and/or replace any facilities associated with the Proposed Project that are impacted by project activities. This measure includes installation of interpretive signage consistent with			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
the requirements of the BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.			
Impact 3.8-2: Construction of the proposed project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries.			
Implementation of Mitigation Measures 4.8-1a and 4.8-1b described above would make this impact less than significant.		Reclamation (implementation)	
Impact 3.8-3: Construction activities associated with the proposed project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity.			
Mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described above for impact 3.5-1 would reduce impacts to less than significant.			
3.10 Cultural Resources			
Impact 3.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and Reclamation's designated archaeologist will be consulted. Once the find has been identified, Reclamation will be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA.		Reclamation (implementation)	
Impact 3.10-3: Implementation of the proposed project could potentially result in disturbance of undiscovered human remains.			
4.10-3a If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by PRC, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth in the Native American Protection and Repatriation Act (25 USC 3001) as well as			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.			
3.11 Air Quality			
Impact 3.11-1: Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$) levels.			
4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: • Inactive construction areas will be watered as needed to ensure dust control. • Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer). • Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in Section 3.3, Geology, Fluvial Geomorphology, and Soils, and Section 3.5, Water Quality. • Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. • All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. • Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. • All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the NCUAQMD. • Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints.		Reclamation (implementation)	
Impact 3.11-2: Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions.			
4.11-2a Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance		Reclamation	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		(implementation)	
Impact 3.11-4: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.			
4.11-5a Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session.		Reclamation (implementation)	
4.11-5b Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m.			
4.11-5c Reclamation will notify residences within 300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.			
4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.			
3.12 Visual Resources			
Impact 3.12-1: Implementation of the proposed project could result in the degradation and/or obstruction of a scenic view from key observation areas.			
Implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described above for Impact 3.7-1 and mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described above for Impact 3.5-1 would reduce impacts to less than significant.		Reclamation (implementation)	
3.14 Noise			
Impact 3.14-1: Construction activities associated with the proposed project would result in noise impacts to nearby sensitive receptors.			
4.14-1a Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours, as needed.		Reclamation (implementation)	
4.14-1b Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.14-1c Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).			
3.15 Public Services and Utilities/Energy			
Impact 3.15-3: Implementation of the proposed project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.			
4.15-3a Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers.		Reclamation (implementation)	
4.15-3b Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.			
4.15-3c Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.			
3.16 Transportation/Traffic Circulation			
Impact 3.16-2: Construction activities would generate short-term increases in vehicle trips.			
4.16-2a Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that gravel trucks maintain a speed limit of 15 mph on residential and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.			
Impact 3.16-4: Construction activities would increase wear and tear on local roadways.			
4.16-4a Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes, and will consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.		Reclamation (implementation)	
Impact 3.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.16-5a Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. These permits will require traffic control and signage to meet California standards.		Reclamation (implementation)	

Project Design Elements

Project design elements are specific design features proposed by the project applicant and incorporated into the project to prevent the occurrence of, or reduce the significance of potential environmental effects. Because project design elements have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, project design elements are identified to ensure that they are included in the MMRP to be developed and implemented as part of the Proposed Project. The design elements discussed below are common to the Proposed Project. These elements are excerpted from Chapter 2 of the Draft Master EIR.

Description of Common Activities and Construction Criteria and Methods

Common Activities

Vegetation Removal

Vegetation removal would involve the following:

- Remove vegetation to provide access to activity areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and vegetation masticator).
- Remove stumps, roots, and vegetative matter to allow river scour on excavated floodplain surfaces. Some LWD would be retained for use in the floodplain to enhance fish habitat.
- Dispose of removed vegetation by chipping, hauling offsite, burning, burying within spoil areas, or other appropriate methods. Reclamation would continue to work with local agencies to encourage the efficient use of chipping as a priority method of disposing of vegetative waste.
- Protect vegetation designated for preservation within clearing limits. Vegetation outside the clearing limits would be preserved and protected.
- Mechanically remove submerged roots from river fringe areas with ripping bars or excavator buckets. Equipment chassis (i.e., tires, tracks) would remain outside of the wetted portion of the river channel when removing submerged roots.

Water Use

Water would be used at all sites, in accordance with the following:

- Riparian water rights held by public and private landowners on the Trinity River would be used to obtain Trinity River water to support restoration. Dust abatement water would be obtained from on-site seep wells or the Trinity River. When drafting from the Trinity River, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Any surface water sources used for irrigation would be developed in order to comply with the water rights of land management agencies and landowners. Pump intakes would be in

conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Monitoring

The ROD provided a restoration strategy for the TRRP but did not identify methods for assessing the effectiveness of the management actions in achieving TRRP goals or management targets. Instead, it directed the TRRP to organize assessments around the principles of AEAM and to use this to rigorously assess the river's response to management actions. The Integrated Assessment Plan (IAP) provides the basis for applying the AEAM principles outlined in the ROD.

These principles would be applied to quantitatively determine the overall status and trend of river system attributes relative to TRRP objectives, using appropriate data to describe each attribute, with data collected based upon scientifically defensible monitoring designs. The causal relationship between rehabilitation of the fluvial nature of the river and increasing salmonid production would be the major focal point for monitoring and modeling. The focus of the IAP is to identify key assessments that:

- Evaluate long-term progress toward achieving program goals and objectives; and
- Provide short-term feedback to improve program management actions by testing key hypotheses and reducing management uncertainties.

The IAP provides a general framework for integrating and linking assessments across monitoring domains. Integration of assessments would be essential for evaluating the TRRP's overall restoration strategy, involving coordinated actions to support multiple ecosystem processes and components. This integration allows development of coordinated sampling designs and assessments that serve multiple or complementary objectives, and is intended to improve the understanding of qualitative and quantitative functional relationships associated with the mainstem Trinity River.

The IAP framework focuses on six key elements; each of these would be integrated into the MMRP to ensure that authorized activities are consistent with the AEAM. Key elements of the IAP include:

1. Create and maintain spatially complex channel morphology.

2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals.

3. Restore and maintain natural production of anadromous fish populations.

4. Restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.

5. Establish and maintain riparian vegetation that supports fish and wildlife.

6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Additional information on the IAP is available on the TRRP website: *http://www.trrp.net/science/IAP.htm*

Design Elements

Attachment 1 following the appendices in Volume IV of the Master EIR/Programmatic EA is a glossary of design and construction terms for use by the design team.

Hydraulics

The Proposed Project would occur in areas that FEMA has designated as Special Hazard Zones AE and X, as described in Section 3.2 of this document. In the Zone AE areas, Reclamation has established a design criterion stating that not only would the County's floodplain ordinance be followed, but implementation of the Proposed Project would not increase the flood risk for the community. This criterion resulted in a stipulation that coarse sediment and excavated material would be strategically placed to ensure that 100-year flood elevations would not increase over current conditions. As previously described, the site boundaries generally conform to the river corridor, bounded by prominent geographic features such as roads and fences.

