

Trinity River Channel Rehabilitation Site: Limekiln Gulch (River Mile 99.7-100.6)
Final Environmental Assessment/Initial Study
DOI-BLM-CA-N060-2015-025-EA and TR-EA0115
(State Clearinghouse # 20150220080)

To tier to:

The Trinity River Mainstem Fishery Restoration Environmental Impact Statement
And
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
(State Clearinghouse # 2008032110)

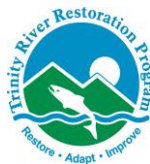


Previous Rehabilitation Site Photos (Douglas City and Lower Steiner Flat Rehabilitation Sites)

May 2015



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



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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
BFE	base flood elevation
BLM	Bureau of Land Management
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
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CRHR	California Register of Historical 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
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
L _{dn}	day-night average sound level
LRMP	Land and Resource Management Plan
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
MFF	maximum fishery flow
mm	millimeter
MMRP	Mitigation Monitoring and Reporting Program
MoA	Memorandum of Agreement
msl	mean sea level
N ₂ O	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
NO _x	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	Limekiln Gulch Rehabilitation Site Proposed Project

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 Pollution 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
WHR	Wildlife Habitat Relationships
WSE	water surface elevation
WSRA	Wild and Scenic Rivers Act
YT	Yurok Tribe

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Chapter 1

1 INTRODUCTION AND BACKGROUND

1.1 Overview

The United States Department of Interior (USDI) Bureau of Reclamation (Reclamation) proposes to conduct mechanical channel rehabilitation activities on the mainstem Trinity River downstream of Lewiston Dam at the Limekiln Gulch Rehabilitation Site (River Mile [RM] 99.7-100.6; Figure 1). The activities proposed at the Limekiln Gulch site are hereafter referred to as the “Proposed Project” or “Project.” Project work would be part of the ongoing Trinity River Restoration Program’s (TRRP) work to restore the anadromous fishery of the Trinity River. The proposed river 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. Details of the Proposed Project are contained in Chapter 2 and project design features and mitigation measures associated with the Project are listed in Appendix A.

The fundamental purpose of the TRRP is to restore historic river processes to the Trinity River via 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. 2000). 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. In 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 to inundate 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 the Trinity County. Technical experts associated with each of these entities participate in the design and review of the rehabilitation sites.

This environmental review document was prepared by Reclamation, in coordination with the USDI Bureau of Land Management (BLM), a federal land manager at the Proposed Project site and federal co-lead for National Environmental Policy Act (NEPA) review. These federal agencies worked with the North Coast Regional Water Quality Control Board (Regional Water Board), as the California state lead agency, to analyze the potential impacts of the proposed activities according to NEPA and California Environmental Quality Act (CEQA) guidelines. The results of these analyses are recorded in this Project Environmental Assessment/Initial Study (EA/IS), which meets all NEPA and CEQA requirements for environmental analyses and disclosure of potential impacts. This project EA/IS is tiered to previous analyses, as described in Section 1.4, Project Chronology and Background.

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.

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. 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.

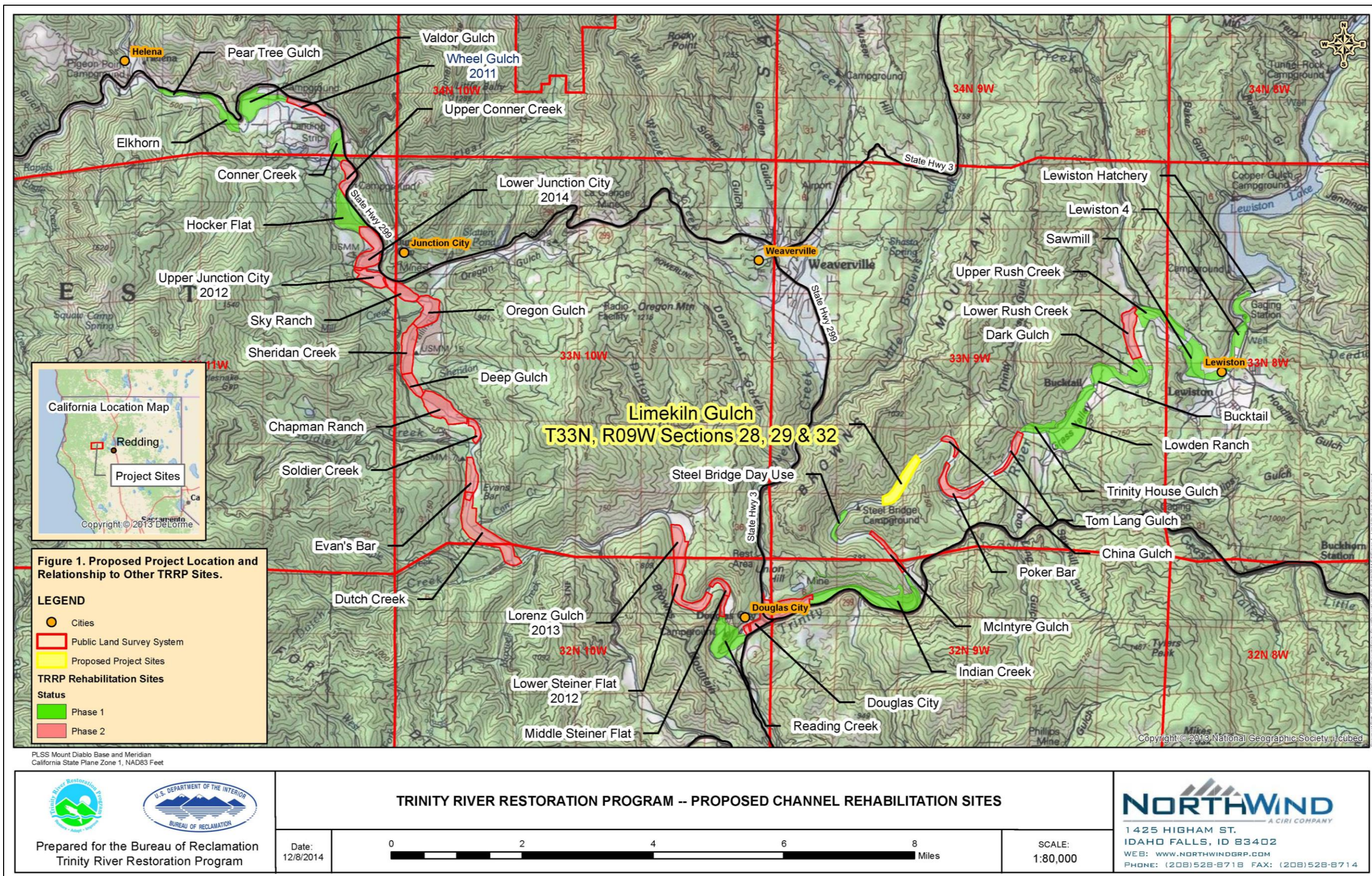


Figure 1. Proposed Project Location and Relationship to Other TRRP Sites.

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The Limekiln Gulch site is a 71.33-acre site that extends along the Trinity River from slightly downstream of the confluence of Limekiln Gulch with the Trinity River. The Limekiln Gulch environmental study limit (ESL) and land ownership are shown on Figure 2. TRRP staff, with interdisciplinary review from the TMC technical staff, developed the site boundaries to incorporate the rehabilitation activities that were considered. The site is located near Poker Bar Road and Steel Bridge Road, which is 3 miles upstream from the intersection of SR-299 and SR-3. The project area encompasses a fairly remote section of the upper river between RM 99.7 and 100.6, and the BLM manages all of the land within the site boundaries. The Limekiln Gulch site is located approximately 6 miles upstream of Douglas City and approximately 4 miles directly southeast of Weaverville, and is just upstream of the BLM's Steel Bridge Campground and downstream of Poker Bar, China Gulch, and Limekiln Gulch proper. Although the project area is near the BLM's Steel Bridge Campground on river left and a remote largely unimproved road on river right, there is limited access into the project area; as only foot access can be obtained on the left side of the river and the access road on the right side is remote and infrequently used. The project area is located on the *Weaverville, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle, Township 33 North, Range 9 West, Sections 28, 29, and 32 Mount Diablo Base and Meridian. The river elevation at this site is about 1,650 feet above msl.

The Limekiln project area encompasses a stretch of the Trinity River that is relatively straight, flowing from northeast to southwest. At the southern extent of the project area the river turns directly west. From the banks of the Trinity River the landscape rises sharply to the east. As the landscape rises, the landform levels off into a bench back-dropped slightly further to the east by a steep hydraulic cut. Above the hydraulic cut the landscape continues to rise sharply. The vegetation in the area consists of mixed forests and riparian habitat immediately adjacent to the river. The forested portions are heavily wooded with mature coniferous trees and various shrubs.

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, in addition to 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). 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.

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. 2000). 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 as 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); re-vegetate 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. 2000). 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 Limekiln Gulch site is a Phase 2 site. 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 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 were impacted 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 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.

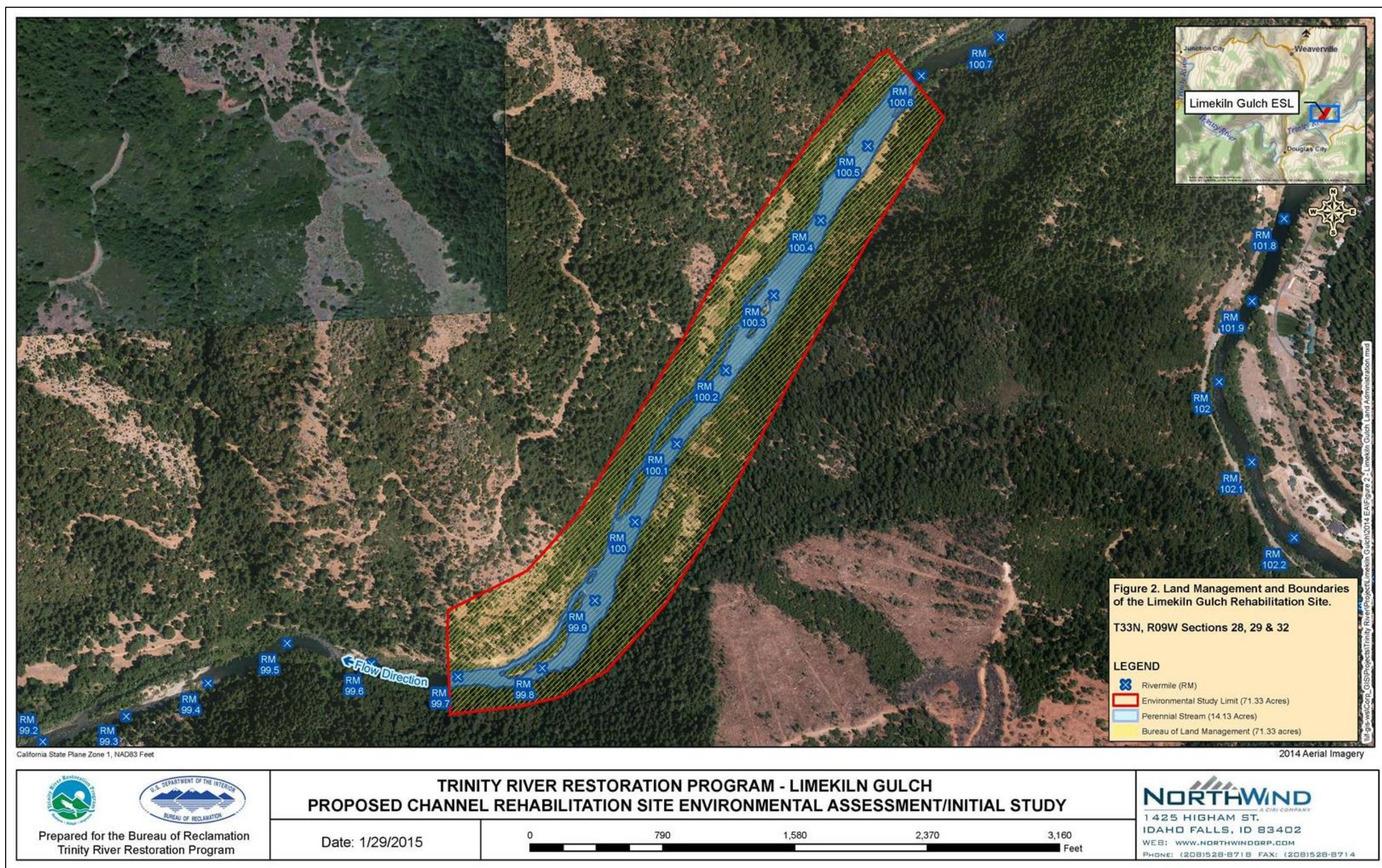


Figure 2. Land Management and Boundaries of the Limekiln Gulch Rehabilitation Site.

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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), are 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) environmental document 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. 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, which is hereinafter referred to in its entirety as the Master EIR/Programmatic EA, 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. This part is analogous to the federal Trinity River Mainstem Fisheries Restoration FEIS programmatic document prepared in 2000 and described previously in this section. This part of the document evaluates the environmental impacts of the proposed rehabilitation and sediment management activities at the TRRP's 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 direct and indirect impacts associated with the Proposed Project and the alternatives, the Master EIR/Programmatic EA addresses cumulative and growth-inducing impacts that could be associated with activities at the Remaining Phase 1 and Phase 2 sites.

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 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.).

The Master EIR/Programmatic EA (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. 2000) and the EA/Final EIRs for TRRP projects constructed between 2005 and 2008¹. 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/Programmatic EA (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 website².

Using the Master EIR/Programmatic EA as its primary environmental analyses for the last several projects, Phase I of the channel rehabilitation component of the ROD (23 sites of the 47 enumerated in the FEIS) was completed in 2010. In 2014, 31 of the original 47 sites had been constructed.

¹ Hocker Flat (Reclamation and California DWR 2004), the Canyon Creek Suite (Reclamation and the Regional Water Board 2006), Indian Creek (Reclamation and TCRCO 2007), and Lewiston-Dark Gulch (Reclamation and TCRCO 2008).

² On the TRRP website go to http://www.trrp.net/?page_id=409.

1.4.1 Analysis Since the Master EIR/Programmatic EA

Under the Implementation Plan for the Preferred Alternative of the Trinity River EIS/EIR (contained in Appendix C of the FEIS/EIR), an evaluation of the Phase I channel rehabilitation projects was 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, in 2014 several organizations requested 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 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 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 immediate 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 are 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.

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 utilized 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 utilized 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 is implicated as the cause, rather than gravel injections (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 most 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%) 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. The primary adult holding habitat in the Limekiln Gulch reach is outside of the ESL. The Proposed Project has considered the need to maintain adult holding habitat in the design and this habitat would not be impacted by the Proposed Project. 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 Code of Federal Regulations [CFR], Section 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 increases 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. Similar to the Master EIR/Programmatic EA, this site-specific EA/IS for the Proposed Project at the Limekiln Gulch Rehabilitation 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 Limekiln Gulch Rehabilitation Site is tiered to the previous analysis in the *Trinity River Mainstem Fishery Restoration FEIS/EIR* (USFWS et al. 2000) and 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 2008³. Based upon 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/Programmatic EA was developed. The EA portion of the Master EIR/Programmatic EA tiers from the Trinity River Mainstem Fishery Restoration FEIS/EIR (USFWS et al. 2000). 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 the 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 specific projects. A Master EIR forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines, Section 15175, et. seq.), a process known as “tiering.” The Master EIR/Programmatic EA meets the elements required for a Program EIR pursuant to California Code of Regulations (CCR), Title 14, Section 15168. Therefore, the Master EIR/Programmatic EA provides programmatic CEQA level review, from which the Limekiln Gulch Project – a subsequent site-specific project – is tiered.

The Regional Water Board acted as lead agency for the Master EIR/Programmatic EA (State Clearinghouse number 2008032110) and subsequent site specific EA/ISs. The Master EIR/Programmatic EA 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/Programmatic EA 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/Programmatic EA on August 25, 2009. Phase 2 sites, like the Limekiln Gulch site, are eligible for enrollment and CEQA coverage following the completion of any subsequent project-specific environmental analysis required to supplement the programmatic level review contained in the Master EIR/Programmatic EA. Under 14 CCR, Section 15177, after a Master EIR has been prepared and certified, subsequent projects, which the lead agency determines as being within the scope of the Master EIR, will be subject to only limited environmental review.

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, 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

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).

the scope of the Master EIR is a question of fact to be determined by the lead agency based upon 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 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 Proposed Project site-specific activities and serves as a joint NEPA/CEQA document for Project authorization by both federal and California state regulatory agencies. This Limekiln Gulch EA/IS contains a site-specific Project description and other information required to apply for enrollment under General Water Quality Certification R1-2010-0028 (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

This document is tiered to and incorporates the information contained in the Trinity River Mainstem Fishery Restoration FEIS/EIR and the Master EIR/Programmatic EA by reference in its entirety. As an integrated, multi-purpose document, the Master EIR/Programmatic EA 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 land within the project area boundaries, serves as a co-lead for the Project. The Regional Water Board is the California state lead agency under CEQA.

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 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/Programmatic EA 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/Programmatic EA document for their permitting and approval process. Implementation of the Proposed Project, as described in Chapter 2, would generally require compliance with the federal, state, and local permit and approval processes and regulations described in Chapter 3 of the Master EIR/Programmatic EA. 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). 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 TRRP and various lead agencies to gain public input and information for each channel rehabilitation site as well as programmatically under the Master EIR/Programmatic EA. The Master EIR/Programmatic EA includes a complete description of scoping and public involvement activities that occurred as part of that process (Master EIR/Programmatic EA, Section 1.6). The same agencies and organizations that were consulted during the preparation of the Master EIR/Programmatic EA are again in consultation for the Proposed Project.

The Master EIR/Programmatic EA was developed specifically to identify and mitigate potential significant impacts as defined by CEQA. Accordingly, the same issues that were addressed programmatically in the Master EIR/Programmatic EA 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 meet with local groups (e.g., fishing guides and mining groups) and individual landowners from the local area to obtain stakeholder input and advice as well as to address 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 Trinity County Resource Conservation District (TCRCD) will continue to assist the TRRP with public notification and meetings so interested parties can learn about the Project 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) has been requested this year 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 was posted on the Water Board's website at:

http://www.waterboards.ca.gov/northcoast/public_notices/water_quality_certification/.

The official public review period for this EA/IS began when the document was submitted to the California State Clearinghouse in February 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 for 30 days from acceptance at the State Clearinghouse through March 31, 2015.

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.

A public open house meeting was held on March 11, 2015, concurrent with the public comment period, to inform residents and stakeholders of proposed activities and to seek comments on the Draft EA/IS. Because the Limekiln Gulch site encompasses a remote section of the upper river with very limited access, and is comprised entirely of public lands managed by the BLM, the temporary implementation activities are expected to have minimal effects on area residents. An additional public meeting is planned to update local stakeholders (that may be directly affected by project construction - e.g., residents along the access road) and other interested parties about potential Project implementation plans and scheduling.

A total of two comment letters were received on the Draft EA/IS during the public comment period which ran through March 31, 2015. The federal and state lead agencies have responded to the comments received. The comment letters and responses from the lead agencies are included in Appendix B. In addition to updating this section 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 B, minor edits and updates were made to the EA/IS. Copies of the Final EA/IS will be available on the TRRP website <http://www.trrp.net/> and on Reclamation's website: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=20621, 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

Written comments and questions regarding this document were received by:

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Weaverville, California 96093
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Phone: (530) 623-1800
Fax: (530) 623-5944

Copies of the Master EIR/Programmatic EA, the December 19, 2000, ROD and Trinity River FEIS/EIR are also available for public review on the TRRP website: <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

The TRRP Office may be contacted in the future to inquire about the project status.

Chapter 2

2 PROJECT DESCRIPTION AND ALTERNATIVE DEVELOPMENT

This chapter describes the Project's objectives 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 Limekiln Gulch 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 term Proposed Project is used rather than Proposed Action; however, the terms should be considered synonymous.

2.1 Background

To meet the Project objectives the TRRP has identified a number of discrete activities (see Chapter 2 of the Master EIR/Programmatic EA), 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/Programmatic EA, 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/Programmatic EA, 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 CH2MHill 2011), require that this important rehabilitation activity be highlighted as a common activity planned in the Proposed Project and other Phase 2 sites. The impacts associated with implementation of this activity do not rise above those identified and analyzed in the Master EIR/Programmatic EA, but their increasing use and visibility requires 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/Programmatic EA 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 Limekiln Gulch 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/Programmatic EA, 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 over the past nine years, 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.

Although portions of the Limekiln Gulch project area currently contain high-quality rearing habitat, the site offers an opportunity to substantially increase habitat availability. Currently, the upstream two-thirds of the Limekiln Gulch project area consists of a narrow channel entrenched between barren terraces, with minimal rearing habitat at all discharges and almost no functional floodplain. Specific design goals and objectives for this site include increasing the hydraulic complexity in the low-flow channel by the development of low flow side channels and woody debris. Additional rearing habitat can be created at this site by developing low-velocity side channel habitat along the left bank, enhancing woody cover along the channel margins, and by reducing velocities in the right-hand side channel in the downstream quarter of the site.

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 sites 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 re-vegetation 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/Programmatic EA using the criteria outlined above; as a result, three alternatives were included in that analysis – No-Proposed Projects alternative, Proposed Projects alternative, and Alternative 1. The Proposed Projects alternative was determined to most efficiently meet TRRP objectives and was selected as the preferred alternative in the Master EIR/Programmatic EA. Alternative 1 was analyzed in the Master EIR/Programmatic EA 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 Projects alternative. Consequently, benefits to fish and wildlife populations would be reduced compared to the Proposed Projects alternative. As a result Alternative 1 was not selected as the preferred alternative in the Master EIR/Programmatic EA 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. 2000). 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 Limekiln Gulch 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 Limekiln Gulch 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; forest health

treatments; and removal/replacement of riparian and upland vegetation at strategic locations. Extensive re-vegetation of native riparian vegetation (woody and wetland species) and management of upland mixed conifer habitats, to mimic a natural, more fire resistant and resilient state, 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 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 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 or the Federal Land Policy and Management Act (43 USC 1761 et seq.). All 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.

2.4.2.1 Mechanical Channel Rehabilitation Activities

The TRRP has developed objectives for the Project as well as specific activities that would occur at defined locations in support of Project goals. The rehabilitation objectives for the Limekiln Gulch Rehabilitation 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 types of activities included within the Proposed Project. Refer to Section 2.3.2 of the Master EIR/Programmatic EA for more information about each of these activity types. Several additional activity types have been added since the Master EIR/Programmatic EA was completed to clarify the intent of the activity for the reader.

