TRRP Master EIR Draft and Final Combined Package

This PDF provides all parts and appendicies for the Draft Master EIR plus the Final Master EIR in one document. Page numbers given on this page refer to the PDF page index, so you may look up the page number here for the part that you want, then type it into the page box of Adobe Acrobat at the top or bottom of your screen.

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Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Volume I: Executive Summary/Draft FONSI
Part 1: Draft Master Environmental Impact Report
Part 2: Environmental Assessment/Draft Environmental Impact Report

June 2009

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

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

Federal Cooperating Agencies for NEPA
Shasta–Trinity National Forest
Bureau of Land Management

Cooperating Tribal Agencies
Hoopa Valley Tribe
Yurok Tribe

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Volume I: Executive Summary/Draft FONSI
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California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd., Suite A
Santa Rosa, California 95403

Subject: Master Environmental Impact Report for Trinity River Restoration Program Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites

Dear Interested Parties:

Under guidance of the Trinity River Restoration Program (TRRP), the Bureau of Reclamation has acted as the project proponent in preparation of a programmatic and site specific environmental document to evaluate impacts of proposed Trinity River restoration activities. The California Regional Water Quality Control Board, North Coast Region (Regional Water Board), has acted as the California Environmental Quality Act (CEQA) lead agency for preparation of both a Master (i.e., (programmatic)) Environmental Impact Report (EIR) and its site specific component. Part 1 of the environmental document is a Draft Master EIR that evaluates the environmental impacts of proposed rehabilitation and sediment management activities at future TRRP channel rehabilitation locations along the Trinity River. Part 2 is an Environmental Assessment/Draft Environmental Impact Report (EA/Draft EIR) and serves as an integrated National Environmental Policy Act (NEPA)/CEQA document that assesses project specific environmental impacts of proposed channel rehabilitation and sediment management activities at the Remaining Phase 1 sites. The two part environmental document, in combination with the 2000 Trinity River Mainstem Fisheries Restoration Program Final Environmental Impact Statement (FEIS), meets NEPA and CEQA requirements and will fulfill evaluation needs stipulated under Executive Orders 11988 (floodplain management), 11990 (protection of wetlands), 13112 (invasive species), and 12898 (environmental justice). The Master EIR, when certified by the Regional Water Board, will serve similar functions under CEQA, as the FEIS under NEPA, by providing programmatic level review from which site-specific project reviews may tier from.

The mechanical channel rehabilitation and sediment management activities evaluated by this joint CEQA/NEPA document were originally identified in the Interior Secretary's December 19, 2000 Record of Decision (ROD) as a necessary step towards restoration of the Trinity River's anadromous fishery. The focus of the TRRP's efforts are intended to increase habitat for all life stages of wild salmon and steelhead native to the Trinity River. Similar to previous construction efforts, the activities described in the Draft Master EIR would create additional fish and wildlife habitat at a number of discrete locations; over time, additional increases in habitat are anticipated as riverine processes are restored. Work to be performed includes re-contouring bank and floodplain features, as well as conducting in-river work such as gravel placement and grade control removal. In addition to various construction activities, the Draft Master EIR-EA/Draft

EIR provides the analysis necessary to authorize ongoing activities such as gravel addition during high spring flows and control of fine sediment on an annual basis. Construction activities within the channel and in the river itself are scheduled to begin in late-summer 2009.

A 45-day public review period has been established for the Draft Master EIR and site specific EA/Draft EIR for activities at the Remaining Phase 1 sites. The review period begins on June 5, 2009, and ends July 28, 2009. A public workshop will be scheduled in July if public comments dictate the need. Electronic copies of the draft document are available for public review on the TRRP's website at http://www.trrp.net/implementation/remainingP1.htm or on Reclamation's Mid-Pacific website at http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=3138 . Hard copies are available in Weaverville, California at the Trinity River Restoration Program Office at 1313 South Main Street (by Tops super market) and at the Trinity County Library at 211 N. Main St. All referenced materials will be available at the Trinity River Restoration Program office. Electronic CD copies and a limited number of paper copies may be obtained at the Trinity River Restoration Program Office free of charge (subject to availability).