The design of the activity areas was based on an understanding of the relationships between the flow regime and the hydrologic/hydraulic characteristics of the action. A fundamental constraint was to *do nothing to increase the flood risk in the general vicinity, and to not raise the water surface elevation above the current FEMA estimated 100-year base flood elevation.* Evaluation of the Proposed Project requires comparing estimated seasonal base flows and estimated return-period flows. USACE's HEC-RAS hydraulic model would be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table A-2 lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that would be used during final design to ensure that the action meets the flood constraints described above.

Table A-2. Estimated Mainstem Trinity River Flow Conditions Used for Design.

Flow Description	Flow Event	Flow Rate (Cfs)
Summer base flow[a] (July 22 to October 15 of each year)	Q_s	450
1.5-year return interval design flow	$Q_{1.5}$	6,000
Estimated FEMA 100-year flow below Rush Creek	Q_{100}	19,300
Estimated FEMA 100-year flow below Grass Valley Creek	Q_{100}	23,600

a Base flow defined as cfs from TRD release and accretion flow
Q = flow rate; Q1.5 = 1.5 year return interval design flow; Q100 = 100-year flood flow; Qs = summer base flow

A HEC-RAS model for the Trinity River from Lewiston Dam to the North Fork Trinity River was developed by California DWR and provided to the TRRP as part of the administrative record. This model was calibrated to match measured WSEs in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's

"n" values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the rehabilitation sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the Proposed Project. Two of the most important flow conditions are summertime low flows of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year-event (ordinary high water) flow of 6,000 cfs, as measured below Rush Creek. The design team regards the design flows portrayed in Table A-1 as the "best available information" per FEMA requirements. The FEMA Q_{100} "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (USACE 1976) used by FEMA to develop the current FIRMs for the Trinity River. The 6,000 cfs 1.5-year event is based on the ROD flow release. This flow information provides the basis for the designs incorporated into the Proposed Project.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter portray the design topography concepts. The final designs would ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

Roadway Approaches

As an alternative to disposing of excavated materials onsite, materials may be hauled to commercially approved off-site locations. This option would reduce the impact of spoiling excavated materials in upland habitats. Hauling a portion of excavated materials generated under the Proposed Project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, generally between August 1 and November 15. Traffic control measures would be applied in accordance with BLM, Trinity County, and Caltrans requirements.

Recreation Facilities

As appropriate, recreation facilities (e.g., parking areas, access trails, picnic areas) affected by project activities would be returned to the same level of service as those offered prior to project implementation. Reclamation, in consultation with the BLM, California DWR, and CDFW, could enhance one or more of these facilities consistent with project objectives. Examples of enhancement could be updated signage, surfacing of trails or parking areas with permeable materials, improvements to fishing access locations or establishment of interpretive features intended to increase public awareness of the ongoing efforts to restore the Trinity River.

Drainage

As appropriate, culverts or other drainage structures would be constructed at temporary stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

Rights-of-Way/Easements

Prior to construction, formal realty agreements would be made between Reclamation; land managers for BLM, California DWR, and CDFW; and private landowners whose property would be affected. These agreements would clarify the terms and conditions under which Reclamation would work on private property. In addition, these agreements would compensate landowners, based on fair market value of identified construction easements, and would hold property owners harmless during construction activities.

Utilities

There are a number of utility features located within and/or adjacent to the site boundaries. Water intakes, power and telephone poles, and water supply lines parallel or cross the Trinity River in a number of locations. These utilities are considered in the project design to ensure that service would not be disrupted.

Construction Criteria and Methods

Construction Process Overview

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements. An expected August 1 start date for clearing and grubbing of vegetation would allow completion of nesting by avian species. Alternatively, vegetation may be removed prior to the start of the nesting season, which is early March for this area.

- Where available, existing roads (activity L) would be used to access the activity areas. New access roads and haul routes (activity M) would be constructed when necessary and restored to a stable condition in accordance with landowner requirements at the completion of the project.

- Excavation would begin on the floodplain to bring it down to grade.

- When specified, finer grained materials (e.g., sand) excavated from riverine activity areas may be stockpiled for use at upland or other riverine activity areas.

- Any riverine treatment areas (e.g., constructed inundation surfaces) that have been compacted from construction activities would be ripped to a depth of approximately 18 inches. The furrows developed by this ripping would ensure that most storm water runoff is retained and filtered on-site so that there is little or no construction-related turbidity. This action would effectively control the release of storm water runoff and turbidity from the site and eliminate the need for use of post-construction sediment-control measures (e.g., silt fences, berms).

- The timing for work adjacent to the river may be affected by river flows. If for some reason the flow is low when construction starts, but it is anticipated that flows would increase before the floodplain can be excavated, excavation would occur at the lower elevations (adjacent to river) first and at the higher floodplain elevations last.

- In-channel activities would generally take place during low flows (July 15 to September 15 as allowed by the coho salmon in-river work window in NMFS' 2000 Trinity River biological

opinion) to create immediate point bars and allow mobilization of in-channel materials at high flows.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures would be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps would be used to dewater the excavation to inhibit any sediment from entering the river. Typically, reconnecting these features to the river relies on high-flow events. If necessary, the TRRP would remove materials used to isolate these side channels after they have been constructed.

- Final grading would occur as necessary for all activity areas.

- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.

- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects would be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

- Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.

- In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.

- In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation would coordinate with jurisdictional agencies to identify specific requirements that shall be included for use of existing roadways and haul routes. Requirements may include seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.

- Temporary construction access may be required; access routes shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

Staging Areas

Staging areas and storage facilities for the Proposed Project are shown on Figure 3. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage and parking would be needed in the activity areas as the project is implemented.

Air Pollution and Dust Control

Efforts would be made to minimize air pollution and reduce greenhouse gas emissions related to construction operations. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. In addition, project contractors would be given educational material about fuel efficiency and the benefits of using vehicles powered by alternative energy sources to enhance awareness of global warming issues. Contractors would also be required to provide recycling bins for on-site waste materials.

Contract documents would also specify that the contractor would be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Fire Protection and Prevention

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow applicable regulations of Public Resource Code 4428-4442 during dry periods to minimize the potential for the initiation and spread of fires from the work site.

Water Pollution Prevention

Reclamation would implement water pollution control measures that conform to applicable and appropriate permits. Reclamation would require the contractor to use extreme care to prevent construction dirt, debris, storm water run-off, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that would be implemented by Reclamation are listed below:

- Every reasonable precaution would be exercised and BMPs would be implemented to protect the Trinity River from being polluted by fuels, oils, petroleum byproducts, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

- Construction equipment would be cleaned of dirt and grease prior to any in-channel activities. All construction equipment would be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits would be onsite at all times and, where feasible, berms or other containment methods would be kept in place around the work areas when performing in-channel work.

- Water pollution control work is intended to provide prevention, control, and abatement of water pollution in the Trinity River, and would consist of constructing those facilities that

may be shown on the plans, specified herein or in the special provisions, or directed by the Contracting Officer.