Table 1. Rehabilitation Activities at the Proposed Project Site.⁴	
Label	Activity Type
A	Recontouring and vegetation removal (banks and floodplains)
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 channel (300 cfs)
F	High-flow side channel and gravel infiltration areas
J	Placement of excavated materials
K	Staging/contractor use areas (includes gravel/rock processing and stockpiling)
L	Roads, existing
M	Roads, new
N	Temporary channel crossings
O	Re-vegetation
P	In-river installation: construction of engineered log jams/hydraulic structures (wood and/or rock), habitat wood structures, skeletal bar, or boulder habitat placement

Activities A through F are intended to increase the potential for the river to meander (migrate) within the floodplain in which it has been confined by historic dredging activities and, more recently impacts related to the construction and operation of the TRD. In addition to the immediate changes to the channel (e.g., side channel construction and berm removal), the Proposed Project would increase the likelihood that the Trinity River would reflect more of the “healthy river” attributes of an alluvial river, as described in Section 4.3 of the Master EIR/Programmatic EA. Activities E, F, and P are intended to create aquatic habitat that would provide refuge for salmonids and other aquatic wildlife during inundation and that would evolve over time. The side channels, alcoves, and floodplain enhancements would also provide additional complexity to the riverine environment and areas of riparian habitat diversity. All of these activities are consistent with the “healthy river” attributes. Activities J through M are associated with the transfer, placement, and stabilization of material excavated from the riverine areas. In conjunction with Activity J, various grading techniques would be used to develop seasonal, off-channel riparian habitat available for riparian-dependent species. Activity K includes the processing and storage of coarse sediment or boulder material for use in construction of in-river installations (Activity P). Activity N – crossings – provides a reasonable method to access activity areas on the opposite side of the river. Activity P uses wood and rock structures to increase fluvial and channel complexity, which will in turn build and maintain aquatic habitats. Activity P is intended to increase woody material which is a natural part of healthy rivers and provides important habitat for aquatic species, including cover from high flows and predators, collection of suitable spawning materials, and a food source for aquatic insects. It can also create and maintain beneficial habitat features such as pools, side channels, islands, and gravel bars. Activity O includes re-vegetation of disturbed surfaces. The descriptions included here are general descriptions of the types of activities that could occur. Detailed site-specific descriptions are included in Section 2.4.2.2, Activity Areas.

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

⁴ Several activity labels are omitted (e.g., H for grade control removal) as these activity types were enumerated in the Master EIR but not utilized at the Proposed Project site.

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, forest health as well as for use in large wood habitat structures. Removed vegetation would be used for in-river placement as large wood, chipped/masticated, or spread/buried in re-vegetation 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.

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 re-vegetation establishment is less successful than anticipated, additional efforts would be made to establish riparian vegetation consistent with the CDFW policy of no net loss in riparian vegetation from pre-project levels.

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 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. Spoiled materials would be spread in uniform layers that blend with the natural terrain. In general, re-vegetation 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 – Re-vegetation – 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. Thinning may occur in forested areas, under BLM guidance, in order to enhance forest habitat conditions. Thinned forest material could be used in wood installations.

Activity L and M (Roads, Existing and New)

Construction access to the project area would be via SR-299 and Union Hill Road. On-site roads would be used for one or more activities (e.g., access for equipment and personnel, removal of material, re-vegetation efforts, and monitoring activities). The location of the activity areas within the project area would require construction of new access roads for specific Project purposes. 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 would provide access across the river at the Limekiln Gulch site. These temporary crossings occur in “X” activity areas on the figures. Only constructed fords are planned at this site. 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 left bank) temporary 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. Use of fords to cross the river would be minimized.

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 (Re-vegetation)

Impacts to vegetation are anticipated in most activity areas. Re-vegetation of riparian areas would rely on a combination of planting and natural recruitment of native species. Revegetation would occur to meet Master EIR/Programmatic EA Riparian Revegetation & Monitoring Plan guidelines, address BLM input, and meet fish and wildlife requirements. 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, according to a site specific plan, after construction. 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. Re-vegetation 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 and mulching would also control or inhibit the reestablishment of noxious and invasive plant species. This activity potentially includes post-planting watering during the first three years post-planting. Re-vegetation details would be included in the site-specific plan which is under development for the Project. General planting details are described under the Activity Area and Re-vegetation headings below.

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

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 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. Alluvial construction material would be obtained from on-site gravel processing of excavated material or purchased from local vendors for delivery.

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.

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 and slash 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.

2.4.2.2 Activity Areas

Table 2 lists the 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 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 to be treated would 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 are labeled with a C; temporary crossings are labeled with an X; and access roads are labeled with an A and identified as existing or new. The table 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 Limekiln Gulch Rehabilitation Site.

Activity Area^a	Primary Activity	Activity/ Treatment Area (Acres)^b	Earth Work (Cubic Yards)^c	Fill (Cubic Yards)^c
IC-1	Horizontal Tree Structure	0.03	-	80
IC-2	Large Wood Habitat Structure	0.01	-	10
IC-3	Large Wood Habitat Structure	0.01	-	10
IC-4	Large Wood Habitat Structure	0.01	-	10
IC-5	Side Channel Expansion and Grade Control	0.14	800	60
IC-6	Side Channel Expansion and Grade Control	0.14	800	15
	IC Subtotal =	0.34	1,600	185
R-1	Baseflow Side Channel	0.55	4,530 CY	30
R-2	Baseflow Side Channel	0.21	2,180 CY	15
R-3	Channel Expansion	0.15	460 CY	-
R-4	Riparian Grading	0.20	-	-
R-5	Riverine Wood Placement	0.43	-	-
R-6	Riverine Wood Placement	0.24	-	-
	R Subtotal =	1.68	7,170	45
U-1	Upland Spoils Area	0.29	-	-
U-2	Upland Spoils Area	0.18	-	-
U-3	Upland Spoils Area	0.64	-	-
U-4	Upland Spoils Area	0.21	-	-
U-5	Forest Health Area	3.63	-	-
	U Subtotal =	4.95	-	-
C-1	Contractor Use Area	0.45	-	-
C-2	Contractor Use Area	0.15	-	-
C-3	Contractor Use Area	0.24	-	-
C-4	Contractor Use Area	0.86	-	-
C-5	Contractor Use Area	1.06	-	-
C-6	Contractor Use Area	1.13	-	-
	C Subtotal =	3.89	-	-
A-1	Existing Access Road	1.70	-	-
A-2	Temporary Access Road	0.67	-	-
	A Subtotal =	2.37	-	
X-1 ⁵	Temporary River Crossing	0.10	-	-
X-2	Temporary River Crossing	0.18	-	100
	X Subtotal =	0.28	-	100
	Total =	13.51	8,770	330

^a IC = in-channel work area; R = riverine work area; U = upland activity area; C = construction staging/ contractor use areas; A= access road; and X = temporary river crossing.

^b Area calculated from project geographical information system (GIS).

^c Provided by TRRP.

⁵ Material used in constructing the crossing would be utilized in the IC-1 structure. If the X-2 crossing is required, the clean alluvial material used to construct the crossing, would be spread to blend with the river bottom post-construction.

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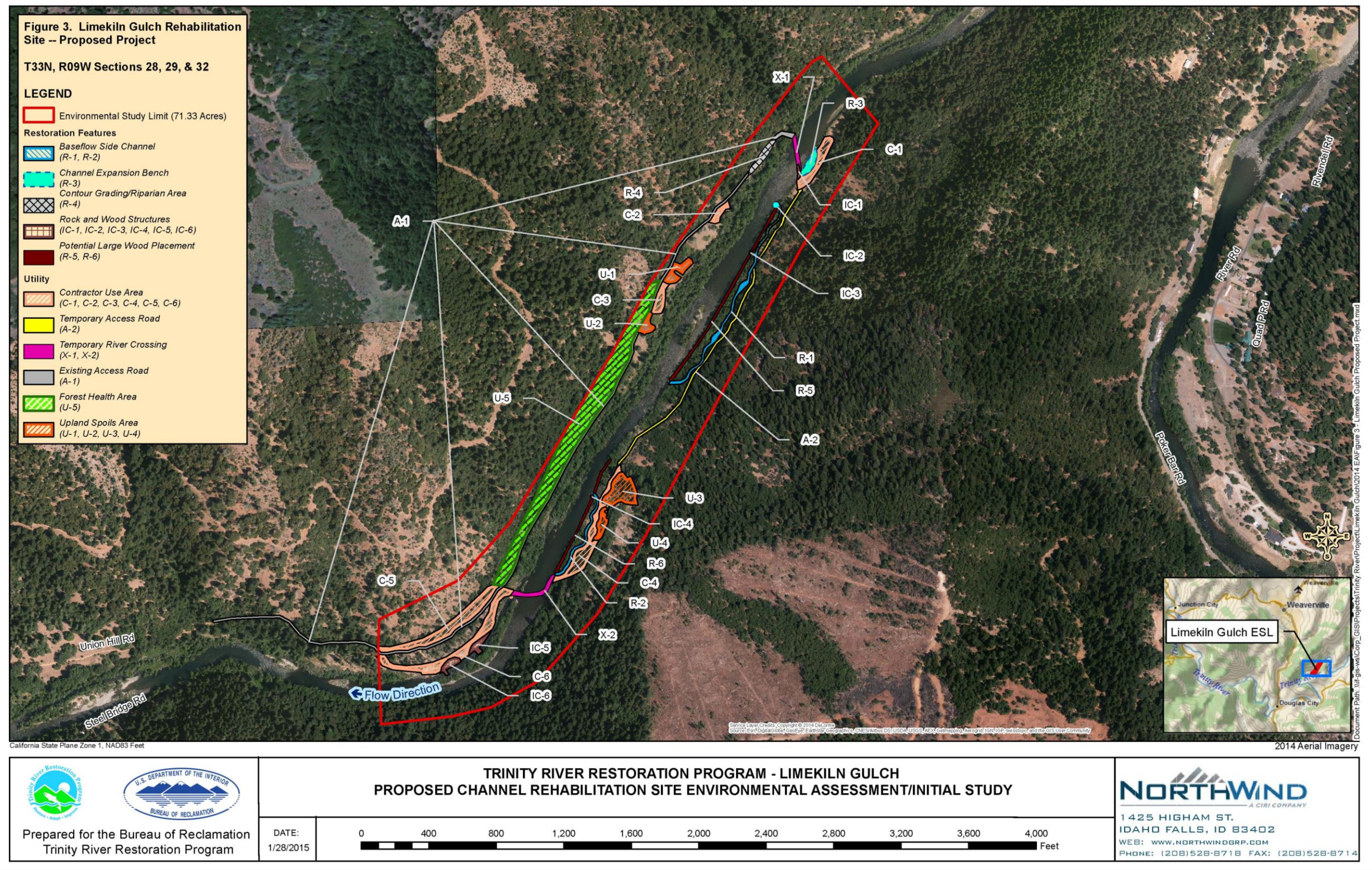


Figure 3. Limekiln Gulch Rehabilitation Site – Proposed Project.

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Activity Area Details

The following provides information about the specific activities proposed at the Limekiln Gulch Rehabilitation Site. Actions at this site are proposed for construction in 2015, as funding is available. The IC-1 through IC-6 features are all constructed of wood and rock and are depicted similarly on figures. Objectives and details for these activity areas are as follows:

IC-1, Horizontal Tree Structure

IC-1 would consist of one or two large trees keyed into the left bank and extending 60 feet into the stream at an upstream diagonal angle with the root wad furthest into the stream. The structure would locally increase the existing bed elevation by about 3 feet. In addition to being keyed into the left bank, the trees would be ballasted with boulders and pinned with smaller logs. IC-1 is intended to create immediate rearing habitat by obstructing flow along the left bank and providing woody cover. At flows near baseflow, the structure would create a small backwater zone upstream from the trees and an eddy downstream. The IC-1 horizontal tree structure is intended to remain in place for an extended period. Gravel deposition may occur in the backwater and eddy areas along the left bank, while localized scour is expected near the root wads. Additional woody debris is expected to accumulate on the structure, increasing its habitat value over time. It is anticipated that IC-1 would require one or two large trees (36 inch diameter), six to 10 medium trees (12 to 24 inch diameter), 60 cubic yards (CY) of clean gravel and small cobble, and 20 CY of medium to large boulders (1 to 4 foot diameter). The largest of the trees used in this feature would be acquired from the U-3 area. Clean gravel to construct this feature would be trucked in from other locations. It is estimated that approximately 60 CY would be needed for the river crossing and this feature. Gravel would be placed in a stockpile on top of the grade in an existing pull out on the unimproved portion of Union Hill Road. Off road dump trucks would then be used to deliver the gravel to the activity areas, as needed. Gravel material would be clean Trinity Basin gravel.

IC-2, IC-3, and IC-4, Large Wood Habitat Structures

The IC-2, IC-3, and IC-4 wood habitat structures would be located on the left bank immediately downstream from the entrances to the R-1 and R-2 side channels. All three habitat structures would be of similar dimensions, with top elevations approximately equal to the existing riparian berm and horizontal spans extending up to 15 feet into the channel. They would be composed of large wood keyed into the bank and ballasted with boulders. The adjacent side channels would be over-excavated to bedrock in the immediate vicinity of the habitat structures to prevent material from being scoured at those locations and deposited in the side channel immediately downstream. Eddies downstream from the structures would provide slow water habitat with cover and scour zones near their outer edges would add to the local hydraulic diversity. These structures are expected to remain in place for an extended period and additional wood may rack on them over time. Each of these structures would require approximately 15 trees (12 to 14 inch diameter) and several large boulders (approximately 10 CY). The largest of the trees used in these features would be acquired from the U-3 area. Additional trees may be taken from other activity areas, as needed.

IC-5, Side Channel Expansion and Grade Control

IC-5 consists of an excavation to widen an existing side channel located in the right overbank area near the downstream end of the site. This expansion would be combined with the installation of a log and rock structure to reduce flow velocities. The existing side channel, which is currently about 30 feet in width, would be locally expanded to a maximum top width of about 60 feet. Logs, gravel, and small boulders would be used to create a broad-crested riffle-like grade control structure that spans the excavation at its widest point and attains an elevation 2 feet above the existing bed near the channel center. Backwater effects from IC-5 would extend about 200 feet upstream at baseflow, but would have no effect on existing hydraulic conditions at the side channel inlet or alter discharge through the side channel. The wetted area would be stocked with large woody debris and the emergent areas would be planted with riparian vegetation. IC-5 is intended to immediately increase salmonid rearing habitat availability by reducing flow velocities in the existing side channel and providing additional cover. Developing riparian vegetation along the channel margins is expected to increase cover and habitat quality over time. This feature covers 0.14 acres and requires 800 CY

of excavation. Approximately six medium trees (12 to 24 inch diameter) and 60 CY of clean gravel and small cobble are needed to construct the grade control riffle.

IC-6, Side Channel Expansion and Grade Control

Similar to IC-5, IC-6 includes an excavation to widen the top width of the existing side channel to about double its current width as well as construction of a log and rock grade control. The primary difference between IC-5 and IC-6 is that the grade control in IC-6 is located near the downstream end of the excavation where the design channel width is only slightly greater than the existing width. Another difference is that the IC-6 grade control is envisioned as a relatively narrow and porous log and boulder structure resembling a beaver dam with a lower notch near the right bank. At summer baseflow, backwater effects from IC-6 would extend about 200 feet upstream to the downstream face of IC-5. IC-6 is intended to immediately increase salmonid rearing habitat availability by reducing flow velocities in the existing side channel and providing additional cover. Developing riparian vegetation along the channel margins is expected to increase cover and habitat quality over time. This feature covers 0.14 acres and requires 800 CY of excavation. Approximately six medium trees (12 to 24 inch diameter) and 12 medium boulders (2 foot diameter) are needed to construct the grade control riffle (approximately 15 CY).

R-1, Baseflow Side Channel

R-1 is a base-flow side channel extending about 1,250 feet through the left overbank area in the upstream half of the site. The channel would have pool-riffle topography featuring side slopes varying from near vertical to about 4:1 slopes, variable widths averaging about 10 feet at the bottom of the cut, and two sloughs. Surface flow would enter this feature through two entrances, both of which would be over-excavated and backfilled with coarse gravel and cobbles capable of transmitting hyporheic flow. The side channel gradient upstream from the second inlet is mild, with a mean water surface slope of about 0.00025. Downstream from the second inlet the mean slope for the remainder of the channel increases to about 0.0035. The entire feature would be stocked with abundant large wood and other cover, and care would be taken during construction to preserve as much existing cover as possible. The R-1 side channel would provide immediate salmonid rearing habitat at low to intermediate flow levels. The R-1 side channel is intended to maintain a base flow surface water connection into the future. Habitat value should increase as additional riparian cover develops along the constructed banks. The R-1 side channel covers 0.55 acres and would require 4,530 CY of excavation. A total of about 30 CY of medium cobble would be placed as substrate in the side channel inlets.

R-2, Baseflow Side Channel

R-2 is a base-flow side channel extending about 520 feet through the left overbank area in the middle of the site. The channel would have pool-riffle topography featuring side slopes varying from near vertical to about 4:1 slopes, and variable widths averaging about 10 feet at the bottom of the cut. Surface flow would enter this feature through one entrance. The inlet to the channel would be over-excavated and backfilled with coarse gravel and cobbles that can transmit hyporheic flow. Due to the low main channel slope adjacent to R-2, the water surface slope through the side channel is also exceptionally low at 0.0004. Flow velocities in the channel are therefore expected to be low at all discharge levels. The entire feature would be stocked with abundant large wood and other cover, and care would be taken during construction to preserve as much existing cover (vegetation) as possible. The R-2 side channel would provide immediate salmonid rearing habitat at all flow levels. Habitat value should increase as additional riparian cover develops along the constructed banks. The R-2 side channel covers 0.21 acres and would require 2,180 CY of excavation. About 15 CY of medium cobble would be placed as substrate in the side channel inlet.

R-3, Channel Expansion

Excavation in the R-3 area would lower an existing relatively barren floodplain surface by up to 3 feet to an elevation of 1,689 feet, which is slightly higher than the summer baseflow water surface elevation. The area is expected to inundate at flows between 600 and 700 cfs. The area would be stocked with woody debris and planted with riparian vegetation. The R-3 excavation would create an arc-shaped expansion in channel width at intermediate and high flows. This expansion would create additional shallow slow water habitat for rearing salmonids when flows exceed baseflow. Woody debris would provide cover to improve habitat value in the area. At higher flows, the expansion would reduce unit stream power, which would encourage gravel

deposition and bar formation in the adjacent channel. Excavation at R-3, together with the IC-1 tree placement, may promote deposition in the left half of the existing channel, thereby creating additional shallow-water habitat in an area with cover availability. Establishment of riparian vegetation in the excavated area would improve cover and habitat quality over time. R-3 covers approximately 0.15 acres and would require 460 CY of excavation.

R-4, Riparian Grading

Activities in the R-4 area would include grading to eliminate stranding, improve shallow ponded habitat used by reptiles and amphibians, and remove non-native vegetation. The graded area would be replanted with native vegetation. R-4 would improve floodplain habitats used by various species and help with control of non-native invasive vegetation. This area covers 0.20 acres.

R-5 and R-6, Riverine Wood Placement

The R-5 and R-6 areas extend along the existing channel banks adjacent to the R-1 and R-2 side channels. Selective wood placement and field-determined bank modifications are planned for these areas. Wood used along these banks may be derived from local riparian stands or harvested from upland spoils or forest health areas. Wood placement along the banks in R-5 and R-6 would improve cover habitat used by rearing salmonids. Additional woody debris may collect along these banks as ROD flows recruit more of the existing riparian vegetation along the river. R-5 and R-6 extend along about 1,200 and 750 feet of bank, respectively.

U-1 and U-2, Upland Spoils River Right

The U-1 and U-2 areas are located on river right and would receive excavated material from IC-5 and IC-6. These areas currently contain primarily non-native vegetation. Spoiling in these areas provides an opportunity to reseed and plant with native upland species after project completion to improve upland ecological conditions over the long-term. At a minimum, all upland placement areas would be seeded with native grasses and upland conifers and mulched. The U-1 and U-2 areas cover 0.29 and 0.18 acres, respectively. A total of 1,600 CY of material would be spoiled in the U-1 and U-2 areas.

U-3 and U-4, Upland Spoils River Left

The U-3 and U-4 areas are located on river left and would receive excavated material from R-1, R-2, and R-3. These areas are primarily old hydraulic mining cuts and terraces with approximately 10 ponderosa pine (*Pinus ponderosa*) and 15 Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*) trees, which vary in size from approximately 2 to 36 inch diameter at breast height (dbh; approximately 4.5 feet), growing on the slopes. The area was selected as the location for placing excavated material so as to avoid impacts to adjacent historic mining features and wetlands. Furthermore, the spoils would be configured to fill the hydraulic cuts so that historic pre-mining slopes are established. The largest trees removed from this area would be used in river left wood structures. A small number (up to five or six) intermediate size trees (between approximately 12 and 30 inches) may be partially buried and left to create upslope wildlife habitat (snag) features. Spoils would be graded to form natural topography and planted with native species after project completion to improve upland ecological conditions over the long-term. Re-vegetation of the area would occur post-project, including replanting of ponderosa pine and Douglas-fir species. Re-vegetation would occur according to the site-specific plan developed for the Proposed Project. The U-3 and U-4 areas cover 0.64 and 0.21 acres, respectively. A total of 7,170 CY of material would be spoiled in the U-3 and U-4 areas.

U-5, Forest Health Area

Selected trees may be harvested from the U-5 activity area to improve forest health and act as a supply for large wood. The area is targeted for selective removal in order to achieve stand conditions that would be more reflective of historical mature forest conditions. Selective tree removal would help to establish mature forest stand conditions along the Trinity River. Thinning would occur on slopes less than about 30 percent. The Forest Health Area would seek to accelerate the development of habitat that is representative of the mature old growth forest that historically existed along the Trinity River. Implementation of the following management actions would accelerate development of post-project target conditions; however, even with Project implementation, development of these mature stand conditions would require time (10 to 30 years) to develop depending on the exact location. Desired Future Conditions would include: 1) mean dbh of trees

>18 inches; 2) canopy closure of >60 percent; 3) dominant trees >60 feet tall; 4) an average of about 15 trees per acre between 18 and 35 inch dbh; and 5) a stand of dominant conifers (six trees per acre) that are 35 inch dbh or greater. Selective removal of smaller trees (generally 6 to 20 inch dbh with none exceeding 28 inch dbh), would set the trajectory for Desired Future Condition of the U-5 area and would provide a source of intermediate and smaller sized wood material to be used for construction of wood habitat structures. Conifers that are encroaching on large oak and madrone trees (e.g., >20 inch dbh) would be prioritized for removal in order to release these hardwoods for continued and faster growth.

Trees would be selectively marked for removal in the field by a BLM forester, or another authorized party, in coordination with appropriate resources staff. No entry zones for heavy equipment would be marked by BLM resources staff. No trees over 28 inches dbh, or oaks, would be removed, unless deemed necessary for safety by a BLM authorized officer. An excavator would retrieve marked trees with root wads and limbs intact, as possible. Trees with root wads removed would have the subsequent holes filled in and smoothed over to create a natural look to the treated area. Chainsaws would be used to remove selected trees from steep areas adjacent to marked access and wood removal routes. Trees cut with chainsaws would be skidded to the designated wood removal trails (skid trails). Trees and slash would be removed by an excavator or loaded via logging tongs along designated skid paths to a designated area. The wood material would be stockpiled and sorted for use in construction of in-river wood structures. While most of the slash generated would be used in wood jams, any extra material that is not used would be lopped and scattered. Following tree removal, skid trails would be decommissioned and the landscape rehabilitated to natural conditions. Erosion control measures (e.g., water bars, hay, baffles etc.) may be utilized if soil erosion conditions arise. Also, the use of vehicle control measures (e.g., tank traps, large rocks, etc.) may be utilized to ensure access to skid trails is not available, thus helping to limit off-trail use.