The Master EIR, in combination with the site specific EA/FONSI and Final EIR (FEIR) for activities at the Remaining Phase 1 sites, will be used by federal and state agencies to support the decisions made by the CEQA and NEPA lead agencies. The CEQA/NEPA process is anticipated to be complete by August 2009. Written comments must be received by the Trinity River Restoration Program, P.O. Box 1300, Weaverville, CA 96093 no later than 5:00 p.m., July 28, 2009. If you have questions, please contact Mr. Brandt Gutermuth, TRRP Environmental Specialist, at 530-623-1806 or e-mail comments to bgutermuth@mp.usbr.gov.

Sincerely,

Catherine Kuhlman
Executive Officer
Water Quality Control Board
North Coast Region
CEQA - Lead Agency

Mike A. Hamman
Executive Director
Trinity River Restoration Program
NEPA – Lead Agency

Attachment – Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Part 1: Draft Master EIR and Part 2: Environmental Assessment/Draft EIR

If you would like a copy of the final EA/EIR, Please mail the following piece to the Trinity River Restoration Program, PO Box 1300, Weaverville, CA 96093

I would like a copy of the Draft Master EIR and EA/Draft EIR for Remaining Phase 1 sites in the following format:

Draft Master EIR and Executive Summary (50 pages) and CD which includes site specific EA/Draft EIR for the Remaining Phase 1 activities

Draft Master EIR and Environmental Assessment/Draft EIR for Remaining Phase 1 activities (CD of both parts)

Name _____

Address _____

City, State, Zip Code _____

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Executive Summary

Executive Summary

1 Introduction

This environmental document was prepared by the U.S. Bureau of Reclamation (Reclamation) and the North Coast Regional Water Quality Control Board (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. The document is divided into two parts.

Part 1 is a Draft Master Environmental Impact Report (Draft Master EIR). This part of the document evaluates the environmental impacts of the proposed rehabilitation and sediment management activities at the Trinity River Restoration Program's (TRRP) 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 the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.). In addition to addressing direct and indirect impacts associated with the Proposed Project and the alternatives, the Draft Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the Remaining Phase 1 and Phase 2 sites. Part 1 is chapters 2 through 5 of this document.

Part 2 is an Environmental Assessment/Draft Environmental Impact Report (EA/Draft 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/Draft EIR has been prepared to comply with the National Environmental Policy Act (NEPA) (42 United States Code [USC], Section 4321 et seq.) and CEQA (California Public Resources Code, Section 21000 et seq.). Part 2 is chapters 6 through 8 of this document.

The rehabilitation measures are required for the restoration of the Trinity River mainstem fishery. The Proposed Project is designed to benefit anadromous salmonids and their habitat by developing a properly functioning, diverse floodplain and riverine habitat. Collectively, the Proposed Project encompasses 29 rehabilitation site locations in Trinity County, California, along the 40-mile reach of the mainstem Trinity River from Lewiston Dam to the North Fork Trinity River. The Remaining Phase 1 sites (6 locations) are concentrated between Lewiston and Douglas City (about a 16-mile reach) and the Phase 2 sites (23 locations) are located between Rush Creek and the North Fork Trinity River near Helena California (see Figure ES-1).

Reclamation and the Regional Water Board prepared this Draft Master EIR – EA/Draft EIR in cooperation with the U.S. Bureau of Land Management (BLM) and the Shasta-Trinity National Forest (STNF). Reclamation will be responsible for project implementation and is functioning as the federal

lead agency for NEPA compliance and federal Endangered Species Act (ESA) requirements. The Regional Water Board is functioning as the state lead agency for CEQA compliance. As managers of public lands within the watershed and along the mainstem Trinity River, the STNF and the BLM are serving as NEPA cooperating agencies. As co-managers of the Wild and Scenic corridor established for the designated reach of the Trinity River, the STNF and BLM are responsible for complying with Section 7 of the federal Wild and Scenic Rivers Act to ensure that the Outstandingly Remarkable Values (ORVs) for which the Trinity River was designated under the act are protected or enhanced.