- Furrowing of riparian areas that have been compacted during construction activity is expected to minimize or stop delivery of storm water runoff to the river. As necessary, Reclamation would provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and straw and seed application, that may become necessary as a result of the contractor's operations.

- Before starting any work on the project, Reclamation would develop an agency-approved SWPPP to effectively control water pollution during construction of the project. The SWPPP would show the schedule for the erosion control work included in the contract and for all water pollution control measures Reclamation proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. Reclamation would not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted by responsible agencies.

- Oily or greasy substances originating from Reclamation's operations would not be allowed to enter, or be placed where they would later enter, a live stream, soil, or groundwater.

APPENDIX C

Aquatic Conservation Strategy—Consistency Evaluation

Appendix C

Aquatic Conservation Strategy—Consistency Evaluation

Introduction

The Bureau of Reclamation (Reclamation), under the auspices of the Trinity River Restoration Program (TRRP), is the proponent for implementing a series of channel rehabilitation and sediment management activities throughout the 40-mile reach of the Trinity River below Lewiston Dam. This evaluation is for the Bucktail site, as described in Chapter 2 of the EA/IS for the Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45–107.0).

This document evaluates and determines the consistency of the TRRP activities with the Aquatic Conservation Strategy (ACS) in the Record of Decision (ROD) for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl. The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The ROD amended the Redding Resource Management Plan (RRMP) prepared by the Bureau of Land Management (BLM) in 1994.

The intent of this evaluation is to ensure that decision makers have the information necessary to determine whether the proposed TRRP activities at the Bucktail site are consistent with the ACS objectives. This evaluation incorporates information provided in the Mainstem Trinity River Watershed Analysis (U.S. Bureau of Land Management 1993), incorporates by reference the 2009 Master Environmental Impact Report prepared by Reclamation in cooperation with BLM, and other information in the administrative record to assist the decision maker. In order to make the finding that a project or management activity "meets" or "does not prevent attainment" of the ACS objectives, the decision maker must ensure that management actions that do not maintain the existing condition or lead to improved conditions in the long term would not be implemented.

The ACS states that species-specific strategies aimed at defining explicit standards for habitat elements would be insufficient for protecting even the targeted species. The intent of the ACS is to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and to restore currently degraded habitats. This approach seeks to prevent further habitat degradation and restore habitat over broad landscapes as opposed to implementing individual projects or focusing on small watersheds. Because the ACS is based on natural disturbance processes, the ROD recognized that it is a long-term strategy that may take decades, and possibly more than a century, to accomplish all of its objectives.

The ACS contains four components: riparian reserves, key watersheds, watershed analysis, and watershed restoration. Each component is integral to improving the health of the aquatic ecosystems encompassed by the ROD. A detailed discussion of these components is provided in the ROD.

Since the BLM's RRMP predated the ROD, it was subsequently amended to include Attachment A of the ROD.

Attachment A of the ROD includes Standards and Guidelines (S&Gs) that were incorporated as management direction into the BLM RRMP to ensure compliance with the ROD. This hierarchy of land allocations is described below.

1. Congressional Reserved Areas – Includes wilderness, federal wild and scenic Rivers, national monuments, and other federal lands not administered by the Forest Service or Bureau of Land Management.

2. Late Successional Reserves – Lands identified with an objective of protecting and enhancing conditions for late-successional and old-growth forest ecosystems.

3. Adaptive Management Areas – Areas with objectives of developing and testing new management approaches to integrate ecological and economic health and other social objectives.

4. Managed Late-Successional Areas – Specific late-successional areas in the drier provinces where regular and frequent fire is a natural part of the ecosystem.

5. Administratively Withdrawn Areas – Areas identified in current Forest and District Plans or draft plan preferred alternatives. These areas include recreation and visual areas, backcountry areas, and other areas where management emphasis precludes scheduled timber harvest.

6. Riparian Reserves – As a key component of the ACS, riparian reserves provide an area along all streams, wetlands, ponds, lakes, and unstable/potentially unstable areas where riparian-dependent resources receive primary emphasis. These reserves are important to the terrestrial ecosystem as well, providing connectivity corridors and dispersal habitat for certain terrestrial species.

7. Matrix – The matrix consists of those federal lands outside the six previous allocations.

The activities proposed by Reclamation are confined to a narrow corridor that parallels the Trinity River from Lewiston Dam downstream to Helena, California. This section of the Trinity River is both federally and state designated as a wild and scenic river; it therefore meets the definition of a Congressionally reserved area. Riparian reserve and matrix designations are also used to classify lands within this corridor. This evaluation focuses on riparian reserves as defined in the RRMP.

The following sections of this evaluation address the consistency of the TRRP's proposed activities at the Bucktail site (River Mile 105.45-107.0) with the four components of the ACS and the nine ACS objectives described in Attachment B to the ROD.

Components of the Aquatic Conservation Strategy

Riparian Reserves

The project area contains riparian reserves, as defined in the BLM's RRMP. Watershed analyses have been completed by BLM for federal lands within the Trinity River corridor; these analyses did not modify the designated widths of the riparian reserves established by the S&Gs described in the

Northwest Forest Plan and subsequently adopted by the BLM. The width of the riparian reserves essentially correlates with the floodplain of the Trinity River, as well as a buffer around riparian features identified during the wetland delineation process for the Bucktail project. Table A-1 at the end of this document shows the S&Gs that were integrated into the project.

Key Watersheds

There are no key watersheds within or downstream of the 40-mile reach of the Trinity River downstream of Lewiston Dam, although the Forest Service does manage key watersheds in the upper Trinity River watershed, primarily associated with the Salmon-Trinity Alps Wilderness Area. This component of the ACS is therefore not applicable to the activities proposed by the TRRP in the Bucktail EA.

Watershed Analysis

The BLM conducted watershed analyses for the lands within the Trinity River corridor. These analyses did not identify specific recommendations regarding the riparian reserve widths; therefore, the S&Gs established under the ACS are applicable to this project. Any activities proposed within these riparian reserves will conform to the site-specific conditions established in the S&Gs to ensure consistency with the ACS.

Watershed Restoration

By its nature, the project is a comprehensive ecosystem restoration project intended to restore the physical processes and biological resources of the mainstem Trinity River. While some short-term impacts may occur to riparian-dependent species, the scale of the activities proposed by the TRRP, including this project, ensures that restoration of ecological processes and functions will be consistent with the ACS.

Aquatic Conservation Strategy Objectives

The following section evaluates the consistency of the proposed action with the nine ACS objectives listed in Attachment B of the ROD.

The lands managed by the STNF and BLM within the range of the northern spotted owl will be managed to:

> *8. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.*

The project by its nature is intended to restore the landscape processes, specifically the alluvial and riparian functions, that have been impaired by construction of the Trinity River Division of the Central Valley Project. The activities that are proposed on federal lands subject to the ACS are an integral part of the larger project and are intended to assist BLM in attaining this ACS objective.