This action would establish conditions conducive for old growth trees to increase in vigor, thereby decreasing susceptibility to insects and disease, and establishing a stand that is more resilient to fire, and natural in composition and character. In addition to providing a source of large wood material for construction, this action would help maintain riparian shading and future wood loading to the Trinity River. This area covers 3.63 acres. It is anticipated that approximately 40-50 trees would be marked by BLM staff for selective removal in order to enhance safety and forest health within this area.

C-1, C-2, C-3, C-4, C-5, and C-6, Contractor Use Areas

Contractor use areas would be used for construction access, staging, stockpiling, mobilization, gravel processing, and other necessary construction activities during implementation. In addition to the C-1 through C-6 areas that are within the ESL, an existing dirt pullout on top of the hill could be used as a stockpile/contractor use area. This area would be used for street legal trucks to dump their loads, which would subsequently be picked up and transferred to an off-road dump truck that could deliver the materials to activity or contractor use areas.

A-1 and A-2, Access Roads

There is no access to the project area via roads on river left. A-1 is an existing road (Union Hill Road) on river right that would provide access to the project area. The A-1 access road overlaps the existing Union Hill Road from the downstream end of the project area to where it currently dead-ends at the upstream end. Outside of the ESL, some minor upgrades to Union Hill Road would be made to provide equipment access and to maintain drainage/road competence. Improvements would be made from the top of grade (where gravel may be stockpiled in an existing pullout) down to the C-5 feature. All improvements to the road in this area would be made within the existing footprint so there would be no new disturbance outside of the existing road. A-2 is a temporary road that would be constructed by the contractor for access to work areas on river left. It would only be accessed via a temporary river crossing within the ESL, and would not connect to Steel Bridge Road on river left.

Post-project, the temporary A-2 road would be decommissioned and re-vegetated. Decommissioning of this road may include re-grading or placing spoils on the roadway in upland access areas to block vehicular access. The existing A-1/Union Hill Road would be decommissioned from the C-5 area upstream to where it

currently dead-ends, and replanted with native vegetation. The portion of A-1 that is not being decommissioned and re-vegetated would be left to provide continued access. The existing A-1 road would still allow access up to the C-5 area for recreational use, and would be graded to allow for easier turn-arounds and use. The final configuration would maintain current parking capacity and would provide adequate area for vehicles to turn around.

X-1 and X-2, River Crossings

Temporary crossings would provide access across the river. These temporary crossings would be low water fords to facilitate access for construction-related traffic. All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks and excavators. In order to construct crossings, clean Trinity River basin gravel would be imported from existing stockpiles off-site to the site via the access road. No gravel processing would be done on-site. It is estimated that approximately 60 CY would be needed for the upstream crossing. Most of the material placed for the X-1 crossing would be utilized in IC-1 at the project's end. Approximately 100 CY would be needed for the downstream crossing, if built. Construction of the downstream X-2 crossing would provide the contractor with increased flexibility to streamline access to the left bank, across a deeper river section, without moving through the entire project area. If required, trucks would bring gravel in to contractor use areas for stockpiling/use. Any temporary crossings would be constructed in a manner that does not impede navigability at the project area.

Crossings would be minimized throughout construction. It is anticipated that use of a river left fueling station could reduce equipment crossings to several a day. Alternatively, a rubber tired articulated dump truck might deliver fuel to the left bank, as needed. Fuel taken across the river would be stored in a double walled containment fuel tank during crossing and within a secondary fuel containment area if stored on the left bank. Fuel storage, transport, and handling would comply with the Project Storm Water Pollution Prevention Plan (including spill prevention and control plans – refer to Appendix A: measure 4.5-3). In this case most personnel would cross the river by boat.

Up to 15 crossings outside of the summer (July 15-September 15) in-channel work window would take place during revegetation work on the left bank. If temporary crossings were to be used after September 15, the crossing areas would be made unsuitable for spawning prior to September 15 (e.g., anti-spawning mats installed to preclude spawning). After the last crossing, anti-spawning mats would be removed.

Re-vegetation

Re-vegetation design objectives for the project area include:

- Increase the plant species richness used in re-vegetation,
- Increase the potential future large wood supply,
- Increase/maintain riparian and wetland vegetation quality and quantity along the side channels 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 possibly post-planting watering. 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 this location. Constructed side channel slopes would be planted 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 local stocks or nursery grown native species. Their sizes may vary by plant species.

Re-vegetation plans include the following:

- Approximately 506 feet of willow trenches would be planted, located near IC-1, IC-2, IC-3, IC-5, and IC-6. Arroyo willow (*Salix lasiolepis*) is preferred; however, any species of live willow are suitable for these features. The trenches would be filled with plant material that is salvaged during the construction of other features, such as R-3. The willow cuttings would be removed from one location and placed in the trenches within a few days of removal. The cuttings would be watered-in, and would be frequently hand-watered to maintain moist conditions through the end of the growing season (typically mid- to late-October).
- Approximately 99 willow clumps would be planted. Wherever possible, arroyo willows removed during the construction of other features would be used as plant materials, or alternatively, if clumps are available from the Douglas City site (also scheduled for construction during summer 2015), they may be transported to the Limekiln Gulch site for use. Narrowleaf willow (*Salix exigua*) or dusky willow (*S. melanopsis*) excavated during construction may be used in some locations. If these options were exercised and the desired number of clumps is still not available, no more clumps would be planted.
- Approximately 0.33 acres of emergent wetland and sedge zonal plantings would be installed. These plantings generally include herbaceous plants such as sedges and rushes. Plants would be installed in moist-soil areas, so irrigation during the growing season is not essential beyond watering-in newly installed plants. These areas would be planted between June and December 15, after construction is completed at their respective features.
- Approximately 2.25 acres of woody riparian hardwood plantings would be installed in toe zonal, slope zonal, and riparian infill zonal areas. All hardwood plant material used in these areas would be pole cuttings that do not require irrigation after the construction season. These species are black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), Fremont cottonwood (*P. fremontii*), and arroyo, shining (*Salix lucida*), and red (*S. laevigata*) willows. Pole plantings would be installed during the dormant season and would typically be completed by early December, after the in-river (July 15 to September 15) work-window. A wheeled vehicle would be used to transport plant materials, equipment, and personnel across the river at X-1 after the typical construction window. Approximately 15 crossings would be necessary and the vehicle would only cross the river into the C-1 area. The area in the vicinity of R-3 would be planted using wheeled-vehicle mounted equipment to dig holes for pole cuttings. Downstream on the left bank, poles would be planted using hand-augers to excavate planting holes.
- Approximately 3.8 acres of upland infill and oak (e.g., *Quercus garryana*) woodland plantings would be installed. Because the site would not have a permanent irrigation system, bare-root conifer stock and direct-seeding of acorns would be performed. Both would be implemented when plants are dormant (November to early December is preferred). No equipment crossing of the river outside of the in-river work window would be needed for these plantings.

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. Irrigation measures would be undertaken 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.

2.4.2.3 Common 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. These common activities (vegetation removal, watering, and monitoring) are briefly discussed in Appendix A. Appendix A also provides a general overview of the construction process for the Proposed Project. 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. Monitoring would occur as a required element of the Proposed Project and responds to the TRRP program management objectives, as well as the elements of the Mitigation Monitoring and Reporting Program (MMRP) required pursuant to CEQA. The MMRP, included as Appendix E of the Master EIR/Programmatic EA, is incorporated in its entirety by reference in this analysis. While CEQA requires identification of mitigation measures, for the purposes of NEPA these measures are considered design features of the proposed action and would be implemented as part of the Proposed Project in order to reduce or avoid adverse effects of the action. Specific mitigation measures (project design features) proposed as part of the MMRP for the Proposed Project are included as Appendix A of this EA/IS.

2.4.2.4 Tentative Schedule

Development of preliminary designs for this site began in 2010 and the Proposed Project, which incorporates land manager and TRRP design input, was completed in summer 2014. The Project is planned for construction in 2015, if funding is available. Construction associated with the Proposed Project would not begin until the environmental process is completed. In addition, the following must 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. 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 [NTU]).

Re-vegetation 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. In general, efforts would be made to revegetate the left bank areas, which are north facing and relatively moderate in temperature, directly after construction and/or with minimal equipment, however, to increase planting efficacy, up to 15 crossings to the left bank are planned during wet conditions (e.g., between September 15th and December 10th) to implement left bank re-vegetation as described.

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 provided.

2.5.1 Preliminary Design

An initial design for the Limekiln Gulch project had most of the excavation associated with the project on river left. In the absence of a bridge or other road access to the left side of the river, all material excavated on that side would have to remain on that side. The upland area slated for placing material turned out to be part of an historical hydraulic mining area. Because no other potential spoiling area outside of the 100-year flood inundation zone was feasible, the project was scheduled so that cultural resource experts could better evaluate and document the on-site cultural resources. The project was redesigned to minimize potential impacts to cultural resources as presented in this document.

Chapter 3

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction to the Analysis

This chapter describes the existing resources at the Limekiln Gulch Rehabilitation 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, and mitigation measures or project design features. 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/Programmatic EA (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.

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 impacts of this project 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 Limekiln Gulch site. The subsections presented in the Environmental Consequences section for each resource area are described briefly below.

3.1.2.1 Methodology

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

3.1.2.2 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. Federal lead agencies evaluating proposed actions typically include the evaluation of potential impacts to Indian trust assets and environmental justice as distinct categories under NEPA. Therefore specific significance criteria were not applied in evaluating

potential impacts to these resources. Instead, any modification or change that would occur to these resources in response to the Proposed Project is evaluated in accordance with NEPA requirements. Under NEPA, significance requires consideration of both context and intensity (40 CFR 1508.27), and significant impacts under NEPA require analysis in an EIS.

3.1.2.3 Summary of Impacts Table

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 significance (i.e., no impact, less than significant, significant) for the Proposed Project and No-Project alternatives. The tables also indicate what the level of significance would be after mitigation is implemented.

3.1.2.4 Impacts and Mitigation Measures

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 provided in Appendix A. Although these measures are referred to as mitigation measures, they are considered project design features for purposes of NEPA. An alphanumeric coding system that corresponds to the mitigation measures found in Appendix E of the Master EIR/Programmatic EA is used to identify each mitigation measure.

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 (project design features for NEPA purposes) that will be implemented in association with the Proposed Project are clearly identified and presented in Appendix A in language that will facilitate establishment of a monitoring and reporting program. In addition, Appendix A includes a number of design elements and construction criteria that are incorporated into the Proposed Project. Relevant information described in Appendix A 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 this Project is included as Appendix A. 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 or 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/Programmatic EA (Section 4.2); that information is incorporated herein by reference.

3.2.1 Affected Environment/Environmental Setting

3.2.1.1 Existing Land Uses

The land within the Limekiln Gulch Rehabilitation Site boundary (71.33 acres) is managed by the BLM. The site is located approximately 6 miles upstream of Douglas City and is accessible by foot from the Steel Bridge Campground. The Steel Bridge Campground is accessed by traveling east on SR-299 from Weaverville for approximately 6 miles just past Douglas City then turning north on Steel Bridge Road and traveling to its end (2.6 miles). The site can also be accessed via a generally unimproved road that extends from Union Hill Road, 4.5 miles south of Weaverville.

Existing land uses typical of the area are primarily residential, timber and other resource production, recreation, and open space. The Trinity River near the Proposed Project site is used by anglers, rafters, wildlife watchers,

and tourists. The river is accessible at several public and private locations throughout the area. There are no active mining claims within the project area boundaries.

Public land in and 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, and USFS lands are managed in accordance with the STNF Land and Resource Management Plan (LRMP). These plans discuss the general condition of natural resources in the respective plan areas and prescribe appropriate land use management for lands within the plan jurisdiction. Relevant land use plans are summarized in Section 4.2.2 of the Master EIR/Programmatic EA.

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. Douglas City, located approximately 6 miles south of Weaverville near the junction of SR-3 and SR-299, has an estimated population of 714.

The small community of Douglas City, 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.

3.2.1.2 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/Programmatic EA (Section 4.2, Table 4.2-1).

Douglas City Community Plan

The Douglas City Community Plan (Trinity County 1987) covers approximately 35 square miles (22,400 acres) centered around the Trinity River from slightly downstream of Grass Valley Creek to slightly downstream from Steiner Flat, which includes the project area. There are approximately 32.2 miles of river frontage in the rural community plan area of Douglas City; private lands account for 46 percent of the lands bordering the river.

Neighborhoods in this community plan area that are adjacent to the Trinity River include Poker Bar, Steel Bridge Road, Indian Creek, Community Core, and Steiner Flat. The Limekiln Gulch site is located in the Steel Bridge Road neighborhood. Land uses along the river in the Douglas City area vary by neighborhood and include resource, residential, commercial, village, and open space. 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/Programmatic EA, 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 Areas⁶ and all sites within the 100-year floodplain are designated by Trinity County as Scenic Conservation Zones.

⁶ 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 mi², or areas protected by levees from a 100-year flood event. Zone X500 is an area between the 100- and 500-year floodplain.

3.2.1.3 Relevant Land Use Plan

BLM's Redding Field Office manages public lands in the Trinity River Basin in accordance with BLM's 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. This 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 Proposed Project site boundaries. See Section 4.2.2 in the Master EIR/Programmatic EA for more information about the RMP and Appendix A of the Master EIR/Programmatic EA for the Project's Aquatic Conservation Strategy Consistency Evaluation.

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 Mitigation Measure in *Northwest Ecosystem Alliance v. Rey*, No. 04-844-MJP (W.D. Wash., Oct. 10, 2006). Previously, in 2006, the District Court (Judge Pechman) invalidated the agencies' 2004 RODs eliminating Survey and Manage 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 known site management. 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 C of this EA/IS contains 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/Programmatic EA 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

3.2.2.1 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 Douglas City 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.

3.2.2.2 CEQA Significance Criteria

The following significance criteria were developed in the Master EIR/Programmatic EA 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 Project;
- Conflict with any applicable land use plan, policy, ordinance, or regulation of an agency with jurisdiction over the 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.

3.2.2.3 Impacts and Mitigation Measures

Table 3 summarizes land use impacts that could result from implementation of the No-Project and Proposed Project alternatives.

Table 3. 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. Construction and staging areas would be located in and adjacent to the 100-year floodplain, which is designated as a Scenic Conservation overlay. All of the Project activities would be located on public lands (BLM-managed; refer to Figure 2). There are no residential developments within the ESL boundaries, but nearby residences are located upstream along Poker Bar Road and downstream along Steel Bridge Road. Residential development located near the rehabilitation site would be outside the area of direct impact associated with the Proposed Project. Access to nearby residences would be maintained during Project construction and post-construction monitoring activities. The Proposed Project would not result in disruptions to the nearby community of Douglas City.

Construction activities in the river channel could interrupt adjacent land uses for short periods; but they would not preclude the use of upstream and downstream residences. Construction and transportation associated with the Proposed Project could produce minor nuisance effects (i.e., air quality, visual resources, and noise) in the Poker Bar, Union Hill, and Steel Bridge neighborhoods; however, such impacts would be temporary and would not 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/Programmatic EA summarizes the 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 in the project area, and no locally important mineral recovery sites identified by the state. 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/Programmatic EA 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

3.3.1.1 Fluvial Geomorphology

A discussion of the regional and local fluvial geomorphology is included in the Master EIR/Programmatic EA (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/Programmatic EA (Section 4.10). Table 4 provides a summary of the geomorphic features for the project area, and they are shown on Figure 4.

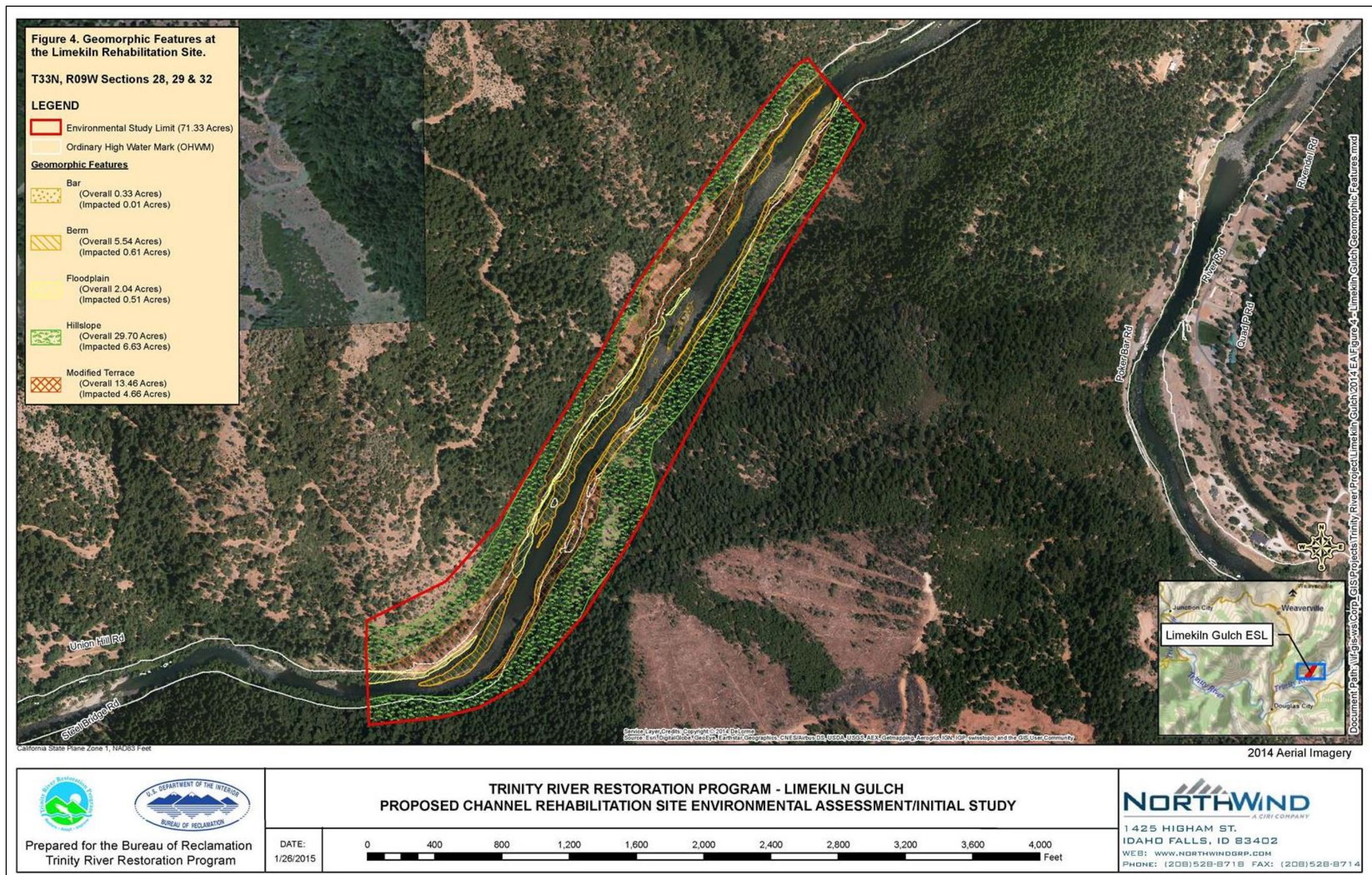


Figure 4. Geomorphic Features at the Limekiln Gulch Rehabilitation Site.

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Table 4. Geomorphic Features within the Proposed Project Boundaries.	
Geomorphic Feature	Acres
Vegetated Riparian Berm*	5.54
Floodplain	2.04
Bar	0.33
Modified Terrace*	13.46
Upland Hillslope	29.70
* = Human induced geomorphic feature.	

The mainstem Trinity River flows generally southwest through the Limekiln Gulch site. The channel width averages about 100 feet through most of the project area. 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 Limekiln Gulch Rehabilitation Site is located within the Grass Valley Creek to Indian Creek segment. This river segment runs through a relatively narrow bedrock-controlled gorge, with locally wider areas of valley bottom occupied by residential developments. The upstream rehabilitation site boundary is located immediately downstream from an old feather edge project constructed in the 1990s.

The upstream three-quarters of the site consists of a long, straight, bedrock-controlled channel bounded by narrow bedrock benches mantled with a few feet of fine sediment and dense riparian vegetation. The benches have well-developed natural levees or berms adjacent to the channel along much of their length, but are 2 to 3 feet below the 6,000-cfs water surface near the valley walls. Two functioning constructed side channels currently provide high-quality rearing habitat along the right bank in this straight stretch, and a third constructed side channel is present on the right bank less than 1,000 feet upstream from the upstream site boundary. In all, these three constructed side channels total about 0.9 miles in length. In the downstream quarter of the site the valley and channel curve to the right, the valley bottom width increases slightly, and flow splits around a long narrow island that wraps around the bend.

The straight reach of channel within the site boundaries can be divided into a relatively steep upstream section and a flatter downstream section. The steep section begins in a flat run that tails out onto a large hydraulic control at the head of a mid-channel island. The island itself is surrounded by a long riffle that contains several minor bedrock and boulder controls at baseflow. The average slope through this steep section is about 0.004. Below this section, the channel flattens into a long pool that is backwatered at baseflow by a large hydraulic control at the head of the long island that wraps around the bend downstream. The slope through this backwatered section is less than 0.001. Downstream from this second control, the channel again drops steeply into another long riffle that continues around the bend until the channels on either side of the island converge in a pool at the downstream boundary of the site. The slope through the bend is about 0.0059.

The quantity of fine sediment supplied to this reach is small relative to the transport capacity. As a result, the fraction of the bed surface covered with sand through the site is small (0 to 10%). The reach lacks space to store appreciable quantities of mobile gravel, and much of the bed surface consists of small cobbles, boulder, and exposed bedrock. However, sizable patches of mobile gravel sizes ($D_{50} = 60\text{-}100\text{ mm}$) can be found throughout the site, particularly along the left bank and in the lee of the mid-channel island in the center of the site, and on the bar head leading into the curve at the downstream end of the site. These patches are well used by spawning salmon (see Section 3.6, Fishery Resources).

3.3.1.2 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. The Limekiln Gulch project area includes a large historic hydraulic mine site on the left side of the river. Referred to as the Little Jim Mine, the site is comprised of a large terrace bench that contains numerous mine features, such as drains, tailings, sorted fines or slickens, and a large hydraulic cut.

A map of 2009 active mining claims is provided in the Master EIR/Programmatic EA. 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. Presently there is a moratorium on suction dredging (Fish & Wildlife Code, § 5653 subd. (d)), although some gold mining activity continues 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.