In addition to STNF and BLM, the primary cooperating (NEPA) agencies and responsible and trustee (CEQA) agencies are:

- Hoopa Valley Tribe (HVT)
- Yurok Tribe (YT)
- Trinity County Resource Conservation District (TCRCD)
- California Department of Transportation (Caltrans)
- California Department of Fish and Game (CDFG)
- California Department of Water Resources (DWR)
- Trinity County

The EA portion of the EA/Draft EIR in Part 2 of this document tiers from for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR). The Record of Decision (ROD), dated December 19, 2000, for the FEIS/EIR directed Department of the Interior (DOI) agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the FEIS/EIR. In addition, elements of the Mechanical Restoration Alternative were included in the decision (U.S. Department of Interior 2000). The ROD set forth prescribed Trinity River flows for the following 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). After the ROD was issued, a series of legal challenges was made in federal court; ultimately, the ROD was upheld by the United States Court of Appeals for the Ninth Circuit.

Although Trinity County was the lead agency under CEQA for the FEIS/EIR, the Trinity County Board of Supervisors chose not to "certify" the EIR portion of the joint NEPA/CEQA document. The county's determination was based on its decision to defer pursuing a 1990 petition to the State Water Resources Control Board (State Water Board) related to Water Right Orders 90-05 and 91-01. Therefore, the EIR portion of this document cannot be "tiered" from the FEIS/EIR. The EIR portion functions as a stand-alone document and is in no way dependent for its legal adequacy—for CEQA purposes only—on the FEIS/EIR. Additional information on the legal challenges and ultimate outcome are incorporated by reference from the Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1 EA/EIR (U.S. Bureau of Reclamation 2004).

Based on the outcome of the litigation in federal court, the flows authorized by the 2000 ROD are deemed to constitute the "existing [hydrological] environment" for CEQA purposes, and are considered the basis for the environmental analysis of the Proposed Project under both NEPA and CEQA for this document.

Copies of all of the above-referenced documents and the documents that together constitute the FEIS/EIR are available for public review at:

Trinity River Restoration Program Office
United States Department of the Interior – Bureau of Reclamation
P.O. Box 1300
1313 South Main Street
Weaverville, California 96093

2 Project History and Background

Completion of the Trinity and Lewiston Dams in 1964 blocked migratory fish access to habitat upstream of Lewiston Dam, eliminated sediment transport from over 700 square miles of the upper Trinity River watershed, and restricted anadromous fish populations to the remaining habitat below Lewiston Dam. Trans-basin diversions from Lewiston Reservoir to the Sacramento River altered the hydrologic regime of the Trinity River, resulting in riparian encroachment and fossilization of point bars and riparian berms from Lewiston to near the North Fork Trinity River. Encroachment of riparian vegetation into the former active channel promoted the deposition of fine-textured sediments, resulting in the formation of linear berms that further confined and simplified the channel, reduced the diversity of riparian age classes and riparian vegetation species, impaired floodplain access, and adversely affected fish habitat.

In 1981, in response to these adverse impacts on fish habitat and subsequent declines in salmon runs, the Secretary of the Interior directed the U.S. Fish and Wildlife Service (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 Diversion (TRD) of the Central Valley Project. 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. Between 1990 and 1993, various restoration actions were implemented, including nine pilot bank rehabilitation projects. These projects were constructed on the mainstem Trinity River between Lewiston Dam and Helena.

In 1992, Congress enacted the Central Valley Project Improvement Act (CVPIA). One purpose of the CVPIA (Section 3406) was to protect, restore, and enhance fish, wildlife, and associated habitats in the Trinity River basin. The act also directed the Secretary to finish the 12-year Trinity River Flow Evaluation Study 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 was ultimately published in 1999 by the USFWS and the HVT, providing a framework for restoration activities below Lewiston Dam.