> *9. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must*

provide chemically *and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

The project boundaries illustrated in the EA/IS for the Bucktail Rehabilitation Site ensure that project activities are implemented in a manner that complements the functional values offered by the Trinity River between the Lewiston and Helena. The TRRP, in cooperation with BLM, has been involved in the identification and prioritization of channel rehabilitation sites for a number of years. This project has been designed to acknowledge the inter-relationship between aquatic and riparian habitats that occur throughout this reach. Specifically, this project includes a number of activities to enhance the connectivity of aquatic and riparian habitat in the general vicinity of the Bucktail site consistent with the overall objectives of the TRRP for the 40-mile reach of the Trinity River downstream of Lewiston Dam. Modifications of floodplains, removal of grade control structures, construction of functional side-channel habitat, and augmentation of spawning gravel are examples of restoring connectivity for a variety of aquatic and riparian-dependent species. The intent of this project is to assist the BLM in attaining this ACS objective.

10. *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks and bottom configurations.*

A fundamental component of the project are the activities intended to restore the bed, banks, and floodplain of the Trinity River. The modification of grade control, expansion of functional floodplain habitat, efforts to enhance the coarse sediment supply, and placement of large wood and boulders that provide refugia habitat are examples of the activities intended to restore the physical integrity of the aquatic system. Collectively, these efforts are designed to restore the alluvial character of the Trinity River, which was impaired by reductions in flow and sediment upstream. The intent of this project is to assist the BLM in attaining this ACS objective.

11. *Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

By its nature, the project will require removal of vegetation and extensive grading activities, including construction within the active channel of the Trinity River. In 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) reissued three General Permits to the TRRP that provide authorization for channel rehabilitation, fine sediment management, and coarse sediment management activities under Section 401 of the Clean Water Act (CWA). As a cooperating agency, BLM has also worked closely with the TRRP to ensure that Best Management Practices are incorporated to minimize effects on water quality. Additionally, mitigation measures developed as part of the 2009 Master EIR to further reduce potentially significant effects on water quality from construction activities have been incorporated into the Bucktail project. Compliance with conditions established by the USACE consistent with the requirements of Nationwide Permit 27 will ensure compliance with Section 404 of the CWA. As proposed, this project would be consistent with the requirements of the Regional Water Board and the BLM's RRMP; it would therefore not prevent attainment of this ACS objective.

12. *Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

A fundamental element of the TRRP is restoration of the sediment regime in a manner that enhances the alluvial character of the 40-mile reach of the Trinity River downstream of Lewiston Dam. The Bucktail project would ensure that the coarse sediment fraction of the sediment regime will be replenished on an ongoing basis, consistent with the timing, volume, and rates appropriate for the scaled-down channel. The inclusion of large wood and boulder clusters also increases the functional benefits of gravel augmentation. While there may be a change in the timing or volume of sediment input, overall the project is intended to assist BLM in attainment of this ACS objective.

13. *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

The preferred alternative will not influence any in-stream flows. No modifications to the flow regime of the Trinity River or its tributaries are proposed; therefore, this ACS objective would be met.

14. *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

The activities to modify the bed, banks, and floodplains of the Trinity River within the project boundary are designed to maintain and/or restore the hydrologic connection between the river and adjacent wetland/riparian habitat. By reducing the floodplain elevations, the current flow regime could provide additional opportunities to establish functional, connected wetland habitat adjacent to the Trinity River. This project would be consistent with this ACS objective.

15. *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.*

A fundamental objective of the TRRP is to restore the species composition and structural diversity of native plant communities that occur along the mainstem Trinity River. The modifications proposed to the active channel, floodplain, and upland activity areas within the boundary of the Bucktail site will provide conditions that are receptive to the reintroduction of a diverse assemblage of native riparian vegetation and reduce the potential for non-native, invasive, and noxious plant species. Woody material of various size classes removed as part of the rehabilitation activities will be incorporated into the project as appropriate. Placement of large wood within and/or adjacent to constructed alluvial features will enhance channel complexity and edge habitat. On-site mulching of vegetative debris will provide effective ground cover and increase successful revegetation efforts. Overall, this natural recruitment of riparian communities, supplemented by riparian planting efforts, will ensure that this project meets this ACS objective.

16. *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.*

A fundamental objective of the TRRP is to restore the aquatic, riparian, and upland habitat along the 40-mile reach of the mainstem Trinity River. The project activities emphasize creation and/or rehabilitation of aquatic and riparian habitat within the boundary of the Bucktail project. Collectively, these activities are intended to generate geomorphic responses downstream that will further the overall habitat enhancement objectives by reestablishing the alluvial processes that were impaired by the construction and operation of the Trinity River Division. The activities that are proposed on federal lands subject to the ACS are an integral part of the overall objective of the TRRP and are intended to assist BLM in attaining this ACS objective.

Conclusion

Based on this evaluation, BLM finds that the project described in the NEPA decision document has been designed and would be constructed in a manner that does not prevent future attainment of the ACS objectives. The management actions incorporated into the preferred alternative will maintain the existing condition or lead to improved conditions in the long term, consistent with the intent of the ACS.

Table C-1. ACS Applicable Standards and Guidelines

All Land Allocations		
Survey and Manage	2	Survey prior to ground disturbing activities.
Riparian Reserves		
Timber Management	TM 1-c	Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquired desired vegetation characteristics needed to attain ACS objectives.
Roads Management	RF-1	Federal, state, and county agencies should cooperate to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.
	RF-2	For each existing or planned road, meet Aquatic Conservation Strategy objectives by:
	RF-2a	Minimizing road and landing locations in Riparian Reserves.
	RF-2b	Completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.
	RF-2c	Preparing road design criteria, elements, and standards that govern construction and reconstruction.
	RF-2d	Preparing operation and maintenance criteria that govern road operation, maintenance, and management.
	RF-2e	Minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow.

	RF-2f	Restricting sidecasting as necessary to prevent the introduction of sediment to streams.
	RF-3	Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:
	RF-3a	Reconstructing roads and associated drainage features that pose a substantial risk.
	RF-3b	Prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.
	RF-3c	Closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.
	RF-4	New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
	RF-5	Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.
	RF-7	Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:
	RF-7a	Inspections and maintenance during storm events.
	RF-7b	Inspections and maintenance after storm events.
	RF-7c	Road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.
	RF-7d	Traffic regulation during wet periods to prevent damage to riparian resources.
	RF-7e	Establish the purpose of each road by developing the Road Management Objective.
Recreation Management	RM-1	New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to not prevent meeting Aquatic Conservation Strategy objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

	LH-3	Locate new support facilities outside Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to FERC that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves will be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.
	LH-4	For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resources affected.
General Riparian Area Management	RA-2	Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.
	RA-3	Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

References

Shasta-Trinity National Forest. 2005. Upper Trinity River watershed analysis. USDA Forest Service, Shasta-Trinity National Forest.

U.S. Bureau of Land Management. 1995. Mainstem Trinity River Watershed Analysis.

U.S. Bureau of Land Management. 1993. Redding Resource Management Plan and Record of Decision.