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 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 is proposing 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 have temporarily segregated the lands for up to two years from location and entry under the United States mining laws. 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.

There are 36 named active mining claims (USDI BLM 2008) associated with the Trinity River in the 40-mile reach below Lewiston Dam. BLM records identify most of these claims as placer claims. Placer claims are established with the intent to sort unconsolidated alluvial materials for precious metals (e.g., gold, platinum). Currently, there is no authorized Plan of Operations for placer mining activities within or in close proximity to any TRRP rehabilitation sites. While suction dredging has been the principal mining method used on the Trinity River, there is currently a moratorium on suction dredging throughout California. The CDFW is currently prohibited by statute from issuing suction dredge permits (Fish & Wildlife Code, § 5653.1, subd. (a)), and the CDFW cannot currently predict when, or if, suction dredging will be lawful in California in the future or when permits may be available to interested miners.

Other than 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 upstream of Junction City, which is downstream of the project area. The Smith Mine is located within the boundary of the completed Hocker Flat site, downstream of Junction City, and is active on an intermittent basis based on market conditions.

3.3.1.3 Geologic Hazards

A discussion of the regional seismicity and seismic hazards is provided in the Master EIR/Programmatic EA (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.

3.3.1.4 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 five main soil types in the Limekiln Project area. They are 117 – Browns creek-Dougcity Complex, 50 to 75 percent slopes; 146 – Goulding-Vitzthum-Vanvor Complex, 50 to 75 percent slopes; 171 – Marpa-Hoosimbim-Bamtush Complex, 50 to 75 percent slopes; 192 – Sheetiron Varian-Dedrick Complex, 50 to 75 percent slopes; and 217 – Xerofluvents-Riverwash Complex, 0 to 5 percent slopes. Brief descriptions of these main soil types are included below:

- **117 – Browns creek-Dougcity Complex, 50 to 75 percent slopes.** This map unit is located on mountains; areas are dissected by perennial streams. The Browns creek soil commonly is found on south-facing slopes or on ridge tops. The Browns creek soil is moderately deep and well drained. Permeability is moderate in the Browns creek soil. Available water capacity is low. The Dougcity soil is very deep and well drained. Available water capacity is low, and runoff is very rapid. Included in this mapping are small areas of Xerofluvents along stream channels under woody streamside vegetation that constitute about 20 percent of the overall unit.
- **146 – Goulding-Vitzthum-Vanvor Complex, 50 to 75 percent slopes.** This map unit is located on mountain slopes. The Goulding soil is shallow and somewhat excessively drained, permeability is moderately high to high, and available water capacity is very low. The Vitzthum soil is shallow and somewhat excessively drained, permeability is moderately high to high, and available water capacity is very low. The Vanvor soil is moderately deep and well drained, permeability is moderately high to high, and available water capacity is moderate. Minor components include riverwash and Xerofluvents. This soil map unit is predominantly on the hillslope above the river and floodplain but bounds the Xerofluvents and riverwash map unit (217) and is therefore subject to occasional flooding.
- **171 – Marpa-Hoosimbim-Bamtush Complex, 50 to 75 percent slopes.** This map unit is located on mountains. The Marpa, Hoosimbim, and Bamtush soils are moderately deep, deep, and very deep, respectively, and all three are well drained. For these three soils, water availability is low to very low, runoff is rapid, and permeability is moderately high to high. This soil map unit is on the hillslope above the river and floodplain and is not subject to flooding.
- **192 – Sheetiron Varian-Dedrick Complex, 50 to 75 percent slopes.** This map unit is located on mountain slopes. The Sheetiron soil is moderately deep and well drained, permeability is moderately high, and available water capacity is low. The Dedrick soil is shallow and somewhat excessively drained, permeability is moderately high to high, and available water capacity is very low. This soil map unit is on the hillslope above the river and floodplain and is not subject to flooding.
- **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. 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.

3.3.2 Environmental Consequences/Impacts and Mitigation Measures

3.3.2.1 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 State Resources 2011); 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.

3.3.2.2 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.

3.3.2.3 Impacts and Mitigation Measures

Table 5 summarizes the potential geology, fluvial geomorphology, minerals and soils impacts that would result from the No-Project and Proposed Project alternatives.

Table 5. 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	Significant	Less than significant
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 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 uplands, including road improvements, 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. Minor upgrades to existing roads and construction of a new temporary road would result in new soil disturbance. Decommissioning of portions of these roads post-Project also has the potential to disturb project area soils if re-grading occurs. Additional ground disturbance would occur where trees are removed, particularly in the U-5 Forest Health Area and in U-3 and U-4 areas.

Trees and slash in the U-5 area would be removed by an excavator or loaded via logging tongs along designated skid paths to a designated area, which would result in ground disturbance. Following tree removal, skid trails would be decommissioned and the landscape rehabilitated to natural conditions. Erosion control measures (water bars, hay, baffles etc.) may be utilized if soil erosion conditions arise in order to reduce impacts to soils. Increased wind and water erosion and subsequent downstream sediment transport in the Trinity River would occur if any disturbed soils were left exposed during the wet season (typically November through May) as well as other infrequent precipitation events (summer thunderstorms), and until re-vegetation occurs. These areas would be replanted with native vegetation after project completion. The potential irrigation of the planted areas post-project would result in negligible disturbance to project area soils. The irrigation system 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

Construction activities associated with the Project could result in increased erosion and short-term sedimentation of the Trinity River. Therefore, mitigation measures 4.3-2a and 4.3-2b described in Appendix A 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. At this site, mining would likely be precluded during construction for safety reasons. Post-construction, fishery habitat improvements and riparian plantings would either preclude mining that would negatively impact rehabilitation site habitat improvements, or if mining were to be permitted in the rehabilitation area, reclamation to habitat rehabilitation standards would be required as a permit condition. Overall, the Proposed Project could inhibit the development and extraction of mineral resources, including precious metals and aggregate resources within, and close to, the project area. Channel rehabilitation activities could inhibit the development of mineral resources on mining claims and would be a significant impact if such activities occurred or were planned for the stretch of the river near the project area.

The Project could adversely affect mineral claimants or recreational miners by reducing potential flexibility for mining exploration and development. Future consequences to mineral claimants or recreational miners could entail increased reclamation costs, decreased land available for mining or dredging, reduced flexibility in developing exploration and mine plans, and diminished access to mineral claims. Project construction activities associated with the Proposed Project that occur in the river could temporarily or permanently preclude individuals from accessing and actively working their mining claim.

The TRRP and BLM would work closely with the mining community to address concerns related to mining once the Project is completed. Mineral claimants that may be affected by the restoration efforts would be contacted to discuss future mining plans and options to reduce Project impacts to these plans. In general, TRRP is working closely with BLM to ensure that construction efforts are consistent with BLM's long-term management goals for a site, where mining claims presently exist.

Mitigation Measures

Implementation of the project could interfere with existing, proposed, or potential development of mineral resources. Therefore, mitigation measures 4.3-3a, 4.3-3b, and 4.3-3c described in Appendix A 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.

3.4 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/Programmatic EA (Section 4.4).

3.4.1 Affected Environment/Environmental Setting

3.4.1.1 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 cfs, 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.

3.4.1.2 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/Programmatic EA 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.

3.4.1.3 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 (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/Programmatic EA.

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

3.4.2.1 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.

3.4.2.2 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.

3.4.2.3 Impacts and Mitigation Measures

Table 6 summarizes the potential water resources impacts that would result from the No-Project and Proposed Project alternatives.

Table 6. 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 has 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, 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 TRRP and the activities described in Chapter 2 and Appendix A, 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/Programmatic EA, Section 4.5, Water Quality. Information related to this topic is also provided in the Master EIR/Programmatic EA 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/Programmatic EA. 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/Programmatic EA 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°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 TRGA) 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 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/Programmatic EA) 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 (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 per liter (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 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/Programmatic EA.

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

3.5.2.1 Methodology

For the past nine 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.

3.5.2.2 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).

3.5.2.3 Impacts and Mitigation Measures

Table 7 summarizes the potential water quality impacts that would result from the No-Project and Proposed Project alternatives.

Table 7. 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 A (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 crossings at the Project site would provide access for in-channel and riverine work areas. The low-flow channel crossings 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 crossings could also increase turbidity and suspended materials during and immediately following excavation.

Mitigation Measures

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 A 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

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 A 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. Additional requirements outlined in Appendix A would be incorporated into the Project to reduce the potential impact. However, because construction activities could result in a spill of hazardous material, this would be a significant impact.

Mitigation Measures

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 A 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, including those measures described in Appendix A, 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 Appendix A are intended to minimize these impacts, the activities associated with construction, particularly in riverine and in-channel activity areas, would result in significant impacts.

Mitigation Measures

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 A 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/Programmatic EA (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/Programmatic EA (Section 4.6).

3.6.1 Affected Environment/Environmental Setting

3.6.1.1 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/Programmatic EA.

3.6.1.2 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.

3.6.1.3 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/Programmatic EA (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 8.

Table 8. Special-Status Fish Species Considered for Analysis.			
Common Name (Scientific Name)	Status FED/ST/BLM¹	General Habitat	Comments
Southern Oregon/ Northern California Coasts ESU coho salmon (<i>Oncorhynchus kisutch</i>) 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 (<i>Oncorhynchus mykiss irideus</i>) (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 (<i>Oncorhynchus tshawytscha</i>) (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 (<i>Lampetra tridentata</i>)	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; Ammocoetes abundant during spring near the project area.
Green sturgeon (<i>Acipenser medirostris</i>)	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.

¹Federal (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

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).

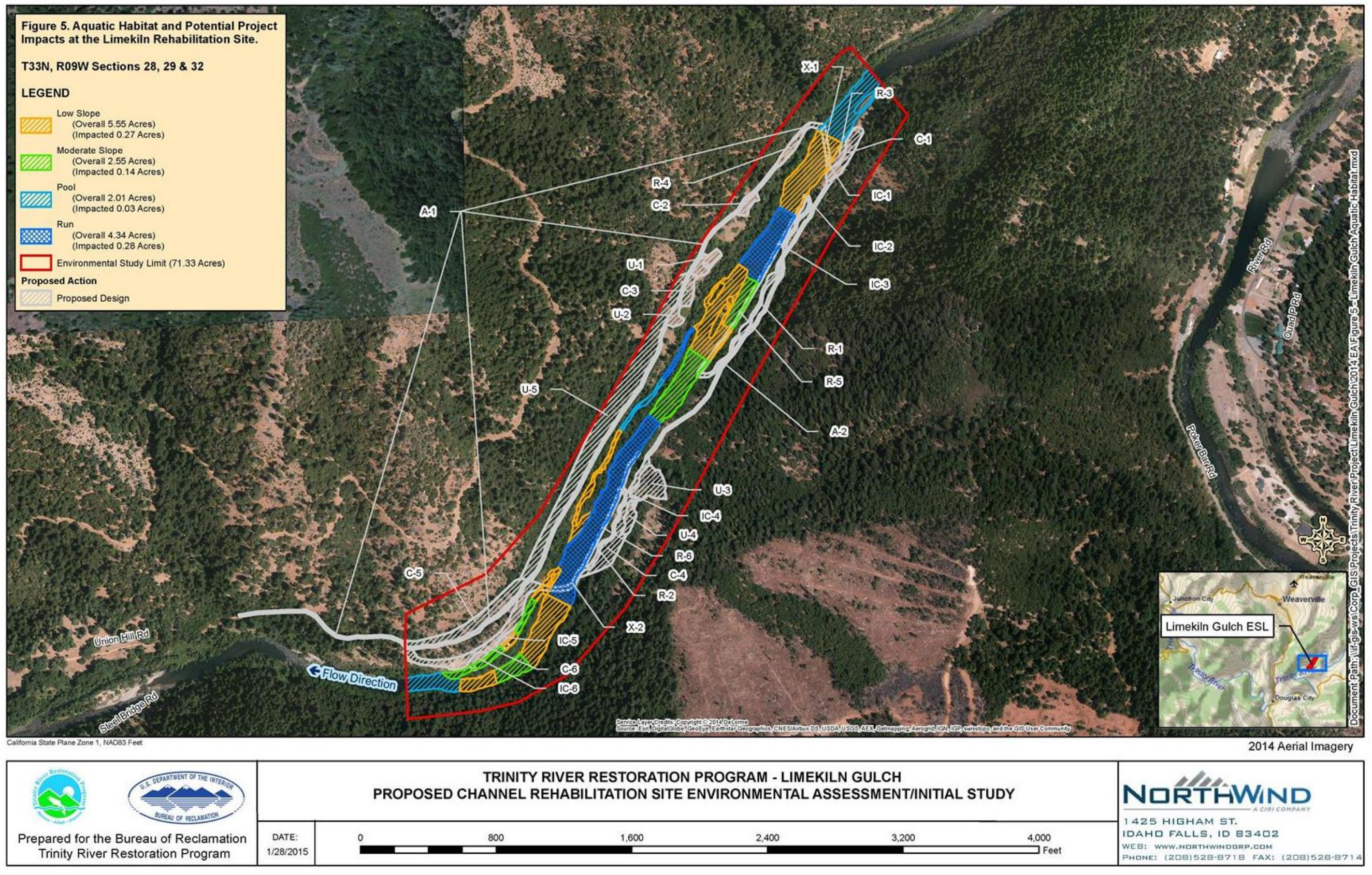


Figure 5. Aquatic Habitat and Potential Project Impacts at the Limekiln Gulch Rehabilitation Site.

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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).

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). Narrowing of this sort is essentially the only change to have taken place at the Limekiln site over recorded history. Pre-dam bar-like surfaces visible in 1944 air photos developed dense vegetation as the width of the active channel shrank to close to half of its 1944 extent. With a couple of exceptions in the upstream half of the site where the present channel width nearly matches the pre-dam width, general narrowing over most of the site is associated with fine sediment deposition in the form of levees that have developed along the channel margins. In addition, incision of the pre-dam channel bed may also have contributed to the channel narrowing, particularly in an area about two-thirds of the way through the site from the upstream boundary where a large accumulation of sediment appears to push the thalweg to the northwest of its modern location. It is possible that the apparent northwestward displacement of the wetted channel is due to a registration error with the older photographs, but the presence of a sediment accumulation is clear and its proximity to the Little Jim Mine archaeological site suggests that it may have been derived from hydraulic mining debris washed off the adjacent hillslopes.

The proposed rehabilitation site is located downstream of several major tributaries, including Grass Valley Creek. These tributaries provide water and sediment to the mainstem year-round, but especially during winter floods. The quantity of fine sediment supplied to the project reach is small relative to the transport capacity. As a result, the fraction of the bed surface covered with sand through the site is small (0-10 percent). The reach lacks space to store appreciable quantities of mobile gravel, and much of the bed surface consists of small cobbles, boulder, and exposed bedrock. However, sizable patches of mobile gravel sizes ($D_{50} = 60\text{-}100$ mm) can be found throughout the site, particularly along the left bank and in the lee of the mid-channel island in the center of the site, and on the bar head leading into the curve at the downstream end of the site.

Several post-dam anthropomorphic alterations were made to the reach in 1993, when Reclamation implemented a “feather edge” bank rehabilitation project at the upstream end of the current site. The former project involved removing the natural levee and associated riparian vegetation that formed the 1970s and 1980s to create a gradually sloping bank and floodplain. Bank excavation or subsequent bed aggradation associated with that work is probably partially responsible for the relatively large wetted width of the adjacent channel. The constructed surface has remained in more or less the as built condition to the present, although a small sand levee 1 to 2 feet high and narrow strip of willows has developed along the low-water margin. Also in 1993, Reclamation constructed a sequence of baseflow side channels. Three side channels were constructed within the site boundaries, and a fourth was excavated about 0.4 miles upstream from the site. All four of the side channels have maintained a baseflow surface water connection to the mainstem at both ends to the present time. The relative lack of deposition on the constructed feather edge and the success of the constructed channels suggest that sand and fine gravel tends to flush through this reach.

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, which is upstream of the project area.

Some areas of the Limekiln Gulch Rehabilitation Site provide spawning and rearing habitat for ESA-listed and non-listed salmonids including coho salmon, Chinook salmon, and steelhead. Based upon underwater observation surveys conducted by Reclamation, salmonid fry rearing habitat is available along both banks of the mainstem during periods of low flow. Connected side channels in the right overbank area provide refuge and rearing at both low and high flows. Portions of the upper riparian edge of the floodplain are utilized for holding during high flow events. Fry also utilize shallow pools formed by bedrock that projects into the river channel. Salmon spawn in the lower gradient portions of the site. The majority of the spawning activity in the project area is concentrated near the upstream boundary of the site, or in the vicinity of the emergent island near the center of the site. Of the 34 redds constructed on site in 2009, and 37 redds constructed as of November 11 in 2010, 6 were constructed in side channels (Figure 6).

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/Programmatic EA. 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).

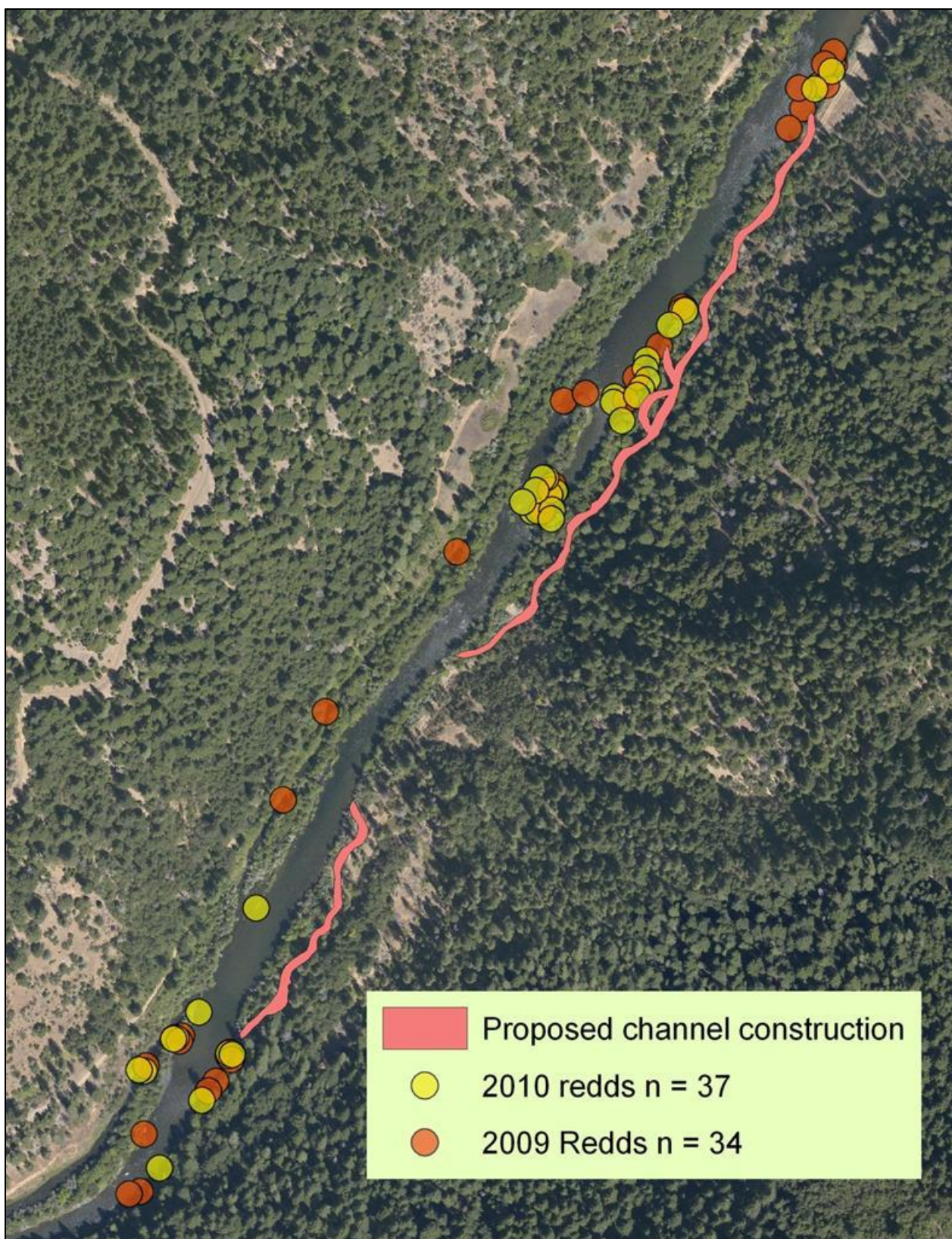


Figure 6. Salmon Redd Locations within the Limekiln Gulch Rehabilitation Site in 2009 and 2010.

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

3.6.2.1 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.

3.6.2.2 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.

3.6.2.3 Impacts and Mitigation Measures

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

Table 9. 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 effects on fisheries as described below.

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 temporary crossings 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 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) re-vegetation 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 0.27 acres of low slope (glide) habitat would be impacted by in-channel and riverine work at the site (Figure 5). In addition, 0.14 acres of moderate slope habitat, 0.28 acres of run habitat, and 0.03 acres of pool 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. 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).

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 Re-vegetation and Monitoring Plan, described in Appendix A, would lessen this impact over the longer term.

Mitigation Measures

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 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 A 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, particularly in the U-5 Forest Health Area, 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 and X-2 channel crossings 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 and 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. Consequently, 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. 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

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 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 A 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

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 A 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 this 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

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 A 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/Programmatic EA 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 re-vegetation 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 Project would be replaced during re-vegetation efforts consistent with requirements of the Riparian Re-vegetation and Monitoring Plan. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing riparian vegetation (Figure 7) is considered a significant impact.

Mitigation Measures

Proposed Project implementation would result in a permanent and temporary loss of SRA for anadromous salmonids. Therefore, mitigation measures 4.6-5a, 4.6-5b, and 4.6-5c described in Appendix A 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 low-flow channel crossings to move heavy equipment across the low-flow channels. These temporary crossings 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 crossings would be constructed in a manner that maintains adequate water depths and velocities for fish passage. The temporary crossings would only be constructed during late-summer, low-flow conditions (e.g., July 15–September 15). The crossings are expected to be in place long enough to complete work (including re-vegetation) at these activity areas and would be removed once work is completed. At X-1 use of anti-spawning mats is proposed to preclude spawning during revegetation of the left bank. Revegetation of the left bank would be completed by December 10th.