In 1994, the USFWS, as the NEPA lead agency, and Trinity County, as the CEQA lead agency, began the public process for developing the Environmental Impact Statement/Environmental Impact Report

(EIS/EIR) for the Trinity River Mainstem Fishery Restoration Program. The FEIS, 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 Action. As noted previously, the Trinity County Board of Supervisors has never certified the EIR portion of the FEIS/EIR for the Trinity River Mainstem Fishery Restoration Program.

While the ROD for the FEIS identified a number of components that were included in the TRRP, this document focuses on the mechanical channel rehabilitation and fine and coarse sediment management components that would be implemented over time and at various locations along the river. The ROD acknowledged the benefit of implementing mechanical channel rehabilitation activities in two phases. To date, rehabilitation activities have been implemented, fully or partially, at a number of the Phase 1 sites. Phase 1 will be complete once the proposed activities at the Remaining Phase 1 sites evaluated in this document have been completed. Phase 2 as defined in this document includes mechanical channel rehabilitation at 23 site locations. Coarse sediment management may also occur at some of these sites in conjunction with other rehabilitation activities. Fine sediment management will continue to occur on a periodic basis at the Hamilton Ponds near the mouth of Grass Valley Creek. The Phase 2 site locations are interspersed with the Phase 1 sites along the 40-mile reach of the mainstem Trinity River downstream of Lewiston Dam.

Numerous other watershed restoration projects are being planned and implemented throughout the Trinity River basin. The TCRCD, BLM, and STNF, with funding provided by CDFG's Coastal Salmon Recovery Program, BLM's Jobs in the Woods Program, the State Water Board, the U.S. Department of Agriculture, and the National Fish and Wildlife Foundation, are implementing numerous upslope watershed restoration projects throughout the basin, including the South Fork Trinity River watershed.

3 Goals and Objectives of the Proposed Project

The goals of the TRRP outlined in the Trinity River Restoration Program Strategic Plan (2003-2008) provide the framework for the specific goals and objectives used to develop the action alternatives for this Draft Master EIR – EA/Draft EIR. The following goals and objectives support the Proposed Project and provided the structure for development of the alternatives:

- protect and/or enhance the ORVs associated with the designation of a Wild and Scenic River (federal and California);
- induce changes in channel geometry in response to constructing channel and floodplain features designed for the river's current and future hydrologic regime;
- evaluate the evolution of channel planform features in response to designing and implementing the Proposed Project at a river segment (1 mile) scale;

- evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment and incorporate this information into the AEAM [Adaptive Environmental Assessment and Management] Program;
- provide safe and reasonable access to the sites for project planning, implementation, and monitoring;
- develop partnerships with willing participants and encourage positive landowner interest and involvement;
- design the project to function with the river's current hydrology (post-ROD) estimated at the sites;
- integrate known fluvial and ecological theories and relationships with the sites' measured physical and biological attributes and evaluate the response over a definitive time frame;
- conduct in-channel activities in a manner that reduces construction-related impacts, maximizes the river's ability to rehabilitate itself during high flows, and reduces the cost and complexity of implementation;
- attempt to preserve unique and valuable geomorphic and biological features wherever practicable (e.g., hydraulic controls, high-quality spawning or adult holding habitat, cottonwood galleries); and
- facilitate recovery of native fish and wildlife resources that are in decline or listed as threatened and endangered.

The following objectives apply to the responsible and trustee agencies for the Proposed Project:

- compliance with the California Water Code and Basin Plan to ensure the highest reasonable quality of waters of the state and allocation of those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, native plant, and jurisdictional wetland resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

4 Purpose and Need for Action

The purpose of the Proposed Project is to implement a suite of channel rehabilitation, riparian restoration, and sediment management activities to provide juvenile fish habitat along the 40-mile reach of the

mainstem Trinity River from Lewiston Dam to the North Fork Trinity River. The Proposed Project will continue to advance the implementation efforts of the TRRP and provides the opportunity to

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho and Chinook salmon and steelhead;
- 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;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project whereby adequate maintenance flows are likely to occur independent of future TRD flows.