APPENDIX D

Compliance with Standards and Guidelines for Survey and Manage Species

Appendix D

Compliance with Standards and Guidelines for Survey and Manage Species

The Trinity River Channel Rehabilitation Site: Bucktail (RM 105.45-107.0) project is consistent with court orders relating to the Survey and Manage mitigation measure of the Northwest Forest Plan, as incorporated into the 1993 Redding Resource Management Plan.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, et al. v. Rey*, et al., No. 08-1067 (W.D. Wash.) (Coughenour, J.), granting Plaintiffs' motion for partial summary judgment and finding a variety of NEPA violations in the BLM and USFS 2007 ROD eliminating the Survey and Manage mitigation measure. Judge Coughenour deferred issuing a remedy in his December 17, 2009 order until further proceedings, and did not enjoin the BLM from proceeding with projects. Plaintiffs and Defendants entered into settlement negotiations that resulted in the 2011 Survey and Manage Settlement Agreement, adopted by the District Court on July 6, 2011.

The Ninth Circuit Court of Appeals issued an opinion on April 25, 2013, that reversed the District Court for the Western District of Washington's approval of the 2011 Survey and Manage Settlement Agreement. The case is now remanded back to the District Court for further proceedings. This means that the December 17, 2009, District Court order which found NEPA inadequacies in the 2007 analysis and records of decision removing Survey and Manage is still valid.

Previously, in 2006, the District Court (Judge Pechman) had invalidated the agencies' 2004 RODs eliminating Survey and Manage due to NEPA violations. Following the District Court's 2006 ruling, parties to the litigation had entered into a stipulation exempting certain categories of activities from the Survey and Manage standard (hereinafter "Pechman exemptions").

Judge Pechman's Order from October 11, 2006 directs: "Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

A. Thinning projects in stands younger than 80 years old (emphasis added):

B. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;

C. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the

stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and

D. The portions of project involving hazardous fuel treatments where prescribed fire is applied.

Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph."

Following the District Court's December 17, 2009 ruling, the Pechman exemptions still remained in place. The BLM has reviewed the Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45-107.0) EA/IS in consideration of both the December 17, 2009 partial summary judgment and Judge Pechman's October 11, 2006 order. Because the Trinity River Channel Rehabilitation Site at Bucktail is a riparian and stream improvement project where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions, the BLM has made the determination that this project meets Exemption C of the Pechman Exemptions (October 11, 2006 Order), and therefore may still proceed even if the District Court sets aside or otherwise enjoins use of the 2007 Survey and Manage ROD since the Pechman exemptions would remain valid in such case.

APPENDIX E

Wild and Scenic River, Section 7 Analysis and Determination

APPENDIX E

Bucktail Rehabilitation Project Wild and Scenic River, Section 7 Analysis and Determination

INTRODUCTION

The Trinity River was designated as a National Wild and Scenic River (WSR) in 1981 under the Federal Wild and Scenic Rivers Act (WSRA). In addition to the mainstem Trinity River from the confluence with the Klamath River to 100 yards below Lewiston Dam, three other sections of the river were designated: the North Fork from the Trinity River confluence to the southern boundary of the Trinity Alps Wilderness Area, the South Fork from the Trinity River confluence to the California State Highway 36 bridge crossing, and the New River from the Trinity River confluence to the Trinity Alps Wilderness Area.

These sections of the Trinity River were designated as Wild and Scenic to preserve the river's free-flowing condition, water quality, and the Outstandingly Remarkable Values (ORVs) identified on the date of designation: the anadromous and resident fisheries, outstanding geologic resource values, scenic values, recreational values, and cultural and historic values. The section of the Trinity River identified for the Bucktail Rehabilitation Project was found to have outstandingly remarkable values (ORV's), due to it's anadromous fishery. Under an interagency agreement between the National Park Service, the Bureau of Land Management (BLM), and the U.S. Forest Service, the BLM generally has the responsibility for conducting WSRA Section 7 determinations for the mainstem Trinity River from Lewiston Dam to the confluence with the North Fork Trinity River. After the designation, BLM classified the mainstem Trinity River as a Recreational River from 100 yards below Lewiston Dam downstream to Cedar Flat.

The proponent for the Proposed Project (Bucktail Rehabilitation Site: River Mile 105.45–107.0) is the Bureau of Reclamation, Trinity River Restoration Program (TRRP). Because a portion of the proposed activity would occur on lands it manages, BLM serves as a co-lead federal agency along with the TRRP for the environmental assessment (EA) portion of the integrated NEPA/CEQA document (EA/IS) prepared for this project. This analysis and subsequent determination evaluates the effects of the proposed activity on the Trinity River's free-flowing condition, water quality, and the ORVs and ensures their protection as required under Section 7 of the WSRA. Because of the length and level of detail provided in the EA/IS, this WSR analysis is presented in summary form and refers the reader to the specific sections of Chapters 2, 3, and 4 of the EA/IS for additional information on water quality, fisheries, wildlife, flora and fauna, recreational, and aesthetic values.

Existing conditions at the Bucktail site are a result of previous rehabilitation activities at the site in 2009, as well as a variety of natural and management disturbance mechanisms that have occurred at this site over the past 75 years. The channelization of the Trinity River associated with historic dredge

activities was exacerbated by the modifications to the flow regime of the Trinity River downstream of Lewiston Dam beginning in 1964, when the Trinity River Division (TRD) of the Central Valley Project (CVP) became fully operational. At the date of designation, the riparian berms that were essentially channelizing the river at a number of locations had been developing for more than 15 years, and scientists recognized that the alluvial nature of the river had been modified extensively due to changes in the flow regime and sediment flux. Although changes in the flow regime since 2005 have provided some opportunity to modify the form and function of the river, the Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (Department of Interior, 2000) required establishment of the TRRP and stipulated that mechanical channel rehabilitation, including management of sediment input (reduction in fine sediments (sand) and augmentation of coarse sediment (gravel), would be required to reconfigure sections of the river and provide opportunities for alluvial processes to become reestablished, albeit at a smaller scale than had occurred prior to the construction and operation of TRD facilities (e.g., Lewiston Dam) in 1964.

SECTION 7 ANALYSIS

Section 7(a) of the WSRA provides that water resource projects upstream or downstream of a WSR may occur as long as the project "will not invade the area, unreasonably diminish or have a direct adverse affect on the scenic, recreational, fish and wildlife values present in the area as of the date of designation." This section also requires river-administering agency (i.e., BLM) to determine whether the proposed water resource project is consistent with its river-resource protection requirements. This determination evaluates the effects of proposed activities that involve construction below the ordinary high water mark within the WSR corridor on the river's free-flowing condition, water quality, and scenic, recreational, fish and wildlife values. This analysis and determination follows the Evaluation Procedure provided to Reclamation by BLM's Redding Field Office for the Klamath Facilities Removal Project prepared by the BLM, Forest Service and National Park Service in 2012.

The conditions that were present on the Trinity River when it was designated and included in the National System constitute the basis for evaluating the Proposed Project as described in the EA/IS. Therefore, the baseline conditions for the Trinity WSR are those present in 1981.