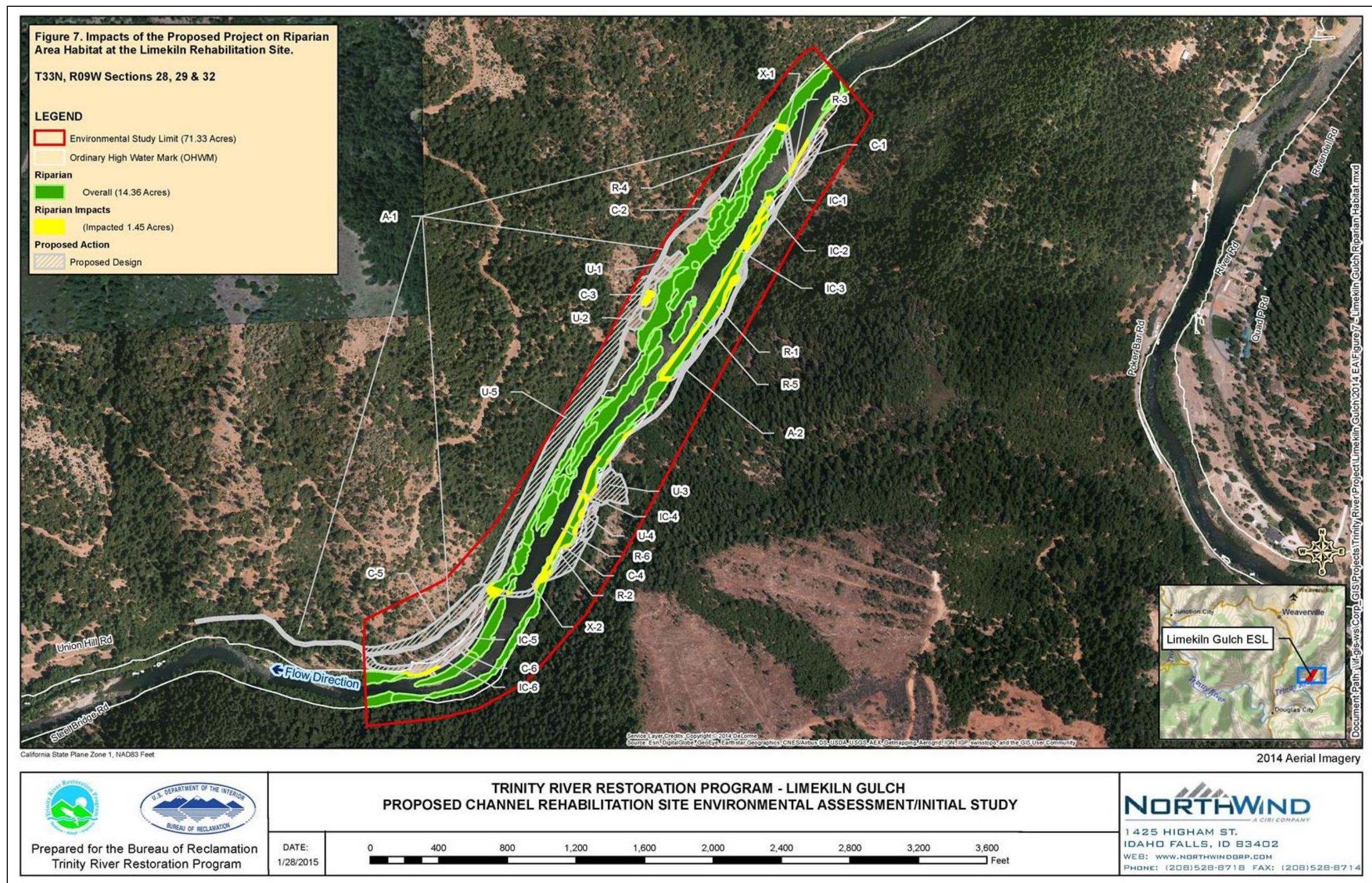


Figure 7. Impacts of the Proposed Project on Riparian Area Habitat at the Limekiln Gulch Rehabilitation Site.

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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 crossings 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. 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 crossings 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 crossings 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

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 A 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 at the Proposed Project site 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/Programmatic EA.

3.7.1 Affected Environment/Environmental Setting

3.7.1.1 Plant Communities

There are a variety of plant communities present in the project area. The main plant communities known to occur at the site are shown on Figure 8 and listed in Table 10. 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 at the site are discussed in more detail in the Master EIR/Programmatic EA (Section 4.7).

Table 10. Plant Community Types Within the Proposed Project Site Boundaries.	
Plant Community Types	Acres
Fresh Emergent Wetland	0.06
Annual Grassland	3.73
Montane Riparian	13.86
Montane Hardwood-Conifer	6.98
Blue Oak-Foothill Pine	0.08
Klamath Mixed Conifer	11.31
Montane Hardwood	4.19
Mixed Chaparral	0.22
Valley Foothill Riparian	0.44
Barren	0.10
Urban	0.49

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 pale spikerush (*Eleocharis macrostachya*).

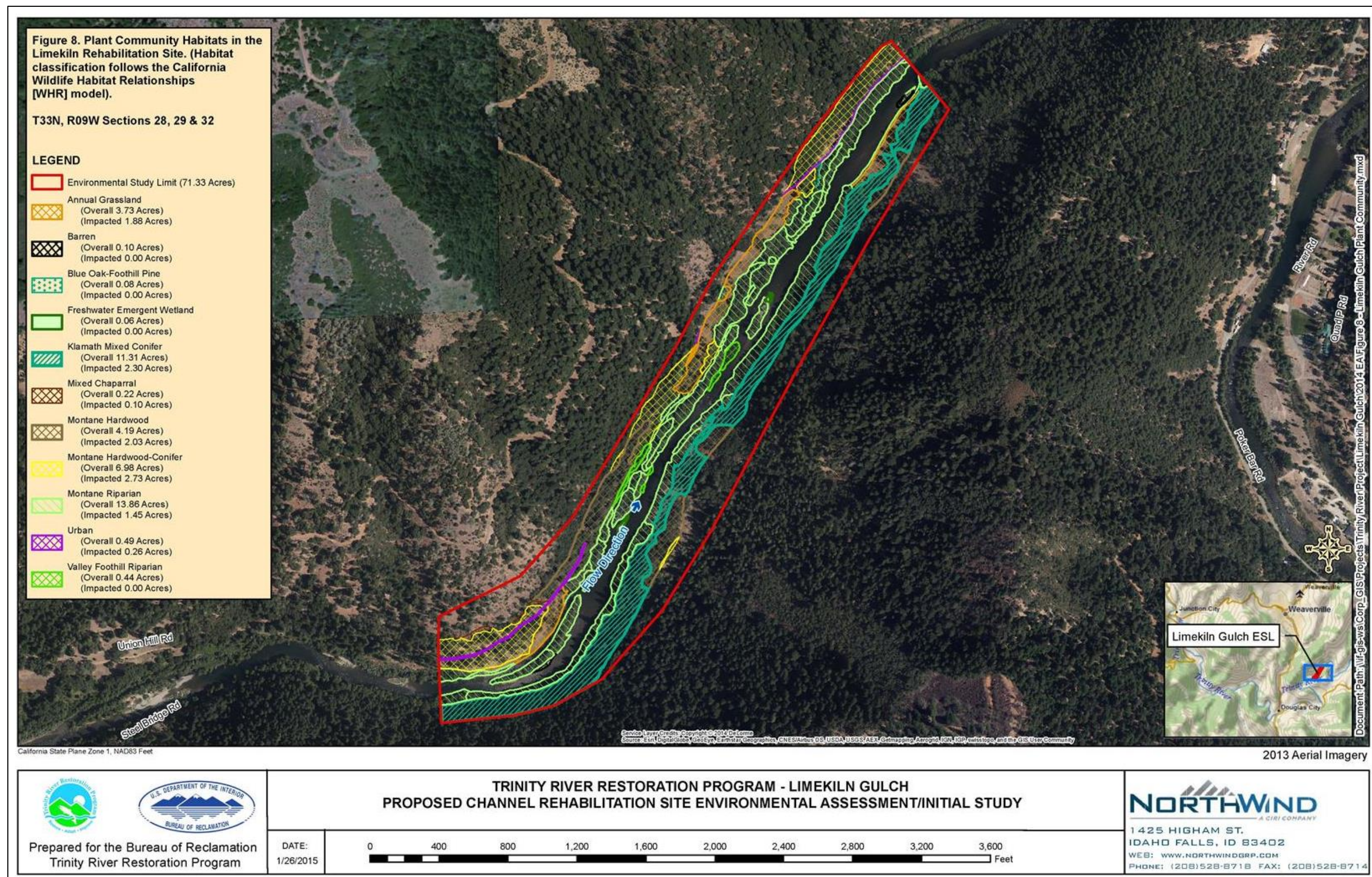


Figure 8. Plant Community Habitats in the Limekiln Rehabilitation Site. (Habitat classification follows the California Wildlife Habitat Relationships [WHR] model).

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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 (*Avena fatua*), 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* ssp. *dalmatica*), white sweet clover (*Melilotus albus*), musk monkeyflower (*Mimulus moschatus*), straggly gooseberry (*Ribes divaricatum*), Himalayan blackberry (*Rubus ulmifolius*), California blackberry (*Rubus ursinus*), narrowleaf willow, arroyo willow, shining willow, and California wild grape (*Vitis californica*).

Montane Hardwood-Conifer

The montane hardwood-conifer community type is present in the project area. In the northern interior of California, the montane hardwood-conifer community consists of at least one-third conifer and at least one-third broadleaf trees scattered throughout the landscape in a mosaic-like pattern of small pure stands of conifers interspersed with small stands of broad-leaved trees (Holland 1986; Mayer and Laudenslayer 1988). Geographically and biologically, this plant community often serves as an ecotone between dense coniferous forest and montane hardwood, mixed chaparral, or open woodland vegetation types. Dominant tree species typically observed include Pacific madrone (*Arbutus menziesii*), bigleaf maple, ponderosa pine, gray pine (*Pinus sabiana*), Douglas-fir, canyon live oak (*Quercus chrysolepis*), and black oak (*Q. kelloggii*). Shrub species include greenleaf manzanita (*Arctostaphylos patula*), buckbrush (*Ceanothus cuneatus*), cascara (*Rhamnus purshiana*), skunkbrush (*Rhus aromatica*), snowberry (*Symphoricarpos albus* var. *laevigatus*), and poison-oak (*Toxicodendron diversilobum*). 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 (*Torilis arvensis*).

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. Blue oak (*Quercus douglasii*) grows among the gray pines and understory vegetation typically includes greenleaf manzanita, buckbrush, skunkbrush, and poison oak. The herbaceous layer includes ripgut brome, cheatgrass, and false hedge-parsley.

Klamath Mixed Conifer

The Klamath mixed conifer community type is present in the project area. Klamath mixed conifer communities typically are tall, dense to moderately open, needle-leaved evergreen forests with patches of broad-leaved evergreen and deciduous low trees and shrubs. This habitat is dominated by tall evergreen conifers up to 200 feet in height with a rich shrub layer and well-developed herbaceous layers. On more xeric sites, the habitat is a generally open but very diverse forestland, having a well-developed shrub layer. The overstory layer is characterized by a mixture of conifers. Typical dominant conifers in the project area are

Douglas-fir, Ponderosa pine, and incense cedar (*Calocedrus decurrens*). Occasional broadleaf trees include canyon live oak and black oak.

Montane Hardwood

The montane hardwood community type is present in the project area. Dominant tree species observed within this plant community include Pacific madrone, bigleaf maple, canyon live oak, and black oak. Associated shrub species observed include greenleaf manzanita, buckbrush, skunkbrush, snowberry, and poison-oak. The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye, silver bush lupine, purple sanicle, 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.

Valley-Foothill Riparian

The valley-foothill community type is present in the project area. Valley-foothill communities are 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.

Urban

The urban community type varies by vegetation. Typically this habitat consists mostly of private landscaping and public landscaping including lawns, shrubs, and trees both evergreen and deciduous.

3.7.1.2 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 CNDDDB 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/Programmatic EA for the list of species considered.) The project area was surveyed for special status plant species in July 2013, March and May 2014, and April 2015, following protocols outlined in the Master EIR/Programmatic EA. No special status plants were detected in the project area during these pre-construction botanical surveys.

3.7.1.3 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/Programmatic EA (Section 4.7). The approximate location and extent of high priority invasive plants were noted during vegetation surveys conducted for the project area (July 2013, March 2014, and May 2014). Invasive species present in the project area include: Himalayan blackberry (*Rubus armeniacus*), yellow starthistle (*Centaurea solstitialis*), cheatgrass (*Bromus tectorum*), and dalmatian toadflax. Klamathweed (*Hypericum perforatum*) was also detected during this survey. Himalayan blackberry was found in the understory of the montane riparian habitat type. Yellow starthistle, cheatgrass, and dalmatian toadflax were present in the annual grassland habitat type. A new occurrence of saltcedar (*Tamarisk ramosissima*) was also recorded in the project area. This is only the second recorded occurrence of saltcedar on the Trinity River.

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 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. The saltcedar noted above would be removed by equipment and buried during the Project.

3.7.1.4 Wildlife Resources

The Limekiln Gulch Rehabilitation Site supports a relatively high diversity of wildlife. The observed wildlife diversity in the project area is likely a result of the combination of habitat diversity and relatively limited infrastructure and human use compared to much of the rest of the river above Douglas City. In particular, the meadows and upland areas along river right support a high diversity and abundance of flora and fauna. Open meadow features like this are limited along this reach of the river. Similar features upstream and downstream have been converted to rural housing and lawns (e.g., at the Bucktail, Poker Bar, and Steel Bridge communities). These areas provide for a diversity of wildflowers and wildlife, including deer, rodents, owls, hawks, foxes, and other wildlife. A particularly high diversity of snakes has been observed in and around these meadows including, rattlesnakes, sharp-tailed snakes, king snakes, gopher snakes, garter snakes, and these open areas are of particular importance to the yellowbellied racer for hunting. Wide, shallow, cobbled riffles appear to be especially productive for aquatic macroinvertebrates, in turn benefiting a myriad of fish and wildlife species (TRRP Federal Design Group 2014).

The wildlife species typically associated with the primary plant communities present in the project area (Table 9) are summarized in the Master EIR/Programmatic EA (Section 4.7). The Trinity River corridor within the project area provides habitat and travel corridors for such species as: 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 (*Petrochelidon 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. This site has the highest density of western pond turtles (*Actinemys marmorata*) upstream of Indian Creek (TRRP Federal Design Group 2014).

3.7.1.5 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 11 (more detailed species accounts are provided in Section 4.7 and Table 4.7-1 and Appendix C of the Master EIR/Programmatic EA). 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). The project area was evaluated for northern spotted owl habitat and was considered marginal for foraging with too few large trees and excessive undergrowth. However, because the habitat was considered adequate for dispersal, spotted owl surveys were conducted in 2011. During this survey no spotted owls were located within the project area. 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 critical habitat. Based on informal consultation with the USFWS during production of the Master EIR/Programmatic EA, 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 BA 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*).

Table 11. Special-Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status¹ (Fed/State)	General Habitat	Comments
MAMMALS			
Pacific fisher <i>Pekania pennanti</i>	C*/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.	May be present. This species is not expected to breed on the site, but may use the Trinity River as a travel corridor.
Ring-tailed cat <i>Bassariscus astutus</i>	—/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.	May be present. Montane riparian habitat along the Trinity River in the project area provides breeding and foraging habitat.
Marysville kangaroo rat <i>Dipodomys californicus eximius</i>	*/S1	Desert, chaparral	Absent. No suitable habitat occurs within project boundaries.
San Joaquin pocket mouse <i>Perognathus inornatus</i>	*/S2S3	Grassland	Absent. No suitable habitat occurs within project boundaries.
Fringed myotis <i>Myotis thysanodes</i>	*/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.	Absent. Project area is below the elevational limits of this species.
Long-eared myotis <i>Myotis evotis</i>	*/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 <i>Euderma maculatum</i>	*/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 11. Special-Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status¹ (Fed/State)	General Habitat	Comments
Pallid bat <i>Antrozous pallidus</i>	*/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 <i>Eumops perotis californicus</i>	*/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 <i>Corynorhinus townsendii</i>	*/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 <i>Myotis yumanensis</i>	*/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 <i>Strix occidentalis caurina</i>	T/—	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.
Bald eagle <i>Haliaeetus leucocephalus</i>	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 is not present at the sites due to the lack of dense, large trees and the moderate level of human disturbance. However, the species may forage on the sites.
California spotted owl <i>Strix occidentalis occidentalis</i>	*/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 11. Special-Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status¹ (Fed/State)	General Habitat	Comments
Bank swallow <i>Riparia riparia</i>	*/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 <i>Accipiter gentilis</i>	—/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 <i>Athene cunicularia</i>	*/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 <i>Laterallus jamaicensis coturniculus</i>	*/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 <i>Grus canadensis tabida</i>	*/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 <i>Buteo swainsoni</i>	*/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 in the project area.
Tricolored blackbird <i>Agelaius tricolor</i>	*/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 <i>Coccyzus americanus occidentalis</i>	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 <i>Elanus leucurus</i>	*/S3S4	Open groves, river valleys, marshes, grasslands	May be present. Suitable habitat is present along the Trinity River in the project area.

Table 11. Special-Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status¹ (Fed/State)	General Habitat	Comments
AMPHIBIANS			
California red-legged frog <i>Rana aurora draytonii</i>	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 <i>Rana boylei</i>	*/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, but due to the cold water temperatures this close to the dam this stretch of the river is too cold during breeding season for this species.
Shasta salamander <i>Hydromantes shastae</i>	*/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 <i>Scaphiopus hammondi</i>	*/S3	Wetland, Rivers, Foothills, Mountains	Absent. Not known to occur in Trinity County.
INVERTEBRATES			
Trinity bristle snail <i>Monadenia setosa</i>	*/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 <i>Vespericola pressleyi</i>	*/S1	Old growth, riparian, conifer forests, and hardwood forest, seeps, spring and stable stream habitats in Trinity County	May be present. Suitable habitat is present along the Trinity River in the project area.
Hooded lancetooth <i>Ancotrema voyanum</i>	*/S1S2	Near streams or intermittent stream channels where substrate is permanently damp	May be present. Suitable habitat is present along the Trinity River in the project area; however, no known population occurs within the project area.

Table 11. Special-Status Wildlife Species Considered for Analysis.

Common Name Scientific Name	Status¹ (Fed/State)	General Habitat	Comments
Klamath shoulderband snail <i>Helminthoglypta talmadgei</i>	*/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 <i>Monadenia chaceana</i>	*/S2	Moist microhabitats in late-successional forest and talus slopes or rocky areas.	May be present. Suitable habitat is present along the Trinity River in the project area; however, no known populations occur within the project area.
Tehama chaparral snail <i>Trilobopsis tehamana</i>	*/S1	Rocky tallus under leaf litter and woody debris by limestone outcrops.	Absent. Not known to occur in Trinity County.

¹Status 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.

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*), which has been proposed for listing as a threatened species under the ESA. 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. The old growth habitat on site is not considered sufficient for denning; however the riparian area may be utilized for migration.

3.7.1.6 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. Within the Limekiln Gulch Rehabilitation Site boundaries there are a total of 25.79 acres of jurisdictional waters. There are 11.35 acres of total wetlands and 14.44 acres of other waters, comprised primarily of the Trinity River riverine feature. Of the wetlands, there are a total of 0.87 acres of riparian wetlands above OHWM and 11.128 acres of riparian wetlands below OHWM. A preliminary jurisdiction determination (PJD) letter was received from USACE on December 5, 2014. A post-project delineation would be performed after five years to verify Project impacts to waters of the U.S. Jurisdictional water types present in the project area are shown in Table 12. The locations of these features are shown on Figure 9. Each of these is briefly described below.

Table 12. Summary Acreages of USACE Jurisdictional Waters and Wetlands Within the Project Area.		
Feature Type	Total Acres (Impacted Acres)	Acres
Perennial Stream (PS) / Riverine Trinity River	Total acres (Impacted acres)	14.44 (0.72)
Total Other Waters	Total acres Impacted acres	14.44 (0.72)
Riparian Wetland (RW) Above OHWM	Total acres (Impacted acres)	0.087 (0.087)
Below OHWM	Total acres (Impacted acres)	11.128 (1.688)
Seasonal Wetland Above OHWM	Total acres (Impacted acres)	0.138 (0.00)
Below OHWM	Total acres (Impacted acres)	0.00 (0.00)
Total Wetlands	Total acres (Impacted acres)	11.35 (1.775)
Total Jurisdictional Waters	Total acres (Impacted acres)	25.79 (2.495)

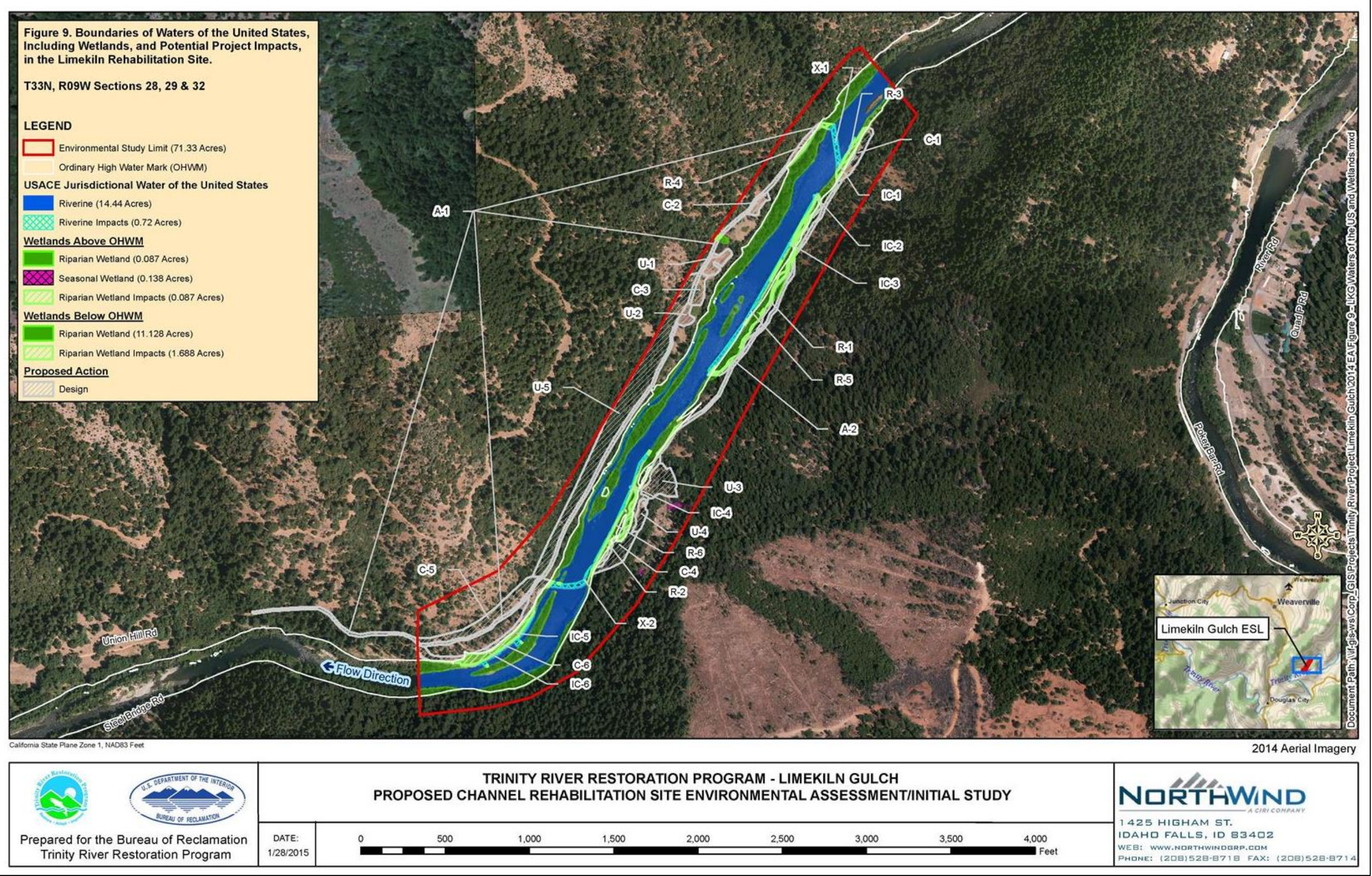


Figure 9. Boundaries of Waters of the United States, Including Wetlands, and Potential Project Impacts in the Limekiln Gulch Rehabilitation Site.