The need for the Proposed Project results from:

- requirements in the ROD (U.S. Department of the Interior 2000) to restore the Trinity River fishery through a combination of higher releases from Lewiston Dam (up to 11,000 cubic feet per second [cfs]), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an Adaptive Environmental Assessment and Management (AEAM) Program; and
- the expectation that the AEAM Program will 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.

The approach and methods incorporated into the Proposed Project used information gained from constructing the Hocker Flat, Canyon Creek, Indian Creek, and Lewiston–Dark Gulch rehabilitation projects. On-going monitoring at these project sites will continue to be incorporated into the AEAM Program for future restoration and rehabilitation efforts.

5 Required Permits and Approvals

The following section identifies the discretionary approvals, consistency determinations, and federal executive orders that were considered in the preparation of this Draft Master EIR – EA/Draft EIR.

5.1 Discretionary Approvals

Provided below is a list of the various discretionary approval processes that have been completed or are being coordinated concurrent with the NEPA/CEQA environmental review process:

- Section 404 Clean Water Act Permit – U.S. Army Corps of Engineers, San Francisco District, Eureka Field Office, Eureka, California
- Compliance with the Federal Endangered Species Act – U.S. Fish and Wildlife Service (USFWS), Eureka, and National Marine Fisheries Service (NMFS), Arcata, California
- Compliance with the Magnuson-Stevens Fishery Conservation and Management Act – NMFS, Arcata, California
- Compliance with Section 7 of the federal Wild and Scenic Rivers Act – BLM, Redding, California
- Section 1602 Streambed Alteration Agreement—CDFG, Region 1
- Compliance with the California Endangered Species Act – CDFG, Region 1
- Section 401 Clean Water Act Water Quality Certification – Regional Water Board
- Trinity County Ordinances (Floodplain Management) — Trinity County

5.2 Consistency Determinations

Provided below is a list of the governing laws for which a consistency determination will need to be made:

- Section 106 of the National Historic Preservation Act
- Federal Wild and Scenic Rivers Act
- National Forest Management Act
- State Wild and Scenic River Act

5.3 Federal Executive Orders

Provided below is a list of the federal executive orders and implementing polices with which the project will need to comply:

- Executive Order 11988 for Floodplain Management
- Executive Order 12898 for Environmental Justice
- Executive Order 11990 for Wetlands
- Executive Order 13007 for Indian Sacred Sites on Federal Land
- Executive Order 12373 for State, Area-Wide, and Local Plan and Program Consistency
- Executive Order 13112 for Invasive Species
- Executive Order 13443 for Facilitation of Hunting Heritage and Wildlife Conservation
- Indian Trust Assets

6 Scoping and Public Involvement

The Regional Water Board initiated the formal public scoping process by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on March 27, 2008. The NOP was circulated to the public; to local, state, and federal agencies; and to other interested parties to solicit comments on the Proposed Project. The NOP and agency comments on the NOP are summarized in Chapter 1 of the Draft Master EIR – EA/Draft EIR.

The public scoping period was March 27, 2008, through May 12, 2008, and scoping comments were received through September 15, 2008. Reclamation and the Regional Water Board held a joint NEPA/CEQA scoping meeting on April 16, 2008, at the Douglas City Firehall in Douglas City, California. During this meeting, the Proposed Project was introduced and members of the public were asked to assist Reclamation and the Regional Water Board in identifying issues that should be addressed in this document. No substantive comments were brought forward during this public meeting, although the lead agencies' representatives responded to a number of questions. During the public comment period, the lead agencies received three scoping comments. These areas of concern were considered during the preparation of this Draft Master EIR – EA/Draft EIR. Two open house sessions to discuss the Remaining Phase 1 sites were also held in (1) Lewiston, California at the Moose Lodge on September 10 and (2) Douglas City, California, at the Firehall on September 11, 2008. The scoping and public involvement process is also described in Chapter 1.