The initial question to be addressed in this WSR Section 7(a) determination is whether the Proposed Project described in the EA/IS invades or directly adversely affects the designated reach of the Trinity River; defined as encroachment or intrusion upon.

The next question to be answered, relative to the standard set forth in the WSRA, Section 7 and Section 7(a) is whether the proposed action will "unreasonably diminish or directly adversely affects" the scenic, recreational fish or wildlife values of the designated river. This standard implies that it's acceptable to diminish or effect one or more of these values to some degree, therefore two additional questions must be considered:

1. Does the proposed action evaluated in the EA/IS cause the scenic, recreational, fish or wildlife values to be diminished or directly adversely affect relative to the date of designation?

2. If one or more value is diminished or directly adversely affected, is it unreasonable?

Definition of the Proposed Project

The overarching purpose of the TRRP is to restore fish populations to pre-dam levels and restore dependent fisheries, including those held in trust by the federal government for the Hoopa Valley Tribe (HVT) and the Yurok Tribe (YT). The fundamental purpose of the proposed activity is to enhance the fishery and other values provided by the Trinity River in the general vicinity of the Bucktail site by implementing the rehabilitation activities illustrated on Figure 3 in Chapter 2 of the EA/IS. Specifically, the Proposed Project would recreate complex salmon and steelhead habitat, enhance natural river processes for the benefit of wildlife, and provide conditions suitable for reestablishing native riparian vegetation. The Proposed Project was one of the original 43 projects listed in the 2000 ROD to restore the fish resources of the Trinity River. In 2009, the TRRP implemented a Phase 1project that included a portion of the current Bucktail site as part of the Lewiston/Dark Gulch Channel Rehabilitation Project. The current Proposed Project for the Bucktail site is intended to enhance previous channel rehabilitation efforts and also to incorporate new activities that would enhance channel complexity and refugia habitat (e.g., large wood) that have emerged as important rehabilitation components as a result of the TRRP's ongoing monitoring efforts.

As part of the TRRP's Phase 2 channel rehabilitation efforts, the Proposed Project is one of about 12 channel rehabilitation projects that the TRRP expects to implement in the next 10 years. These Phase 2 projects are in addition to the ongoing flow/sediment management and watershed restoration elements of the TRRP.

Implementation of the Proposed Project will incorporate environmental commitments and project design features to ensure that it is consistent with the management goals and objectives established by BLM for the Trinity River under its Redding Resource Management Plan, specifically to support management actions intended to enhance the fishery and recreational ORVs of the Trinity River.

The Proposed Project was developed through a cooperative effort by the TRRP, BLM, and the HVT. It is intended to improve the conveyance of flows by reestablishing the alluvial attributes of the Trinity River, namely floodplains and side channels, while decreasing the potential for channel constriction by modifying floodplain widths and elevations.

The project proponents, the purpose and need for the project, and the geographic location of the proposed activity are described in Chapter 1 of the EA/IS. Specific information on the duration of the proposed activities and their magnitude and extent is provided in Chapter 2 of the EA/IS. Chapter 4 describes the relationship to past and future management activities with an emphasis on cumulative effects.

Does the Proposed Action Diminish or Directly Adversely Affect WSR Values?

The following criteria were applied to evaluate potential for diminishment or direct adverse effects of the Trinity WSR. This Determination evaluates potential project effects upon four WSR values; scenery, recreation, fish and wildlife. The criteria presented below were also applied to evaluate effects upon these values within the Trinity WSR.

Scenery Value Evaluation Criteria

Scenery was evaluated using the following criteria:

- Water flow character (river flows and accompanying geomorphic character)
- Water Appearance (clarity, turbidity, color)
- Fish and wildlife viewing
- Riparian vegetation
- Natural appearing landscape character (visual effects of facilities and structures as viewed from the designated WSR corridor)

Recreation Value Evaluation Criteria

Recreation was evaluated using the following criteria:

- Whitewater boating
- Recreational fishing
- Other recreational activities (birding, swimming, camping)
- Recreational setting (water quality related aesthetics and public health and safety aspects)

Fisheries Value Evaluation Criteria

Fishery was evaluated using the following criteria:

- Stream flow regime
- Water temperature
- Water quality (physical, biological and chemical)
- Aquatic habitat (geomorphic condition, sediment transport regime and substrate quality)
- Fish species population conditions, specifically:
  - Anadromous salmonid fish species
  - Resident fish species
  - Species traditionally used and culturally important to Native Americans

Wildlife Value Evaluation Criteria

Wildlife was evaluated using the following criteria:

- Changes in habitat for affected species

Trinity Wild and Scenic River Evaluation

Scenery Value

Scenery was not identified as an ORV; however it is included in this evaluation consistent with the requirements of Section 7 of the WSRA. This evaluation focuses on river's unique landform, diverse vegetation, water and lack of negative cultural modification.

- Water Flow Character: Implementation of the proposed action (channel rehabilitation activities) is intended to restore the form and function of the treated reach to provide ability to convey flow, sediment and large wood in a manner similar to how the river functioned prior to construction of the TRD. The result would be to restore a more historic and natural

appearing flows, increase the amount and diversity or riparian vegetation, and thereby improve scenic quality.

- Water Appearance: Implementation of the Proposed Project (channel rehabilitation activities) would result in short-term effects anticipated during project implementation, associated with: the removal of riparian and upland vegetation and excavation and placement of alluvial materials within and adjacent to the active channel/floodplain; grading activities within and adjacent to the wetted channel; placement of coarse sediment to enhance spawning habitat; construction of side-channel habitat; and placement of large wood and/or boulder clusters to increase habitat complexity. In-channel construction actions would result in short-term increases in turbidity as well as a potential for short-term decreases in juvenile rearing habitat as a result of excavation and placement of alluvial materials. Consistent with the conditions of the General Permit issued to the TRRP by the North Coast Regional Water Quality Control Board (Water Board), mitigation and turbidity monitoring measures will be implemented to ensure that the overall appearance of the Trinity River will not be affected.

- Fish Viewing: Short-term impairment to fish viewing in the WSR would result from localized increases in turbidity during the in-channel work window (July 15-September 15). However, in the long-term, the proposed project would increase the overall population of native fish and other aquatic organisms. This would increase the overall number of salmonids and other native fish species that may be viewed.

- Wildlife Viewing: Improvements in riparian and upland habitat is a fundamental element of the purpose and need for the proposed project. Expansion of floodplain habitat and extensive revegetation efforts are key activities at a number of locations throughout the project area. Rehabilitation of large, barren dredge tailings would include both grading and revegetation intended to reestablish and enhance upland habitat for a wide array of wildlife species. Increases in populations of fish and other aquatic organisms (mussels, turtles, frogs) would provide increased forage for riparian and riverine wildlife species that depend on these organisms as a prey base. Therefore, wildlife viewing opportunities would increase.