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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 upland habitat. 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. These wetlands are typically dominated by a woody riparian species complex and open to dense emergent herbaceous species. They include positive field indicators of wetland hydrology and hydric soils. Herbaceous species that almost always occur (>99 percent probability) are designated as obligates (OBL) and herbaceous species that usually occur (>67 percent probability) are designated as facultative wetland species (FACW). Common vegetation observed in riparian wetland features include: white alder (FACW⁷), Oregon ash (FACW), black cottonwood (FACW), Himalayan blackberry (FACW), California blackberry (FACW), narrowleaf willow (OBL), arroyo willow (FACW), shining willow (NI), American dogwood (UPL), mugwort (FACW), California wild grape (FACW), torrent sedge (FACW+), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinacea* – OBL).

Seasonal Wetland

A seasonal wetland area was identified in the project area. 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.

3.7.2 Environmental Consequences/Impacts and Mitigation Measures

3.7.2.1 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 CNDDDB 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.

3.7.2.2 CEQA Significance Criteria

Significance criteria used to analyze the potential impacts of the 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 from Appendix A of the Master EIR/Programmatic EA is valid for the Proposed Project and included by reference.

⁷ 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.

Impacts on vegetation would be significant under CEQA if implementation of the 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 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.

3.7.2.3 Impacts and Mitigation Measures

Table 13 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No-Project alternative and the Proposed Project.

Table 13. 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
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 9 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 1.775 acres of riparian wetlands and 0.72 acres of riverine habitat. Impacts to wetlands are displayed in Table 10.

Mitigation Measures

Construction activities associated with the 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 A 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 8). In addition to vegetation removal in other areas, it is estimated that approximately 40-50 trees (12 trees/acre) would be removed from the U-5 Forest Health Area. The area is targeted for selective removal in order to achieve stand conditions that would be more reflective of historical mature forest conditions. This action would establish conditions conducive for old growth trees to increase in vigor, thereby decreasing susceptibility to insects and disease, and establishing a stand that is more resilient to fire, and natural in composition and character. Selective tree removal would help to establish mature forest stand conditions along the Trinity River over time (approximately 10 to 30 years).

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. Following tree removal, skid trails would be decommissioned and the landscape rehabilitated to natural conditions. Over time, these upland areas would be re-vegetated 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 re-vegetation would occur to ensure that upland habitat values on the Trinity River meet wildlife needs. The need for re-vegetation 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 July 2013, March and May 2014, and April 2015, following protocols outlined in the Master EIR/Programmatic EA. No special status plants were detected in the project area during these pre-construction botanical surveys. Therefore, no impacts to special status plant species would occur as a result of the 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; the species has previously been detected in the region (Wilson 1995; Miller et al. 2003; Herrera 2006). Consequently, little willow flycatchers 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, implementation of mitigation measures 4.6-1a, 4.6-1b, and 4.6-1c would ensure that there is no net loss of riparian habitat and that there is a long-term increase in riparian habitat diversity. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the Project is not expected to have a significant impact on habitat for the 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

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 A 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 boylei*).

No-Project Alternative

Under the No-Project alternative, no construction-related impacts to the 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 frogs 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.

Mitigation Measures

Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog. Therefore, mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d described in Appendix A 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 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.

Mitigation Measures

Construction activities associated with the Proposed Project could result in impacts to the 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 A 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 the 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, implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c 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 the California yellow warbler and yellow-breasted chat. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the Project is not expected to have a significant impact on habitat for the 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

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 A 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 reduction of foraging and/or roosting habitat for these species. These impacts would primarily occur due to the removal of 40 to 50 trees from the U-5 Forest Health Area. In the long term, this action would result in the development of habitat that is representative of the mature old growth forest that historically existed along the Trinity River. Conditions would be established that would be conducive for old growth trees to increase in vigor, thereby decreasing susceptibility to insects and disease, and establishing a stand that is more resilient to fire, and natural in composition and character. Overall, as a result of the regional abundance of similar habitats and the long-term improvement in habitat in this area, the Project is not expected to have a significant impact on habitat for the 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

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 A 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 EA, and provide additional protections for the bald eagle to abide by directives within the Bald and Golden Eagle Protection Act (16 USC 668-668d). Implementation of 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: the 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. Tree removal from the U-5 Forest Health Area could impact those species that nest in trees. In the long term, this action would result in the development of habitat that is representative of the mature old growth forest that historically existed along the Trinity River. Conditions would be established that would be conducive for old growth trees to increase in vigor, thereby decreasing susceptibility to insects and disease, and establishing a stand that is more resilient to fire, and natural in composition and character, which could provide long-term benefits to this habitat. Each of these bat species has the potential to forage in the project area. 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 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 montane hardwood and montane hardwood-conifer habitats may provide suitable den sites. Removal of large trees with cavities or snags could result in the loss of ring-tailed cat, which would be considered a significant impact. Construction activities would also result in a short-term reduction in foraging habitat for this species. However, the Project would ultimately result in an increase in habitat and an increase in habitat quality 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

Construction activities associated with the Project could result in impacts to special status bats, ring-tailed cat, and fisher. Therefore, mitigation measures 4.7-9a, 4.7-9b, and 4.7-9c described in Appendix A 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 eagles, American peregrine falcons, and black swifts, and suitable nesting habitat may be present in some locations. Tree removal from the U-5 Forest Health Area could impact these species by reducing perching and nesting habitat. The loss of potential perch or nesting trees would not affect the abundance of these species or their use of habitat along the Trinity River. In the long term, this action would result in the development of habitat that is representative of the mature old growth forest that historically existed along the Trinity River. Conditions would be established that would be conducive for old growth trees to increase in vigor, thereby decreasing susceptibility to insects and disease, and establishing a stand that is more resilient to fire, and natural in composition and character, which could provide long-term benefits to this habitat. Construction activities associated with the Proposed Project could also 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 project area. No long-term adverse impacts to foraging habitat associated with Project implementation are anticipated.

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 the Pacific fisher, potential impacts to these species are discussed as separate impacts above. Like the ring-tailed cat, the Trinity River riparian corridor and adjoining upland habitat provides habitat for the Pacific fisher. Similar to 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 montane hardwood and montane hardwood-conifer habitats may provide suitable den sites. Removal of large trees with cavities or snags could result in the loss of suitable denning sites for fisher, which would be considered a significant impact. Construction activities would also result in a short-term reduction in foraging habitat for this species. However, the Project would ultimately result in an increase in habitat and an increase in habitat quality 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.

Tree removal from the U-5 Forest Health Area has the potential to reduce habitat suitability for fisher ultimately impacting the species. Vegetation management within U-5 implements thinning with the goal of maintaining or enhancing late-successional characteristics while maintaining structural and species diversity. Conditions would be established that would be conducive for old growth trees to increase in vigor, thereby decreasing susceptibility to insects and disease, and establishing a stand that is more resilient to fire, and natural in composition and character, which could provide long-term benefits to this habitat. In the long term, this action would result in the development of habitat that is representative of the mature old growth forest that historically existed along the Trinity River.

Mitigation Measures

Construction activities associated with the Project could result in impacts to BLM and USFS sensitive species. Therefore, the following mitigation measures described in Appendix A 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. Mitigation measures 4.7-9a and 4.7-9b would reduce impacts to fisher to a less than significant level. These mitigation measures are referenced here from previous impact sections rather than reiterating them multiple times in an effort to reduce the size of document.

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 significantly 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) 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 plants in establishing their roots and help to restore the land to its natural condition and would help to reduce the risk of spread of non-native and invasive plants.

Mitigation Measures

Implementation of the 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 A 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 Limekiln Gulch 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 (from Appendix B of the Master EIR/Programmatic EA) is incorporated by reference. Recreation resources are further addressed in the Master EIR/Programmatic EA, 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 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.

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. 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.

The Steel Bridge Day Use Area and Steel Bridge Campground and river access site are located on BLM land adjacent to the project area. The day use area is a BLM-managed river access point that provides public restrooms, picnic tables, and trash receptacles, and the campground is a BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site. The campground is open to the public from May 15 through October 31 of each year. These areas provide a variety of recreation opportunities such as fishing, whitewater rafting, picnicking, and wildlife viewing. BLM currently issues about 100 commercial fishing guide permits for this section of river. Most of the fishing guide activity occurs in the fall and winter months and is associated with the salmon and steelhead runs during that time.

3.8.2 Environmental Consequences/Impacts and Mitigation Measures

3.8.2.1 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 Remaining Phase 1 and Phase 2 sites, which determined that the proposed fishery restoration activities would enhance the river's outstandingly remarkable values (its fishery), is included as Appendix B of the Master EIR/Programmatic EA.

3.8.2.2 CEQA Significance Criteria

Impacts associated with recreational uses would be significant under CEQA if the 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.

3.8.2.3 Impacts and Mitigation Measures

Table 14 summarizes the potential recreation impacts resulting from the No-Project and Proposed Project alternatives.

Table 14. 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
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 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. Proposed 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.

River access would continue to be available at the Steel Bridge Day Use Area and Campground adjacent to the project area as well as at several public and private access points in the vicinity. Although the existing A-1 road would be decommissioned and replanted with native vegetation from the C-5 area upstream to where it currently dead-ends, the portion of A-1 that is not being decommissioned and re-vegetated would be left to provide continued access for recreational use up to the C-5 area. Below the C-5 area the existing road would be graded to allow for easier turn-arounds and use. Although the area has very low use, leaving this access point open would ensure continued public access to the river for those that do use the area for fishing or other recreational pursuits. Improving the road would benefit current users, but it is not likely to entice more people to use the area due to the remoteness of the area. Therefore, no increased visitor use is anticipated. Potential disruptions to recreational activities within the project area would be temporary, lasting only during construction, but this impact would be significant.

Mitigation Measures

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. Therefore, mitigation measures 4.8-1a and 4.8-1b 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 Project would require construction work within the river channel for a short period of time. These construction-related activities could distract recreational users (e.g., boaters, anglers) for a short period of time (approximately 3 to 6 weeks during the low flow period). The in-channel 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-channel treatments would occur between July 15 and September 15. However, work directly adjacent to the river might continue for the duration of the construction period. Vehicular

access to activity areas, including both uplands and in-channel 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 in the river's subsurface movement as a result of the in-channel addition or removal of gravel, the addition of large wood into the channel, and an increased potential for a hazardous materials spill (e.g., diesel and hydraulic fluid) presented by 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

Construction of the Proposed Project could result in an increased safety risk to recreational users or resource damage to lands within the project area. Therefore, mitigation measures 4.8-1a and 4.8-1b described above for Impact 3.8.1 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/Programmatic EA) 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/Programmatic EA), and could have a noticeable effect on the river's aesthetics. Increases in turbidity would be a significant impact.

Mitigation Measures

Construction activities associated with the Proposed Project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity. Therefore, 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 A will be implemented to reduce the potential for impacts associated with the Proposed Project. These particular mitigation 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 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/Programmatic EA, Section 4.9. Information regarding poverty rates and population by race and ethnicity is included in Section 3.18, Environmental Justice, of this EA. 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

3.9.1.1 Labor Market, Population, and Housing

The labor market, population, and housing discussions in the Master EIR/Programmatic EA (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 and Services

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 Douglas City offers limited services, including several commercial enterprises, a U.S. Post Office, a water treatment plant, and Douglas City Elementary School. The community has several recreation-based businesses in close proximity to the project area, including Douglas City Campground, Trinity Island Resort, Indian Creek Trailer and RV Park, Indian Creek Lodge, and Trinity River Outfitters. These businesses provide economic benefits to the local community and the county; however, the Douglas City 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.

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 Douglas City are largely residential, with minimum parcel sizes ranging from 1 to 40 acres (Trinity County 2003). Rural Residential zoning within these communities 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

3.9.2.1 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.

3.9.2.2 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.

3.9.2.3 Impacts and Mitigation Measures

Table 15 summarizes the potential socioeconomic impacts that could result from implementation of the No-Project alternative and the Proposed Project.

Table 15. Summary of Potential Impacts on Socioeconomics for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
3.9-1. Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.		
No impact	Beneficial	Not applicable ¹
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
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
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 numerous other 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 Douglas City 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 Project (approximately 20 to 30 persons for the whole project as described in the Master EIR/Programmatic EA), 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. This 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 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) the Bureau of 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. General mitigation measures are provided in Appendix A and 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 record searches and pedestrian surveys, have been conducted for the project area. A records search for the project area was conducted in 2010 at the California Historical Resources Information System at California State University, Chico. The only previous study for the project area was a project overview with no physical inventory of the property; no previously recorded cultural resources had been identified within the project area. In July of 2011, Reclamation and BLM cultural resources staff conducted a systematic inventory of the left bank of the Trinity River within the project area. A subsequent survey in September 2011 with follow up surveys in 2013 and 2014 also occurred to document and evaluate the significance of cultural resources identified within the project area. The results of this inventory effort yielded four historic mining era archaeological sites and four historic era isolates. An isolate is a cultural item that occurs as a single instance and not in spatial association to other artifacts. Among the resources recorded only one, LK-01 (The Premier Hydraulic Mine Site) was identified as having significance.

3.10.2 Environmental Consequences/Impacts and Mitigation Measures

3.10.2.1 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.

3.10.2.2 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.

3.10.2.3 Impacts and Mitigation Measures

Table 16 summarizes the potential cultural resource impacts resulting from the No-Project and Proposed Project alternatives.

Table 16. 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	Significant	Less than significant
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

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

The Proposed Project alternative would alter the characteristics of LK-01, a site eligible for inclusion in the NRHP. Reclamation, in consultation with the BLM and the California SHPO, has determined that the Proposed Project alternative would result in an adverse effect to LK-01 pursuant to 36 CFR Part 800.5(d)(2). Early in the project design, Reclamation identified the potential to impact LK-01 and began taking measures to design the alternative in a way that would retain the significance of LK-01. Measures have been taken to substantially reduce the impact of spoil placement on the site and to limit such activities to avoid key features of the historic hydraulic mine site area. Despite the measures taken to avoid impacts to much of the site's physical characteristics, the Proposed Project alternative could not avoid or reduce all physical impacts to the point where contributing features of the site were not impacted. The Proposed Project alternative impacts a contributing component to LK-01's NRHP eligibility status by completely covering the component feature with spoil material during construction in and adjacent to the Trinity River. Reclamation shall seek, in consultation with the BLM, California SHPO, and other potential consulting parties to resolve this adverse effect through mitigation. Mitigation measures (outlined below) will be included as part of a MoA between Reclamation, the BLM, California SHPO, and other potential consulting parties to resolve the adverse effect to LK-01. The execution of the MoA and implementation of mitigation measures outlined in that agreement will mitigate the impact to cultural resources to less than significant.

Mitigation Measures

Reclamation will implement the following mitigation measures to resolve impacts to site LK-01 to less than significant.

- Mitigation-1: Funding. Provide funding to the BLM in an amount to be determined in coordination with the BLM in support of historic preservation programs administered by the BLM. BLM is the land and resources manager for site LK-01. The purpose of this mitigation is to promote historic preservation through the funding of preservation programs, cultural resources programs that advance historic preservation and documentation, protection of historically significant resources, and public dissemination of cultural resources preservation measures.
- Mitigation-2: Documentation, Public Outreach, and Interpretation. Reclamation will fully document LK-01, to the extent agreed to in consultation with the BLM, California SHPO, and other potential consulting parties and to the extent commensurate to the impact of the proposed project on the affected resources. Documentation efforts may include but are not limited to: LIDAR imaging of impacted areas of the site; public interpretation signs discussing the mining landscape in the vicinity of the project area; continued review of archival data; and professional dissemination of recordation and testing results.
- Mitigation-3: Data Collection and Recovery. It may be necessary to collect additional information from portions of the site that will be lost, destroyed, or considerably altered as a result of the proposed project. Additionally, it may be necessary to collect data in a scientifically professional means to prevent unauthorized damage or alteration to LK-01 resulting from increased public exposure to the site. Specific data collection and recovery efforts, if necessary, would be identified in consultation with the BLM, the California SHPO, and other potential consulting parties.

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. 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

Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources. Therefore, mitigation measure 4.10-1 described in Appendix A 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 & 43 CFR 7, Native American Graves Protection & Repatriation Act (NAGPRA) 25 USC 3001 & 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.

In the event that any human remains are encountered during 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

Implementation of the Proposed Project could potentially result in disturbance of undiscovered human remains. Therefore, mitigation measure 4.10-3 described in Appendix A 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/Programmatic EA (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/Programmatic EA 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 (PM₁₀). 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 are available from the Weaverville air monitoring station, which is located approximately 4 miles from the Limekiln Gulch site. Air quality measured at the Weaverville station may not be a precise representation of ambient air quality in the immediate vicinity of the project area but it provides 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 (CO₂), nitrous oxide (N₂O), and methane (CH₄) (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 CO₂ 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 and the closest school, Douglas City Elementary School, is approximately 3 miles away. However, there are residential areas and recreation opportunities near the project area.

3.11.2 Environmental Consequences/Impacts and Mitigation Measures

3.11.2.1 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). The air quality analysis is qualitative, and was conducted by assessing anticipated construction-related impacts of the Project and comparing them to existing and anticipated future air quality conditions.

3.11.2.2 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., PM₁₀) 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., CO₂).

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), PM₁₀, and sulfur dioxide (SO₂), but does use the significant emission rates listed in Table 4.11-3 of the Master EIR/Programmatic EA as a baseline when evaluating a project's potential impacts to air quality.

3.11.2.3 Impacts and Mitigation Measures

Table 17 summarizes the potential air quality impacts that would result from the No-Project alternative and the Proposed Project.

Table 17. Summary of Potential Air Quality Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
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 impact	Significant	Less than significant
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
3.11-3. Construction activities and removal of vegetation associated with the project could result in vegetative materials that managers may decide to burn.		
No impact	Significant	Less than significant
3.11-4. 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
3.11-5. 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. PM _{2.5} = particulate matter less than 2.5 microns in aerodynamic diameter		

Impact 3.11-1: Construction activities associated with the Project could result in an increase in fugitive dust and associated particulate matter (PM₁₀ 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.

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 PM₁₀, a criteria pollutant, for which the air basin is in non-attainment.

High levels of PM₁₀ 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 PM₁₀ levels may be elevated by wood stove use, brush burning, or wildland fires.

As described in Appendix A, the 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 (during implementation).

Mitigation Measures

Construction activities associated with the Project could result in an increase in fugitive dust and associated particulate matter (PM₁₀ and PM_{2.5}) levels. Therefore, mitigation measure 4.11-1a described in Appendix A 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 Project implementation, the Proposed Project would have a significant impact on air quality.

Mitigation Measures

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 A 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 activities and removal of vegetation associated with the Project could result in vegetative waste materials that managers may decide to burn.

No-Project Alternative

Under the No-Project alternative, there would be no vegetative waste materials that would need to be burned because the Project would not be constructed. Therefore, there would be no impact.

Proposed Project

Implementation of the Proposed Project would include vegetation removal resulting in vegetative material that would be buried, piled to create wildlife habitat, chipped, or burned. Though vegetative materials are most frequently chipped and added back to the floodplain or upland area to enhance growing conditions, occasionally burning of vegetation (e.g., weedy materials) is completed. Piling and burning is a quick and economical way to eliminate flammable biomass and reduce concentrations of wildland fuels. Brush piles set aside for burning would be left intact until site construction is finished, and subsequently burned under the direction of Reclamation, consistent with BLM and Cal Fire requirements. In the event that piles are burned, smoke would temporarily contribute to air pollution in the Trinity River Basin. Burning vegetation would contribute particulate matter to the air, a criteria pollutant for which the basin is in non-attainment. Therefore, the impact would be significant.

Mitigation Measures

Construction activities and removal of vegetation associated with the Proposed Project could result in vegetative waste materials that managers may decide to burn. Therefore, mitigation measures 4.11-3a, 4.11-3b, and 4.11-3c described in Appendix A 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 3.11-4: 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 CO₂, which is a GHG. Several measures are identified in Appendix A 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/Programmatic EA based on a project’s potential generation of GHGs (primarily CO₂) 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/Programmatic EA determined that rehabilitation at all of the remaining Phase 1 sites would produce approximately 3 metric tons of CO₂ per day over the life of the project. Total GHG emissions resulting from the proposed activities would be approximately 2,050 metric tons of CO₂.⁸

Vegetation replanting and natural re-seeding within the existing riparian area would offset the total project GHG emissions by approximately 20 metric tons of CO₂ 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/Programmatic EA 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,

⁸ The mobile combustion CO₂ 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.

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/Programmatic EA.

Impact 3.11-5: 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 the Project could generate smoke from vegetation burn piles, all of which could expose adjacent residents and recreational users to air pollutants. Therefore, this would be a significant impact.

Mitigation Measures

Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences. Therefore, mitigation measures 4.11-5a, 4.11-5b, 4.11-5c, and 4.11-5d described in Appendix A 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.

3.12 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/Programmatic EA (Section 4.12). In the long-term, the Project would maintain the Visual Resource Class II Objective.

3.12.1 Affected Environment/Environmental Setting

3.12.1.1 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 points⁹ (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. 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 Union Hill Road (Figure 10). The portion of Union Hill Road that is near the project area is a remote, largely unimproved road that is infrequently traveled, mostly by sportsmen (hunters, fishermen, and other recreationists). Although, the river channel may be visible to motorists on Union Hill Road, views of the project area would be mostly obscured by vegetation, distance, and topography. Table 18 provides a brief description of the KOPs and Table 19 includes representative photographs of the river channel upstream and downstream of the project area.

⁹ Points from which the project boundary or portions thereof are visible from sensitive receptor areas, such as major travel routes and/or surrounding homes.