The scoping process determined that the Proposed Project could lead to potentially significant impacts on specific natural resources and on the human environment. Based on the comments received during the scoping process, the following resource elements are addressed in Part 1 of this Draft Master EIR – EA/Draft EIR. Part 2 of this document is consistent with Reclamation's requirements for an EA and includes sections on Tribal Trust and Environmental Justice.

- land use;
- geology, fluvial geomorphology, and soils;
- water resources;
- water quality;
- fishery resources;
- vegetation, wildlife, and wetlands;
- recreation;
- socioeconomics, population, and housing;
- cultural resources;
- air quality;
- aesthetics;
- hazardous materials;
- noise;
- public services and utilities/energy;
- transportation and traffic circulation; and
- cumulative impacts.

7 Existing Site Conditions

The Trinity River originates in the rugged Salmon-Trinity Mountains of northern California in the northeast corner of Trinity County, California. The river flows generally southward until Trinity and

Lewiston dams impound it. From Lewiston Dam, the river flows westward for 112 miles until it enters the Klamath River near the town of Weitchpec on the Yurok Reservation. The Trinity River passes through Trinity and Humboldt counties and the Hoopa Valley and Yurok Indian Reservations, draining approximately 2,965 square miles. The Klamath River flows northwesterly for approximately 40 miles from its confluence with the Trinity River before entering the Pacific Ocean.

The Remaining Phase 1 and Phase 2 sites are located along the 40-mile reach of the mainstem Trinity River from Lewiston Dam to the North Fork Trinity River. To facilitate the engineering and environmental compliance efforts, the site boundaries encompass lands on both sides of the Trinity River.

8 Description of the Proposed Project and Alternatives

The FEIS/EIR identified 44 potential channel rehabilitation sites and three potential side channel sites between Lewiston Dam and the North Fork Trinity River (U.S. Fish and Wildlife Service et al. 2000). Subsequently, in a detailed review of potential river rehabilitation areas, 104 potential rehabilitation sites were identified. Ultimately, the sites 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 general, the approach to channel rehabilitation is to selectively remove fossilized riparian berms (berms that are anchored by extensive woody vegetation and consolidated sand deposits) that developed after the TRD was completed as a result of the loss of scouring associated with peak flows. Along with berm removal, the approach involves physical alteration of other alluvial features (e.g., floodplains) and removal of riparian vegetation at strategic locations to promote the alluvial processes necessary for the restoration and maintenance of alternate bar riverine habitats.

As described in the FEIS, the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The FEIS also recognized that, in many instances, entire sites would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to result in a dynamic alluvial channel that will promote the formation and maintenance of an alternate bar channel in both treated and untreated areas.

The project includes specific activities proposed at 158 activity areas within the boundaries of the Remaining Phase 1 sites. Chapter 2 of the Draft Master EIR – EA/Draft EIR contains figures that illustrate the locations of these areas, as well as roads and access routes that would be used to implement the project. The type, extent, and level of activity within each area may be different, depending on the alternative. The activity areas were defined by the interdisciplinary design team to include riverine areas, in-channel areas, upland areas, and construction support areas. Riverine areas are labeled with an R preceding the site number (e.g., R-1, R-2); in-channel activity areas are labeled with a IC preceding the site number (e.g., IC-1, IC-2); upland areas are labeled with a U preceding the site number (e.g., U-1, U-2); staging areas and roads are included in areas labeled with a C; and low-flow crossings are labeled with an X.

The activities proposed for the Phase 2 sites are similar to those proposed for the Remaining Phase 1 sites; however, because only broad restoration concepts have been developed for the Phase 2 sites, the Draft Master EIR provides a programmatic description of the Phase 2 site activities, which respond to the conceptual objectives for these sites.