- Riparian Vegetation: The proposed project would change the gradient of the river, expand the floodplain and remove the monoculture of willows that became established as a result of long-term flow reductions after Lewiston Dam became operational. The proposed project would result in a more natural looking channel and facilitate establishment of a complex and diverse assemblage of riparian vegetation typical of free flowing alluvial rivers.

- Natural Appearing Landscape Character: Implementation of the proposed action (channel rehabilitation activities) would result in reshaping the bed and banks of the affected reach in a manner that reestablishes the alluvial process that occurred prior to historic large-scale dredging activities and that were subsequently impeded by modification of the flow and sediment regimes in the years following completion of the TRD. This project would result in a more natural setting ad character within and adjacent to the project area.

Conclusion

There would be short-term negative impacts to scenery due to project activities (e.g., clearing, grading, in-channel construction) and water appearance (localized turbidity increases). However, the long-term beneficial effects of the proposed action would enhance scenery of the Trinity WSR.

Recreation Value Evaluation

Recreation was not identified as an ORV; however it is included in this evaluation consistent with the requirements of Section 7 of the WSRA. This evaluation focuses on whitewater boating opportunities, fishing for anadromous salmonids and other recreational uses.

- Whitewater Boating: Since the 2005 ROD flows were implemented during the period from April to August, whitewater boating on the Trinity River has increased substantially, particularly during wetter water years. The reach of the river associated with the Proposed Project is primarily alluvial in nature and there is little whitewater in the first 10 miles below Lewiston Dam. The primary boating activity is by rafters during the summer, although during fishing season, this section of the river is also used drift boats. The Proposed Project would result in a short-term reduction in access to BLM's Bucktail Boat Ramp during construction; anticipated to be several weeks during the summer. In-channel construction would occur in a manner that ensures that visitor use and public safety are not affected. Alternative locations are available upstream at the Lewiston Bridge and Rush Creek boat launch sites. Impacts on whitewater boating would be limited to short-term affects at site-specific locations within the project area.

- Recreational Fishing: The fundamental objective for the Proposed Project is to restore the form and function of the Trinity River to enhance the fishery; specifically for anadromous salmonids. While there would be short-term impacts on recreational fishing within and adjacent to the project area due to construction closures. Public access will be available to most of the Bucktail site during project implementation. Consistent with the long-term goals of the TRRP, improvements in the flow and sediment regimes, coupled with channel rehabilitation efforts would increase fish populations. Therefore, recreational fishing would improve.

- Other Recreational Uses: During implementation of the Proposed Project, and for a period of time after grading is completed and revegetation activities are being implemented, short-term erosional processes could result in an increase in turbidity. These brief changes to water quality could have some impacts to other recreational uses (e.g., wildlife viewing, hiking) in the immediate vicinity of the Bucktail site.

Conclusion

There would be short-term, negative impacts on water quality that could impair recreational beneficial uses. The short-term restriction of the Bucktail Boat Ramp, limitations on fishing access and changes in the appearance of the Trinity River at this location will not substantially limit recreational uses.

Fishery Value Evaluation

Fish are an ORV in the Trinity River. The river supports a number of native and non-native fish and other aquatic organisms. Prior to the installation of the TRD, the river provided habitat for numerous anadromous fish species, including Chinook salmon, Coho salmon, steelhead trout and Pacific lamprey. A fundamental objective of the TRRP is restoration and enhancement of the Trinity River fishery.

Although it is generally recognized that the alluvial features existed on the date of designation, the transitory nature of riverine environments precludes the ability to fully quantify these features. The extensive body of scientific evidence available for the Trinity River suggests that the riparian berms and floodplain features had extensive riparian communities that were well established on the date of designation.

- Stream Flow Regime: The modification of the flow regime beginning in 1964 has provided the conditions for establishing a monoculture of riparian vegetation on the riparian berms on either side of the Trinity River and essentially channeling flows and inhibiting floodplain function during higher flows. The interaction between vegetation and fine sediment continued to expand this condition, although large floods (e.g., 1997) modified this riparian community to some degree. In addition to modifying the riparian vegetation, the riparian berm inhibited access of flows to the floodplain (1.5-year return interval) and subsequently affected the amount and types of vegetation on the floodplain. Since 2005, the flow regime of the Trinity River has been managed in accordance with the 2000 ROD to improve riparian and floodplain conditions in conjunction with channel rehabilitation projects like those proposed at the Bucktail site. Since 2005, the TRRP has made substantial changes to the flow regime of the Trinity River consistent with the requirement of the 2000 ROD to manage flows in a manner that rehabilitates and enhances the Trinity River fishery.

- Water Temperature: Prior to full implementation of the ROD in 2005, up to 90 percent of the natural Trinity River flow was diverted to the Sacramento River basin through facilities associated with the TRD. Beginning in 1964, water quality in the Trinity River, particularly its temperature and sediment regimes were substantially altered. The influence of Trinity Lake and Lewiston Reservoir on downstream conditions diminishes with distance. In general, the greater the release volumes from Lewiston Dam, the less susceptible the river's temperature is to other factors. Releases from the TRD are generally cold (42 to 47 degrees Fahrenheit [°F]). These temperatures are transmitted through Lewiston Reservoir to the Trinity River below Lewiston Dam. Although the Proposed Project would remove riparian vegetation, this action is not expected to have a negative impact on water temperatures in the river.

- Water Quality: In 1992, the Environmental Protection Agency (EPA) added the Trinity River to its list of impaired rivers under the provisions of Section 303(d) of the CWA in response to a determination by the State of California that the water quality standards for the river were not being met due to excessive sediment. In 2001, the EPA established a Total Maximum Daily Load for sediment in the river. The Regional Water Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of habitat for

anadromous salmonids. The restriction of streamflows downstream of the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (EPA 2001). With implementation of ROD flows and placement of coarse sediment in the Lewiston area, local reductions in fine sediment in the river bed have been observed and fish spawning has increased. Recent measurements to compare in-channel fine sediment concentrations, pre- and post-ROD flows, have indicated that gravel quality and river bed oxygen permeability have increased through the 40-mile reach.

- Aquatic Habitat: The Trinity River Flow Evaluation Final Report (USFWS and HVT 1999) determined that lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor limiting the recovery of salmonid populations in the Trinity River. Activities at the Proposed Project site are specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, increasing channel sinuosity, and providing shallow low velocity habitats in close proximity to the river's edge. The Proposed Project is designed to restore the alluvial processes of the Trinity River within the 1.55-mile reach associated with the Bucktail site. As described in Chapter 2 of the EA/IS, more than 7 acres of riparian and/or floodplain habitat would be enhanced and/or improved as a result of the Proposed Project.