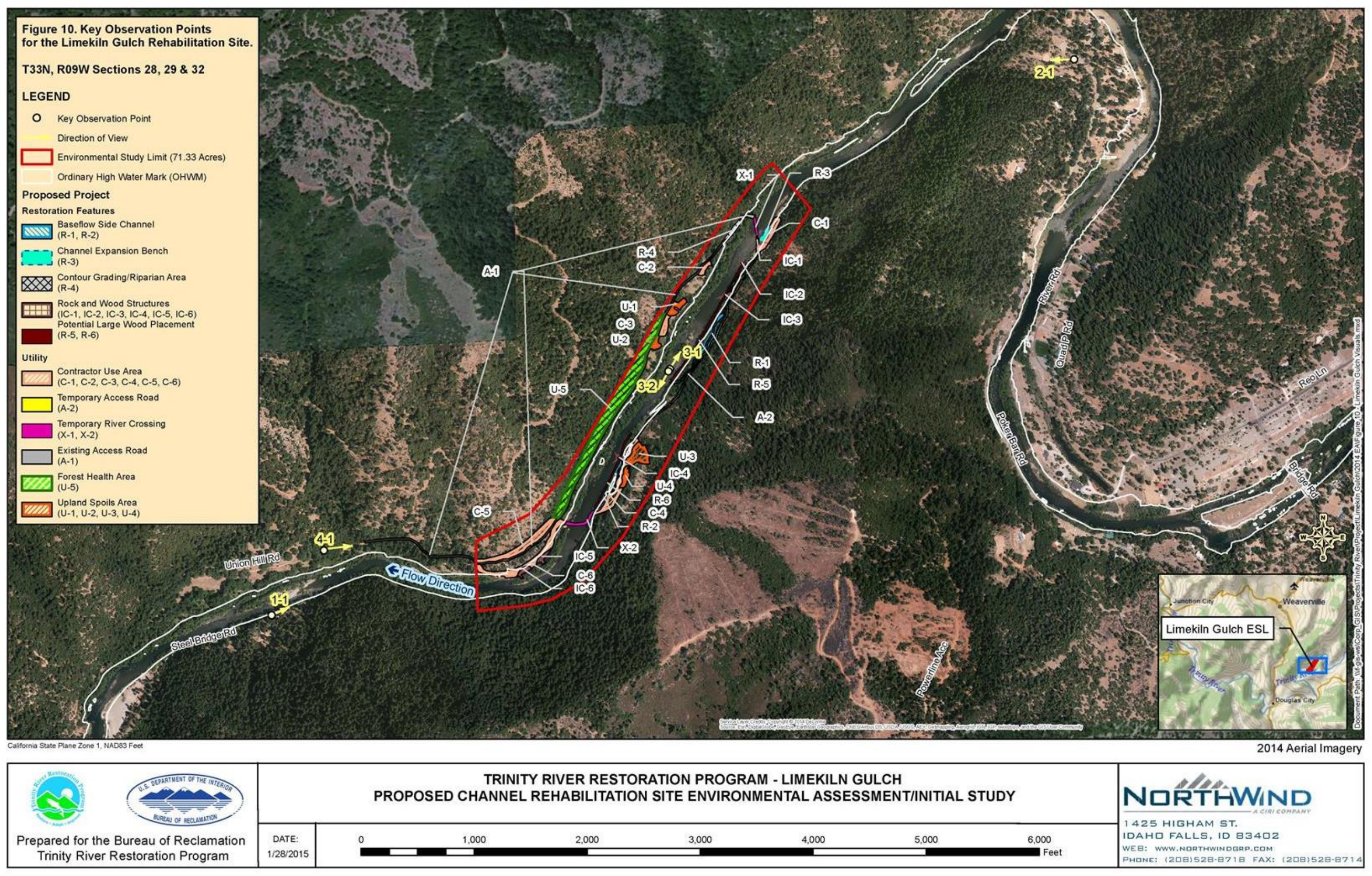


Figure 10. Key Observation Points for the Limekiln Gulch Rehabilitation Site.

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Table 18. Key Observation Points for the Proposed Project.

KOP	Description of Key Observation Points
1-1	View from Steel Bridge Campground, looking upstream at lower end of project area.
2-1	View from Poker Bar residential area, looking west toward Trinity River and the upstream end of the project area.
3-1	View looking upstream from the middle of the Trinity River.
3-2	View looking downstream from the middle of the Trinity River.
4-1	View looking toward the project area from Union Hill Road.

Table 19. Representative Photographs of the Limekiln Gulch Rehabilitation Site.



Photo 1. View of project area, looking downstream.

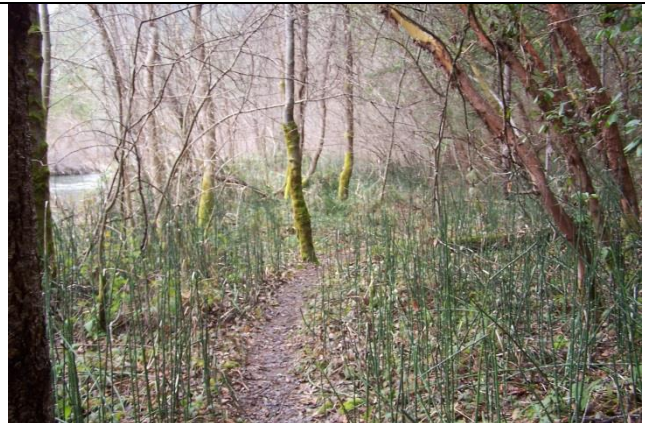


Photo 2. View of project area, looking upstream from trail that extends from Steel Bridge Campground.



Photo 3. View of project area, looking upstream.



Photo 4. View of project area, looking upstream.

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 presented in the Master EIR/Programmatic EA. Specifically, the National Wild and Scenic River Section 7 Analysis and Determination can be found in the Master EIR/Programmatic EA, Volume IV, Appendix B (Regional Water Board and Reclamation 2009).

3.12.2 Environmental Consequences/Impacts and Mitigation Measures

3.12.2.1 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 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 B of the Master EIR/Programmatic EA.

3.12.2.2 CEQA Significance Criteria

The 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.

3.12.2.3 Impacts and Mitigation Measures

Table 20 summarizes the potential impacts to visual resources resulting from implementation of the No-Project alternative and Proposed Project.

Table 20. 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, construction of inundated surfaces, creation of access roads, and the presence of equipment in the project area. 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. 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 is located near the eastern end of the Steel Bridge Campground. This area supports dense riparian vegetation along both sides of the river, which obscures much of the area away from the river when viewed from this use area (see Photo 2 in Table 17). Project activities would not be visible from this KOP because of vegetation, topography, and distance from the project area. However, proposed project activities may be visible to fishermen and others who use the trail to walk upriver toward the project area boundary.

Several homes are located in the Poker Bar area, which is north of the project area. KOP 2-1 represents a potential observation point for residents living in this area. The proposed activity areas would be obscured from view from this residential area because of vegetation, topography, and distance.

KOPs 3-1 and 3-2 represent views of recreationists in the river in this location. Proposed rehabilitation activities would be visible to fishermen or recreationists passing by via the channel in this reach of the river (e.g., via raft/boat). In-channel recreationists would have unobstructed views of much of the in-channel and riverine activities as well as some of the upland work where it is not blocked by dense riparian vegetation that is common to the Trinity River.

Other than the views of the project area from Union Hill Road, the project area would not be visible to motorists in the vicinity of the site. The project area is not visible from Steel Bridge Road or Poker Bar Road. Motorists on Union Hill Road would have views screened by vegetation, topography, and distance, but some portions of the project area may be visible (KOP 4-1). This portion of Union Hill Road near the project area is a remote largely unimproved road that is infrequently traveled, mostly by recreationists.

Visual changes would occur in the U-3 and U-4 areas where excavated material from R-1, R-2, and R-3 would be placed. These areas would be visible to recreationists in the project area. The U-3 and U-4 areas are primarily old hydraulic mining cuts and terraces; the spoils material would be placed in such a way that it fills the hydraulic cuts and would be graded to form natural topography so that historic pre-mining slopes are established. Some trees would be removed in this area but the new topography would be planted with native species after project completion to improve upland ecological conditions over the long-term. In the long-term, hydraulic conditions would be improved and the area would look more similar to historic conditions.

Selected harvest of trees in the U-5 activity area would result in changes to visual conditions in this area. Tree removal in the U-5 area would be visible to recreationists in the project area. In the short term, ground disturbance would be visible where trees are removed and skidded to designated skid trails. Trees and slash would be removed by an excavator or loaded via logging tongs along designated skid paths to a designated area resulting in visible ground disturbance. Following tree removal, skid trails would be decommissioned and the landscape rehabilitated to natural conditions. Trees with root wads removed would have the subsequent holes filled in and smoothed over to create a natural look to the treated area. In the long term (10 to 30 years), tree cutting would achieve stand conditions that would be more reflective of historical mature forest conditions.

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 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, mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c, as described in Section 3.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable (these are described in Table A-1 in Appendix A). Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) would be mitigated through the implementation of mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e (described in Table A-1 in Appendix A), as discussed for Impact 3.8-3 (in Section 3.8, Recreation), where applicable. These particular mitigation measures minimize potential impacts to multiple resource areas (e.g., vegetation water quality, and fisheries as well as visual resources). 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 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 significantly 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. As described above for Impact 3.12-1, short-term visual impacts would occur in the U-3, U-4, and U-5 areas as well as other activity areas in the project area. The activity areas would create a visual contrast in comparison to undisturbed surroundings until revegetation occurs. 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 in the long term.

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 Union Hill Road 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/Programmatic EA (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 Materials and Hazardous Wastes

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

The project area is near Union Hill Road, Poker Bar Road, and Steel Bridge Road. Access to the project area would be made from Union Hill Road. This road would also serve as the primary evacuation route 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.

Trinity County fire protection needs are met by 16 volunteer fire departments (VFDs) dispersed throughout the county, Cal Fire, and the USFS. Cal Fire is responsible for wildland fire protection on all private lands in Trinity County, and the USFS is responsible for wildland fire protection on all National Forest lands. However, Cal Fire also contracts with the BLM to provide wildland fire protection on its public lands. The Douglas City Community VFD provide services within the Douglas City 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/Programmatic EA (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

3.13.2.1 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.

3.13.2.2 CEQA Significance Criteria

An impact related to hazards and hazardous materials would be significant under CEQA if the 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.

3.13.2.3 Impacts and Mitigation Measures

Table 21 summarizes the potential hazards and hazardous materials impacts that could result from implementation of the No-Project alternative and Proposed Project.

Table 21. 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/Programmatic EA (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/Programmatic EA lists examples of dBA levels for a range of noises and Table 4.14-2 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 22. The noise levels shown in this table assume the operation of various types of construction equipment, as shown in Table 23.

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) Ldn¹⁰. 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.

¹⁰dB 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 dB(a), are an expression of the relative loudness of sounds in air as perceived by the human ear.

Table 22. Typical Construction Noise Levels.	
Construction Stage	Noise Level (dBA, L_{eq})¹
Ground clearing	84
Excavation	89
Hauling	88
Re-vegetation	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 23. 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-sensitive receptors that have been identified in the general vicinity of the project area include private residential areas; persons, primarily recreationists (e.g., hikers, campers, 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 Limekiln Gulch Rehabilitation Site is located near Steel Bridge Road. Traffic from this road may be heard from the site. Poker Bar Road is also in the vicinity of the site and residential traffic may be audible from the site. The Project would not increase traffic-generated noise in these areas because these two roads would not be used for implementation.

The residential developments in the nearby Poker Bar neighborhood represent sensitive 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 area. Homes in the area may experience some increased ambient noise levels during construction, but in general, noise levels would be buffered by distance, topography, and vegetation. Recreation users in the Steep Bridge Campground represent another group who may experience increased noise levels due to Project implementation. No construction vehicles would use Steel Bridge Road to access the project area; therefore there would not be an increase in traffic levels or ambient noise levels along this road.

3.14.2 Environmental Consequences/Impacts and Mitigation Measures

3.14.2.1 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.

3.14.2.2 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 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.

3.14.2.3 Impacts and Mitigation Measures

Table 24 summarizes the potential noise impacts resulting from implementation of the No-Project alternative and Proposed Project.

Table 24. 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 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 in the Poker Bar neighborhood may be subjected to varying degrees of construction noise, but in general, noise levels would be buffered by distance, topography, and vegetation. 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 project area 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

Construction activities associated with the 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 A 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/Programmatic EA, Section 4.15.

3.15.1 Affected Environment/Environmental Setting

Water Supply and Distribution

Community and private water systems serve development in the Douglas City community. The Weaverville Community Services District serves several residences and the two mobile home parks in Douglas City. There are 19 connections in Douglas City that serve multiple residences in the mobile home parks and nine additional connections in the Union Hill Road area. BLM's Douglas City Campground is also served with Weaverville Community Services District water. A large portion of the remainder of the population in the area covered by the Douglas City general plan is served by onsite water developments. These developments include wells, springs, and surface intake facilities along the Trinity River and its tributaries. 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 rehabilitation sites to relocate surface water intake systems affected by post-ROD flows. 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 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 Douglas City Community VFD provides fire protection services for the area surrounding Douglas City, including the project area. This VFD is the primary fire protection agency for structural fires; it maintains a fire station in the Douglas City community core area with two engines and a quick response vehicle with a 200-gallon slip-on tank. The Douglas City Community VFD maintains a second fire station in the Poker Bar-Vizhum Grade area that is supported by volunteers from the local response area. This station has one engine and a service truck.

Schools

The Douglas City Elementary School consists of grades kindergarten through eight. This elementary school district provides bus services for residents in the communities. Bus service is also provided throughout the community for students attending Trinity High School in Weaverville.

3.15.2 Environmental Consequences/Impacts and Mitigation Measures

3.15.2.1 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/Programmatic EA. 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.

3.15.2.2 CEQA Significance Criteria

The 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.

3.15.2.3 Impacts and Mitigation Measures

Table 25 summarizes the potential impacts on public services and utilities that could result from implementation of the No-Project alternative and Proposed Project.

Table 25. 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 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 substantial amounts 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, burning, 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 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

Implementation of the 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 A 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 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/Programmatic EA. Table 26 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.

Table 26. Roadway Characteristics for Potential Access Roads Serving the Project Area.				
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
SR-3	State	Paved	Highway	Not Available
Union Hill Road	County	Chip seal/ Unimproved	Local/ Residential	60
Sources: Regional Water Board and Reclamation 2009; Smith, pers. comm. 2008.				

The Douglas City community is a collection of residential and commercial areas connected by SR-299 and SR-3. 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 in many locations. Most of the county and private roads that would be used for access are connected to either SR-299 or SR-3. Union Hill Road, Poker Bar Road, and Steel Bridge Road provide access to residential areas and, to varying degrees, federal and private timberlands in the vicinity of the project area. These roads are part of the Trinity County road system. Of these roads, only Union Hill Road would provide access to the project area. The portion of Union Hill Road near the project area is generally unimproved, though portions have been storm-proofed (e.g., out-sloped and upgraded with features like water bars to direct surface flow off the road). The road is infrequently traveled mostly by sportsmen (hunters, fishermen, and other recreationists). Similar to other communities in Trinity County, there are a number of private roads that serve residences and provide access for forest management activities. Public access is often restricted by private land owners.

In addition to using existing roads to access the project area, roads within the project area boundaries would be used to support various activities. New temporary access roads would also be required to provide access for construction. Some minor upgrades to the A-1 road would be made to provide equipment access and to maintain drainage/road competence. A-2 is a temporary road that would be constructed by the contractor for access to work areas on river left. Because scrapers would likely be utilized for excavation of channels and floodplains, these roads would be essential for safety and efficiency. Post-Project, both access roads would be decommissioned. Decommissioning may include re-grading or placing spoils on the roadway in upland access areas to block vehicular access. The existing A-1 road upstream from C-5 would be obliterated and replanted with native vegetation.

Bicycle, pedestrian, and equestrian circulation is limited in the communities and residential neighborhoods that have developed along the Trinity River below Lewiston Dam. The Douglas City Community Plan contains goals to increase bicycle, pedestrian, and equestrian travel in this planning area. These community plan goals have not yet been implemented. However, pedestrians and equestrians use county and private roads that are adjacent to the river for exercise and recreational pursuits including Poker Bar Road and Steel Bridge Road.

3.16.2 Environmental Consequences/Impacts and Mitigation Measures

3.16.2.1 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.

3.16.2.2 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 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.

3.16.2.3 Impacts and Mitigation Measures

Table 27 summarizes the potential transportation and traffic impacts that would result from the No-Project and Proposed Project alternatives.

Table 27. Summary of Potential Transportation Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
3.16-1. Construction activities would reduce/close existing traffic lanes.		
No impact	Less than significant	Not applicable ¹
3.16-2. Construction activities would generate short-term increases in vehicle trips.		
No impact	Significant	Less than significant
3.16-3. Implementation of the project would obstruct access to adjacent land uses.		
No impact	Less than significant	Not applicable ¹
3.16-4. Construction activities would increase wear and tear on local roadways.		
No impact	Significant	Less than significant
3.16-5. Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.		
No impact	Significant	Less than significant
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 and Union Hill Road, the primary roads serving as access for the project area, would remain open to through-traffic. Temporary traffic control may be necessary during the mobilization and demobilization of heavy equipment; however, no road closures are planned. 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 would require truck and worker vehicle trips on SR-299, SR-3, and Union Hill 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., re-vegetation, 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

Construction activities would generate short-term increases in vehicle trips. Therefore, mitigation measure 4.16-2a described in Appendix A 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 along the river in the Douglas City area vary by neighborhood and include resource, residential, commercial, village, and open space. As previously described, activities associated with this site would use primary access points on Union Hill Road.

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. 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 A (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 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 would be required. Project planning to use as much on-site coarse sediment as possible would minimize heavy equipment use on local roads needed for access to the project area. However, if enough gravel is not available on site, gravel may need to be transported in from other locations. It is estimated that approximately 20 trucks may be needed for the Project. If required, trucks would bring gravel in to contractor use areas for use. Trucks carrying heavy equipment and/or gravel 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 sites 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

Construction activities would increase wear and tear on local roadways. Therefore, mitigation measure 4.16-4a described in Appendix A 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 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, SR-3, and Union Hill 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

Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians. Therefore, mitigation measure 4.16-5a described in Appendix A 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/Programmatic EA, 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/Programmatic EA.

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 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 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.

3.17.1.1 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.

3.17.1.2 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 the 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 with *Winters v. United States*, 207 U.S. 564 (1908). 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 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.

3.17.2.1 Methodology

While the 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.

3.17.2.2 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.

3.17.2.3 Impacts and Mitigation Measures

Table 28 summarizes potential impacts on Indian trust assets that would result from implementation of the No-Project and Proposed Project alternatives.

Table 28. 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 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 Limekiln Gulch 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 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 2008-2013 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).

3.18.2 Environmental Consequences/Impacts and Mitigation Measures

3.18.2.1 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 as a whole and for the residential areas associated with Lewiston and Junction City, although only a limited amount of information was available for those areas.

3.18.2.2 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.

3.18.2.3 Impacts and Mitigation Measures

Table 29 summarizes the potential environmental justice impacts that would result from implementation of the No-Project and Proposed Project alternatives.

Table 29. 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 Project, the impacts would generally be experienced by residents in relationship to their proximity to the sites, regardless of their racial or income characteristics. There is no evidence to suggest that the 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 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 Project, in that residents and construction workers could be exposed to hazardous materials that may be associated with the Project. 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 Project.

Chapter 4

4 CUMULATIVE EFFECTS AND OTHER CEQA AND NEPA CONSIDERATIONS

This EA/IS tiers from the “statutory considerations” discussion in the Master EIR/Programmatic EA (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 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 considerations are summarized below; see the Master EIR/Programmatic EA for complete discussions of these topics.

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/Programmatic EA, 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/Programmatic EA. 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—i.e., using the same list of related projects and programs and within the Project boundaries.

The issue-specific analysis of cumulative impacts in Chapter 5 of the Master EIR/Programmatic EA identifies the potential cumulative impacts related to the Remaining Phase 1 and Phase 2 sites for a variety of resource areas. Table 30 summarizes the cumulative impact findings.

Table 30. Summary of Cumulative Impacts Findings from the Master EIR/Programmatic EA.	
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. Appropriate implementation of prescribed 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. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of prescribed mitigation measures would reduce potential impacts to a less than significant level.
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, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the Proposed Project as mitigated would benefit, rather than adversely affect, 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 mitigated would benefit, rather than adversely affect, vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs. 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 cumulative effects analysis in the Master EIR/Programmatic EA are intended 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. Appropriate implementation of prescribed 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 mitigate for 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 prescribed 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 mitigation measures would reduce the cumulative contribution to global climate change to a less than significant level.

Table 30. Summary of Cumulative Impacts Findings from the Master EIR/Programmatic EA.	
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/Programmatic EA.
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. 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/Programmatic EA, 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 for either the Remaining Phase 1 or Phase 2 sites, 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 described in Chapter 5 of the Master EIR/Programmatic EA, is anticipated to provide a net benefit to the local communities by helping to restore the Trinity River's fishery resources.

The previous issue-specific analysis in Chapter 5 of the Master EIR/Programmatic EA sufficiently addresses the cumulative impacts of the Proposed Project, and no substantial differences arise in consideration of the Proposed Project separately. One additional project has been identified that has the potential to contribute to cumulative effects within the Limekiln Gulch analysis area in addition to the actions identified in the analysis in the Master EIR/Programmatic EA. A clearcut on approximately 35 acres of private timber land within the Limekiln Gulch Project drainage area was completed in summer 2014 (Figure 11). In combination with the Proposed Project, this activity has the potential to contribute to cumulative effects to resources within the project area.

While the cut was within a ¼ mile of the Project, substantial vegetation was left within the clearcut's drainage features and between the clearcut and Limekiln Gulch activity areas. Any increases in erosion that would result from this cut and the Project would be reduced through BMPs. Extensive research has been conducted on the effectiveness of BMPs applied to timber harvesting (Gray and Megahan 1981; Cook and King 1983; Belt et al. 1992; Seyedbagheri 1996); therefore cumulative impacts are expected to be short-term.

The Proposed Project and the clearcut on private land would both result in ground disturbance and removal of vegetation. Ground disturbance may create suitable conditions for noxious weed and invasive species introduction and proliferation. Mitigation measures implemented to address invasive species would reduce the potential spread of existing populations and establishment of new populations and would therefore reduce the potential for cumulative effects.