- Fish Species Population Conditions: Flows in the Trinity River downstream from Trinity and Lewiston Dams have been regulated since Trinity Dam closed in 1960. Diversion of up to 90 percent of the Trinity streamflow to the Sacramento River basin in the 1960s and 1970s led to substantial geomorphic change in many locations along the river, with the predominant responses being channel narrowing and vegetative encroachment along the channel margins. Concurrently, reductions in salmonid populations in the Trinity River resulted in congressional action to restore the Trinity River and its fishery. Activities included in the Proposed Project are intended to have beneficial effects on fisheries within the project area, and these benefits are expected to increase over time. In-channel activities would:

  - increase channel complexity and shallow low velocity refuge at a variety of flows and would provide up to 90,000 square feet of fry and juvenile rearing habitat that meets criteria for depth, velocity, and with the placement of habitat structures;

  - construct riffles that would provide adult salmonid spawning areas and increases food resources (benthic macroinvertebrates) for fry and juvenile salmonids during critical winter and spring rearing periods;

  - provide slow water refuge within a constructed alcove to provide fry and juvenile habitat at flows ranging between 300 cfs and 4,500 cfs; and

  - increase channel sinuosity and channel complexity, providing fry and juvenile rearing opportunities at a wide range of flows over existing conditions.

Conclusion

Although there would be short-term effects on riparian and floodplain habitat as a result of construction-related actions (e.g., clearing, grading, in-river excavation), the long-term effects on the fishery values of the Trinity River are expected to be positive and substantial.

Wildlife Value Evaluation

Wildlife habitat within the project area includes riparian and upland habitat. Habitat that typically occurs below the ordinary high water mark (6,000 cfs) of the Trinity River is characterized as riparian. Habitat that occurs above this elevation is considered upland habitat. The riparian corridor adjacent to the Trinity River provides habitat for a wide array of special-status plants and wildlife species. A full discussion of riparian-dependent species is provided in Chapter 3 of the EA/IS.

- Riparian Habitat: The Proposed Project would convert almost seven acres of non-riparian areas (e.g., tailings, terrace deposits) to riparian habitat, including wetlands within a three-five year post project time frame. A revegetation program will be incorporated into the proposed activity and will emphasize reestablishing native species and increasing the diversity of vegetation throughout the project area. As described in Chapter 2 of the EA/IS, there are a number of environmental commitments to address a diverse array of riparian dependent species. These include pre-construction surveys and avoidance measures to protect nesting birds; relocation of amphibian species if encountered; and use of construction monitors to identify and avoid impacts to fully protected species (e.g., ringtailed cats).

- Upland Habitat: Most of the upland habitat that occurs within the project area has been subject to wide array of modification as a result various types of human disturbances. In addition to large-scale bucket-line dredge activity that occurred in and adjacent to the Trinity River between 1930 and 1950, more recent mining for sand and gravel has severely altered the landscape within and adjacent to the project area. To a lesser degree, residential development and recreational uses have also had effects on upland habitat. The Proposed Project would involve removing material (primarily fine-textured sediments) from the riparian berm and floodplain and placing this material on dredge tailings in the immediate area upslope of the 100-year floodplain. These tailing deposits are remnants of the bucket-line dredge activity that occurred at the many locations along the Trinity River. These features are long, linear piles of sand, gravel, cobbles, and boulders that are piled on the floodplains and terrace features adjacent to the present channel of the river and are essentially devoid of vegetation. Placement of excavated material on the dredge tailings would provide an opportunity to enhance more than 10 acres of upland habitat by reestablishing native upland plant communities while reducing the area occupied by non-native vegetation, thereby making the tailings more productive in terms of vegetation and wildlife species. A revegetation program will be incorporated into the proposed activity and will emphasize reestablishing native species and increasing the diversity of vegetation throughout the project area.

Conclusion

Short-term and localized negative effects to wildlife species and their respective habitats due to the Proposed Project are expected. However, long-term improvements to riparian and upland habitat and increased wildlife forage opportunities resulting from this project, in conjunction with other TRRP actions would have long-term beneficial effects.

SECTION 7 DETERMINATION

The evaluations presented in the previous section provide the basis for the determination to be made in this document. This determination will be made by the Redding Field Manager, Jennifer Mata. The next question relative to standard in Section 7(a) of the WSRA, is whether the Proposed Project will "unreasonably diminish or directly adversely effect" the scenic, recreational fish or wildlife values of the designated river. Given that the standard implies some diminishment or direct adverse effects of values may be acceptable, there are two questions to consider.

1. Does the Proposed Project evaluated in the EA/IS prepared for the Bucktail project cause diminution or adverse effects of the scenic, recreational, fish or wildlife values of the Trinity River as present at the date of designation?

2. If there is diminution or adverse effects, are they unreasonable? This would suggest an evaluation of the magnitude of the loss. Factors to be considered include: (1) whether the values contributed to the designation of the river (i.e., outstandingly remarkable); and (2) the current conditions and trends of the resource, (if diminution is determined unreasonable, measures may be recommended to reduce adverse effects to acceptable levels).

The information provided in the EA/IS, in conjunction with the project record has been fully considered in arriving at the following conclusions. A tabular summary of these conclusions is provided in Table 1.

Table 1. Invade and Unreasonably Diminish Conclusions – Proposed Project at the Bucktail Site

WSR Segment Designation	Invade the WSR	Unreasonable Diminishment of WSR Values			
		Scenery Value	Recreation Value	Fishery Value	Wildlife Value
Trinity River Recreational	Yes	Enhanced (rehabilitates river reach to a condition that is improved from the date of designation)	Whitewater Boating (No Change) Fishing and other Recreation Enhanced	Enhanced	Enhanced

The short-term effects of the Proposed Project, with the inclusion of environmental commitments and project design features would be short-term in nature (1-2 years as areas subject to clearing and grading within and adjacent to the Trinity River stabilize and become revegetated. The referenced commitments include a number of specific measures to protect native salmonids and other aquatic

and riparian dependent species. Measures to protect upland wildlife species are also included as part of the Proposed Project.

In the long-term, the Proposed Project, in conjunction with other actions undertaken by the TRRP to rehabilitate and enhance habitat for anadromous salmonids and other aquatic and upland species will result in overall improvement to the scenery, recreation, fish and wildlife values in the Trinity WSR.

I have carefully considered the short-term closure of the Bucktail Boat Ramp and limitations on public access to public lands within the project area required during construction activities. This recreational site would not be eliminated; rather the boat ramp facilities would be upgraded as part of the Proposed Project, including relocation of facilities to elevations above the ordinary high water mark to reduce impacts during high flow events. The overarching purpose and need for the Proposed Project is to improve the Trinity River fishery, thereby meeting the goals of the TRRP with respect to tribal trust resources and recreational fishing opportunities. Fishing opportunities for tribal members and recreational user would increase due to increase in the spawning and rearing habitat for anadromous salmonids and other aquatic and riparian dependent species.

The Proposed Project would result in long-term benefits to the scenery, recreation, fish and wildlife values present when the Trinity WSR was designated as a National W&SR in 1981. Since there would be no "direct adverse effects" of the Trinity WSR or "unreasonable diminishment" of its values, I find the Proposed Project as described in Chapter 2 of the EA/IS to be fully consistent with the protections afforded by the WSRA.

Jennifer Mata — 5/12/16

Jennifer Mata
Redding Field Manager
Bureau of Land Management

Date