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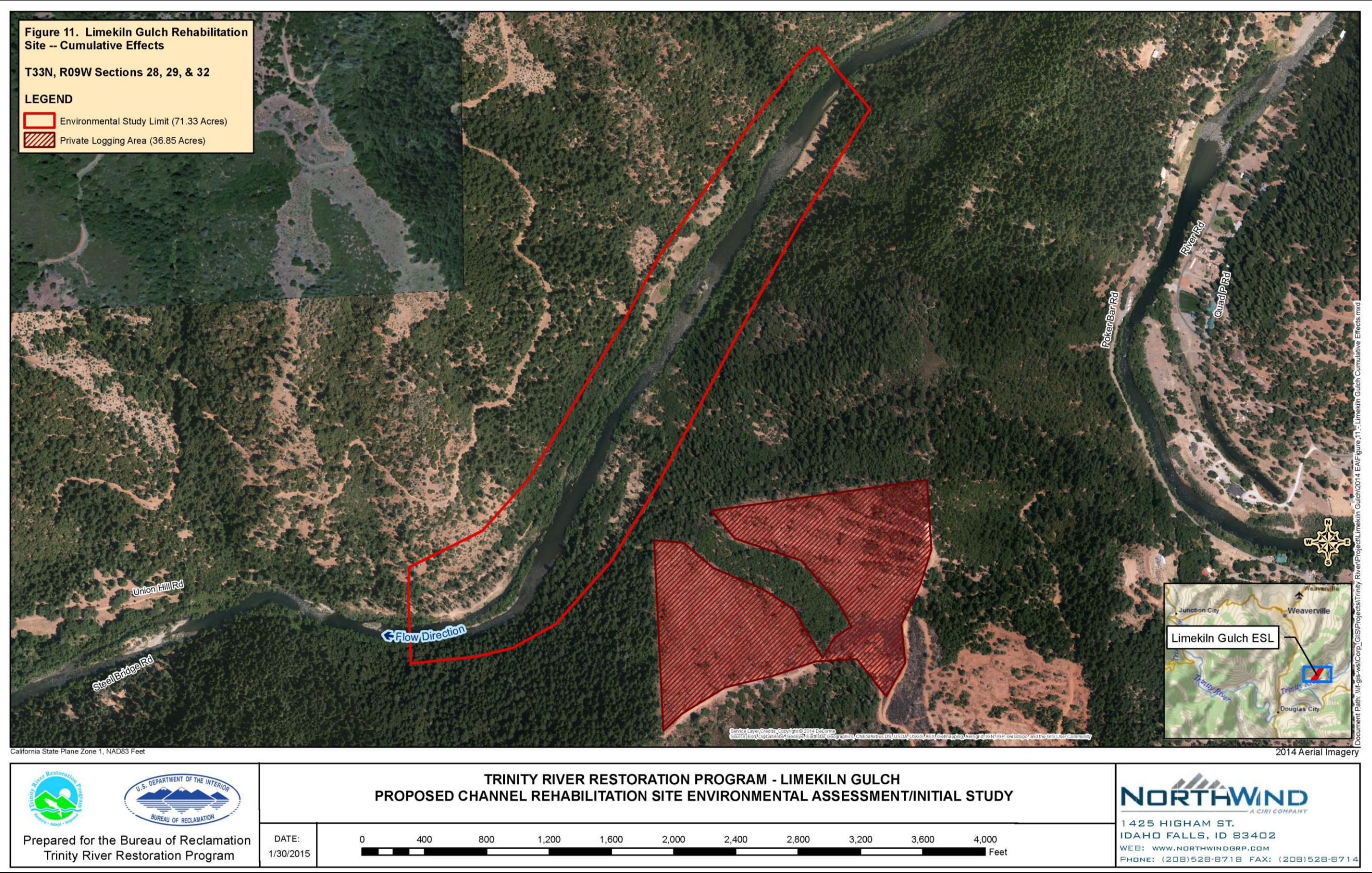


Figure 11. Cumulative Effects.

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Vegetation removal associated with the Proposed Project would create visible contrasts on the landscape. In combination with the clearcut on private lands the degree of contrast would be greater. These impacts would lessen over time as re-vegetation of the disturbed areas occurs. In general, the contrast of the Proposed Project would be of small scale associated with the landscape and in the long-term the expectation would be for a visual landscape that resembles historic conditions.

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. 2000) 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 related construction and management activities at the rehabilitation site. The material requirements for this 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/Programmatic EA, and is incorporated herein 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 site 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 Project. While such impacts are considered significant (in a CEQA sense), they would be mitigated to less than significant levels.

4.4 Growth-Inducing Impacts

Section 5.3 of the Master EIR/Programmatic EA 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 and sediment management activities at the Proposed Project site 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. The list should contain all mitigation measures and management actions that are incorporated in the project as part of the proposal. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant 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 for implementation of the Proposed Project complies with Reclamation's practice to include a list of environmental commitments in an EA/IS. The MMRP is included as Appendix E of the Master EIR/Programmatic EA. A site specific MMRP for the Proposed Project is included as Appendix A of this document.

4.6 Significant Effects

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/Programmatic EA 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 for each resource. As part of the environmental impact assessment for each resource area, mitigation measures or project 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, remained significant and therefore unavoidable; no significant irreversible effects were identified associated with the Proposed Project.

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APPENDIX A

**Mitigation Monitoring and Reporting Program
and Project Design Elements**

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Appendix A

Mitigation Monitoring and Reporting Program and Project Design Elements

**Trinity River Channel Rehabilitation Site:
Limekiln Gulch (River Mile 99.7-100.6)**

May 2015

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Mitigation Monitoring and Reporting Program

Introduction

The first part of this appendix comprises the Mitigation Monitoring and Reporting Program (MMRP) for the Trinity River Channel Rehabilitation Site: Limekiln Gulch (River Mile [RM] 99.7-100.6) 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 (Regional Water Board and Reclamation 2009), are required by law or regulation and will be adopted by the Regional Water Board when it issues its 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 for this project correspond to Chapter 4 mitigation measures in the Master EIR/Programmatic EA. The mitigation measures identified in this EA/IS are meant to mitigate the same impacts as those identified in the Master EIR/Programmatic EA. 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 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 will be 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 EA/IS for the project. The mitigation numbering system used in the EA/IS 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.

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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Restore disturbed areas to pre-construction contours to the fullest extent feasible. • Salvage, store, and use the highest quality soil for re-vegetation. • 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 reduce the potential for erosion. 			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<ul style="list-style-type: none"> 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 re-vegetated 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. 			
Impact 3.3-3: Implementation of the Proposed Project would interfere with existing, proposed, or potential development of mineral resources			
4.3-3a Reclamation will implement the following measures during construction: <ul style="list-style-type: none"> 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)	
4.3-3b Reclamation will prepare a SWPPP as stipulated in Mitigation Measure 4.2-2b.			
4.3-3c Reclamation will coordinate with private landowners and owners of active mining claims to discuss future mining plans and develop site-specific measures that can be implemented to avoid or lessen project-related impacts to mineral resources associated with the Trinity River and its tributaries.			
3.5 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. <ul style="list-style-type: none"> 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 			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
(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 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 NTUs at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTUs 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 NTUs.			
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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>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:</p> <ul style="list-style-type: none"> • 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. 			
<p>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.</p>			
<p>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).</p>			
<p>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.</p> <ul style="list-style-type: none"> • 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. 			
<p>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.</p>			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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, 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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>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.</p> <ul style="list-style-type: none"> • 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. • 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. 			
<p>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 NTUs at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTUs 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 NTUs.</p>			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 .			
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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>impermeable barrier.</p> <ul style="list-style-type: none"> 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. 			
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. Up to 15 crossings may be permitted after this period when spawning is prohibited from occurring on the crossing area. If temporary crossings were to be used after September 15, the crossing areas would be made unsuitable for spawning prior to September 15 (e.g., anti-spawning mats installed to preclude spawning). After the last crossing, anti-spawning mats would be removed.			
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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 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 (implementation)	
4.6-5b Reclamation will continue to implement the Riparian Re-vegetation 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 beginning 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. If temporary crossings were to be used after September 15, the crossing areas would be made unsuitable for spawning prior to September 15 (e.g., anti-spawning mats installed to preclude spawning). After the last crossing, anti-spawning mats would be removed. 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			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
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 Re-vegetation 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 beginning 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 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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.7-4: Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher (<i>Empidonax traillii</i>).			
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 (<i>Rana boylei</i>).			
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)	
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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 (<i>Actinemys marmorata pallida</i>).			
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.			
Impact 3.7-7: Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift (<i>Chaetura vauxi</i>), California yellow warbler (<i>Dendroica petechia</i>), and yellow-breasted chat (<i>Icteria virens</i>).			
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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 (<i>Haliaeetus leucocephalus</i>) and northern goshawk (<i>Accipiter gentilis</i>).			
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 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)	
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			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 (<i>Bassariscus astutus</i>).			
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 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.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 fisher 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)	
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 re-vegetation/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		Reclamation	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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 <i>Trinity Journal</i> newspaper prior to the onset of project construction.		(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 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 3.10-1: Implementation of the Proposed Project could cause a substantial adverse change in the significance of a known cultural resource..			
Mitigation-1: Funding. Provide funding to the BLM in an amount to be determined in coordination with the BLM in support of historic preservation programs administered by the BLM. BLM is the land and resources manager for site LK-01. The purpose of this mitigation is to promote historic preservation through the funding of preservation programs, cultural resources programs that advance historic preservation and documentation, protection of historically significant resources, and public dissemination of cultural resources preservation.		Reclamation (implementation)	
Mitigation-2: Documentation, Public Outreach, and Interpretation. Reclamation will document fully to the extent agreed to in consultation with the BLM and California SHPO and to the extent commensurate to the impact of the proposed project on the affected resources. Documentation efforts may include but are not limited to: LIDAR imaging of impacted areas of the site; public interpretation signs discussing the mining landscape in the vicinity of the project area; continued review of archival data; and professional dissemination of recordation and testing results.			
Mitigation-3: Data Collection and Recovery. It may be necessary to collect additional information and data on portions of the site that will be lost, destroyed, or significantly altered as a result of the			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
proposed project. Additionally, it may be necessary to collect data in a scientifically professional means to prevent unauthorized damage or alteration to LK-01 resulting from increased public exposure to the site. Specific data collection and recovery efforts, if necessary, would be identified in consultation with the BLM and the California SHPO.			
Impact 3.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2 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 in compliance with the NHPA. This mitigation measure corresponds to mitigation measure 4.10-2a in the Master EIR/Programmatic EA.		Reclamation (implementation)	
Impact 3.10-3: Implementation of the proposed project could potentially result in disturbance of undiscovered human remains.			
4.10-3 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. This mitigation measure corresponds to mitigation measure 4.10-2b in the Master EIR/Programmatic EA.			
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 (PM₁₀ 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: <ul style="list-style-type: none"> 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 		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>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).</p> <ul style="list-style-type: none"> 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. 			
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 could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		Reclamation (implementation)	
Impact 3.11-3: Construction activities and removal of vegetation associated with the proposed project could result in vegetative waste materials that managers may decide to burn.			
4.11-3a Vegetative piles to be burned will consist only of dried vegetative materials. Burn piles will be no larger than 10 feet in diameter. Field personnel will be on site during all hours of burning, and materials necessary to extinguish fires will be available at all times.		Reclamation (implementation)	
4.11-3b In general, all requirements of a NCUAQMD "NON-Standard" burn permit will be met for burning. Burn management planning will include but not be limited to the following: <ul style="list-style-type: none"> Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined by calling 1-866-BURN-DAY). Burning will only occur during suitable conditions to ensure control of ignited fires. For instance, water to wet the litter and duff layer and penetrate the mineral soil layer to 1/4 inch or more will be present, wind speeds will be low (<10 mph), and temperature will be low (<80 °F). Piles will be covered with a 5-foot x 5-foot sheet of 4-mil polyethylene plastic to promote drying of the slash. At least 3/4 of each pile surface will be covered and the plastic anchored to preserve a dry ignition point. Dry fuel conditions will minimize smoke emissions. 			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<ul style="list-style-type: none"> Slash piles will not be constructed on logs, stumps, or talus slopes within 25 feet of wildlife trees with nest structures, in roadways, or in drainage ditches. Piles will not be placed within 10 feet of trees intended to be saved (reserved trees) or within 25 feet of a unit boundary. 			
4.11-3c Reclamation will notify the public each day that burning is to occur. Signs or personnel will notify residents and traffic on nearby access routes.			
Impact 3.11-5: 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.			
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).			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
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 through 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)	

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.

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 Master EIR/Programmatic EA.

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 large wood 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 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 re-vegetation 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/am/iap/>.

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 the EA/IS. 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=return interval

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 a rehabilitation site. 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 Q100 "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 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 July and November. 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.
- Re-vegetation 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 re-vegetation consistent with the Draft Riparian Re-vegetation 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 of the EA/IS. 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 B

**Comments and Responses
on the Draft Limekiln Gulch EA/IS**

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Two comment letters were received on the Draft EA/IS during the 30-day comment period ending March 31, 2015 (see Table B-1). The first commenter expressed the need for the contractor to obtain a Caltrans encroachment permit for the project. The second commenter was concerned about the potential loss of fishing holes due to gravel injections. Both of the comment letters are reproduced on the following pages. Immediately following each of the comment letters are the responses to each of the sub-comments made in the letters.

Table B-1. Summary of Public Comments

LETTER #	COMMENTER	AFFILIATION	PRIMARY CONCERN(S)	LETTER DATE
1	Marcelino Gonzalez	California Department of Transportation	Need to obtain a Caltrans encroachment permit.	3/11/2015
2	Philip Cramer	Shasta Trinity Fly Fishers	Concerned about potential loss of fishing holes.	3/31/2015

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Comment Letter 1

STATE OF CALIFORNIA - CALIFORNIA STATE TRANSPORTATION AGENCY

Edmund G. Brown Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF COMMUNITY PLANNING
1657 RIVERSIDE DRIVE
REDDING, CA 96001
PHONE (530) 229-0517
FAX (530) 225-3020
www.dot.ca.gov/dist2/

N C R W Q C B

MAR 16 2015



Serious drought.
Help save water!

March 11, 2015

<input type="checkbox"/> EO	<input type="checkbox"/> WMgmt	<input type="checkbox"/> Admin
<input type="checkbox"/> AEO	<input type="checkbox"/> Timber	<input type="checkbox"/> Legal
<input type="checkbox"/> Reg/NPS	<input type="checkbox"/> Cleanups	

IGR/CEQA Review
Tri-299-56.48
Trinity River Channel Rehabilitation
Limekiln Gulch EA/IS
SCH# 2015022080

Mr. Gil Falcone
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Dear Mr. Falcone:

Thank you for the opportunity to review the Initial Study tiered to the Master EIR prepared for the Limekiln Project. The project is located on the Trinity River near Poker Bar Road and Steel Bridge Road. The project will be accessed via Union Hill Road that intersects State Route 299 between Douglas City and Weaverville.

Mitigation Measures 4.16-4a and 4.16-5a adequately address our concerns. We look forward to the contractor obtaining a Caltrans encroachment permit to review the traffic control plan. For more information regarding the encroachment permit, please contact the District 2 Permits Office located at 1657 Riverside Drive in Redding. The telephone number is (530) 225-3400. Encroachment permit applications are also available from the Caltrans website at www.dot.ca.gov.

A

If you have any questions, or if the scope of this project changes, please call me at (530) 225-3369.

Sincerely,

MARCELINO GONZALEZ
Local Development Review
District 2

Response to Comment Letter 1

This letter contains one distinct comment (A). Following is the response to that comment.

Comment 1.A – Need to obtain a Caltrans encroachment permit.

As Limekiln Gulch EA Mitigation Measures 4.16-4a and 4.16-5a describe, Reclamation shall perform pre-construction surveys of proposed Project access roads and will consult with relevant agencies (e.g., Caltrans and Trinity County) prior to construction to determine existing road conditions and what permits will be required in the specified locations. That way, post-construction requirements for potential roadway rehabilitation shall be determined before the project is started.

Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. As part of this permitting, Reclamation will require traffic control and signage to meet California standards.

Comment Letter 2

Mr. Brandt Gutermuth
Trinity River Restoration Project
Bureau of Reclamation
3/31/2015

Re: Trinity River Channel Rehabilitation at Limekiln Gulch

Dear Mr. Gutermuth,

This letter is being sent to you on behalf of the Shasta Trinity Fly Fishers. Our club has concerns about the proposed activities at Limekiln gulch. Section 3.8 of the Trinity River Channel Rehabilitation Site: Limekiln Gulch Initial Study (Recreation and Wild and Scenic Rivers) does not adequately address our concerns with regard to potential loss of recreational fishing holes. In the past, several popular fishing holes and features were filled in by coarse sediment that had been injected into the waterway during previous salmonid restoration activities. We understand that there can be no guarantees about how coarse sediment will behave once injected, and we also understand that closed systems rely on these injections to remain viable for spawning. However, well-established fishing areas that may be lost due to injection sites immediately upstream, are not addressed within the current discussion of potential impacts to recreational resources. We ask that the coarse sediment injection sites be reconsidered and the injections redesigned if necessary to avoid further loss of this highly valued resource.

] A
] B
] C
] D

Sincerely,

Philip Cramer

Conservation Coordinator
Shasta Trinity Fly Fishers
pbcramer@gmail.com

Response to Comment Letter 2

This letter contains four distinct comments (A-D). Following is the response to those comments.

Comment 2.A – Recreation section does not adequately address potential loss of recreational fishing holes.

The Recreation section of the Limekiln Gulch Draft EA/IS does not directly address the potential of hole filling with the Limekiln Gulch project because: 1) The Project's use of mobile gravel, which might move in response to increased flows, would be minimal. Gravel added to the Trinity River during the Project would be moved to cover areas around wood structures after crossings are completed and would remain in low velocity (non-transport areas) post-construction; and 2) Depths within the Limekiln Gulch ESL are primarily shallow (approximately 99% of the reach is less than 6 feet deep; see Figure 2.A below). The primary adult holding habitat in this reach is approximately ¼ mile downstream of the IC-6 feature and outside of the ESL. This habitat would not be impacted by the Proposed Project.

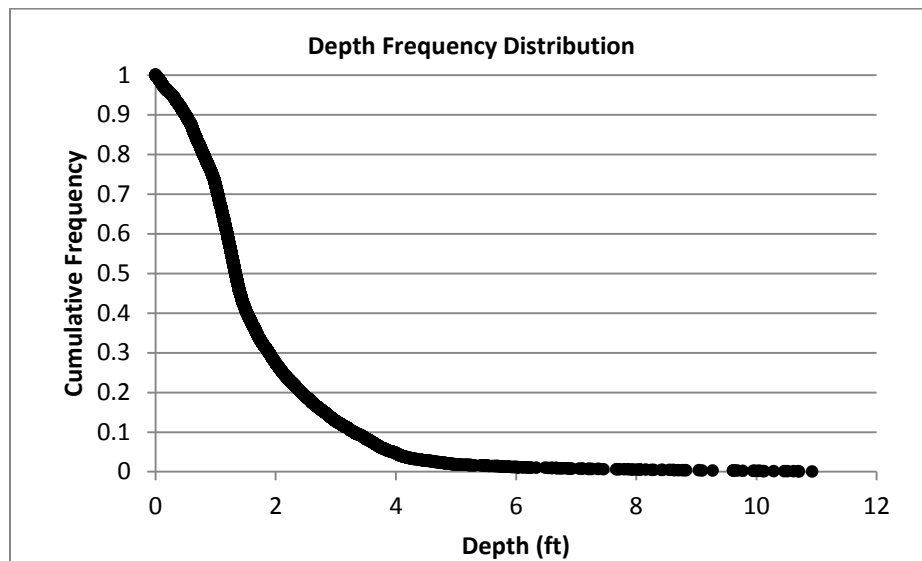


Figure 2.A. Frequency distribution of water depths at 420 cfs within the Limekiln Gulch ESL, as indicated by 2-dimensional model output (SRH-2D) and existing topography given by the 2012 Terrain Model.

The Limekiln Gulch EA/IS discusses hole filling and Trinity River fishermen's concerns in Section 1.4 Project Chronology and Background and in Section 3.5.1 Water Quality – Sediment. Overall impacts of implementation of the Trinity Record of Decision, specifically channel rehabilitation and sediment management, are evaluated in the Master EIR/Programmatic EA (Regional Water Board and Reclamation 2009).

See also response to comment 2.B.

Comment 2.B – Injection of coarse sediment has filled fishing holes and features.

This comment is beyond the Scope of the Limekiln Gulch EA/IS because no coarse sediment injection is planned as part of the Project. However, concerns from stakeholders about pool filling, especially over the addition of gravel to the river, are shared by the TRRP. These concerns have been addressed in previous documents (e.g., Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8) Final Environmental Assessment/Initial Study, April 2014) and are repeated here.

The ROD directed the TRRP to implement a gravel supplementation program in the reaches below the dam. The 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 augmentation (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.

Bathymetric data acquired between 2009 and 2011 to evaluate how pool depths along the Trinity have changed over that period are reported by Gaeuman and Krause (2013) in their report entitled “Assessment of pool depth changes in the Trinity River between Lewiston Dam and the North Fork Trinity River.” The report is available at: <http://odp.trrp.net/Data/Documents/Details.aspx?document=2110>.

A review of historical pool depth data indicates that the combination of higher flow releases from Lewiston Dam and reduced delivery of fine sediment from tributary watersheds has resulted in an increase in the depths of most natural pools in the Trinity River since the mid-20th Century (Gaeuman and Krause 2013). Results of recent sonar measurements indicate that the depths of many pools and deep runs increased between 2009 and 2011. Of 139 locations considered in the Gaeuman and Krause study, slightly more than half increased in depth over the study period. Significant depth decreases were observed in relatively few locations. In specific cases, those decreases appear to be linked to certain rehabilitation actions. In particular, terrace lowering at channel rehabilitation project sites was found to be associated with moderate to large depth decreases (Gaeuman and Krause 2013). Recent project designs (e.g., Upper Junction City and Lorenz Gulch) recognized these effects and were developed using iterative hydraulic modeling to ensure that the designs maintain stream power and sediment transport through pools, thereby safeguarding that channel modifications will not contribute to deposition in pools. A biologically-based study to determine the relation between pool depth and optimum pool habitat has not been conducted so changes in relative depth may not be indicative of changes in overall holding habitat that may include areas not associated with pools.

For additional information on TRRP gravel augmentation, as well as Trinity River pools and their use as holding habitat for adult spring and fall-run Chinook salmon, review the Lead Agency responses to public comments in the Bucktail and Lower Junction City Final EA/IS - Appendix B (<http://odp.trrp.net/Data/Documents/Details.aspx?document=1567>; NCRWQCB et al. 2014). Appendix B comments and responses that specifically address pools and gravel include: 19.L, 20.C, 20.D, and 23.K.3.

Comment 2.C – Loss of well-established fishing areas due to injection sites immediately upstream are not addressed within the recreation section.

The TRRP has not identified any deep fishing holes within the Limekiln Gulch project reach and no gravel injections are proposed.

See also response to comments 2.A, 2.B, and 2.D.

Comment 2.D – Coarse sediment injection sites should be reconsidered and the injections redesigned to avoid further loss of fishing holes.

No coarse sediment injection is proposed as part of the Limekiln Gulch Channel Rehabilitation Project. Consequently, this comment is out of the scope of this Project.

For additional information on this subject, refer to the response to comments 2.A and 2.B.

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APPENDIX C

Northwest Forest Plan Compliance Checklist

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Northwest Forest Plan Compliance Checklist

Projects that Comply with the Pechman Exemptions

The Trinity River Channel Rehabilitation Site: Limekiln Gulch (River Mile 99.7-100.6) 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.

In 2006, the District Court for the Western District of Washington (Judge Pechman) invalidated the agencies' 2004 RODs eliminating Survey and Manage 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 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;
- 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.

The BLM has reviewed the Trinity River Channel Rehabilitation Site: Limekiln Gulch (River Mile 99.7-100.6) project 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 Project at Limekiln Gulch 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 proceed towards implementation.

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