8.1 Proposed Project

The Proposed Project would include activities throughout the project boundaries on both sides of the Trinity River. These activities are expected to eventually result in the development of point bars and floodplain habitat that do not presently exist. The response time will be dynamic and subject to external forces once the activities have been completed. Creation of these features would be accomplished through the rescaling of the river channel and floodplain within the riverine rehabilitation areas, although there is an expectation that natural alluvial processes may immediately affect a larger area. In-channel treatments (grade control removal and sediment supplementation) will assist in reestablishing the alluvial processes and interactions at these sites. This rehabilitation of river function could result in the rapid development of a larger and more complex expanse of river and floodplain habitats. The result of habitat expansion would be increased habitat suitability and availability for salmonids and other native fish and wildlife species. Figures 2-1a through 2-1f in the Draft Master EIR – EA/Draft EIR illustrate the activities that would be implemented at the Remaining Phase 1 sites under the Proposed Action.

The Proposed Project includes a number of in-channel activities at each of the Remaining Phase 1 sites, as well as at least one temporary river crossing at most of these sites. Excavation activities associated with the Remaining Phase 1 sites are expected to yield more than 400,000 cubic yards of alluvial material. Collectively, the sites have the capacity to place (dispose of) nearly 500,000 cubic yards of excavated material. Riverine activities on both sides of the Trinity River would use adjacent upland and staging areas within the boundaries of the sites for disposing of and/or stockpiling excavated or processed materials.

In-channel and riverine activities incorporated into the Proposed Project are intended to increase the potential for the river to meander (migrate) out of the channel in which it has been confined by historic dredging activities and, more recently, by riparian berms. In addition to the immediate changes to the channel (e.g., grade control removal, berm removal, and floodplain excavation), the Proposed Project includes sediment management activities at various locations. These activities consist of placement of coarse sediment (spawning gravels) at a number of rehabilitation sites, including several long-term locations between Lewiston Dam and Weaver Creek. It also includes ongoing removal of fine sediment collected in the Hamilton Ponds near the mouth of Grass Valley Creek.

The activities proposed for the Phase 2 sites are similar to those proposed for the Remaining Phase 1 sites; however, because only broad restoration concepts have been developed for the Phase 2 sites, the Draft Master EIR provides a programmatic description of the Phase 2 site activities, which respond to the conceptual objectives for these sites.

8.2 Alternative 1

Alternative 1 is similar to the Proposed Project in many respects, particularly for the Remaining Phase 1 sites. The conceptual nature of the Phase 2 sites inhibits the lead agencies' ability to distinguish Alternative 1 from the Proposed Project at the site level. In general terms, Alternative 1 responds to impacts to the biological and, to a greater degree, the human environment. The overall reduction in the size, intensity, and magnitude of rehabilitation activities, particularly those in close proximity to residential or recreational developments, is expected to reduce the significant impacts to various resources, especially to the human environment (e.g., traffic, noise near residential areas, etc.). However, Alternative 1 is not expected to expand Trinity River aquatic habitat complexity and quantity or to enhance natural river processes to the same extent as the Proposed Project. Consequently, benefits to fish and wildlife populations would be reduced compared to the Proposed Project. Figures 2-2a through 2-2f in the Draft Master EIR – EA/Draft EIR illustrate the activities that would be implemented at the Remaining Phase 1 sites under Alternative 1.

Alternative 1 includes specific activities proposed at 122 activity areas within the boundaries of the Remaining Phase 1 sites. This is a reduction of 36 activity areas spread across five of the sites. In addition to a net reduction in activity areas at five of the Remaining Phase 1 sites, this alternative modifies the type and magnitude of activities in an effort to reduce significant impacts to the environment. Alternative 1 excludes seven in-channel and three riverine activity areas and reduces the number of temporary crossings by three compared to the Proposed Project. Under this alternative, excavation activities associated with the Remaining Phase 1 sites are expected to yield more than 350,000 cubic yards of alluvial material. These sites collectively provide the capacity to place almost 365,000 yards of material in the event this space is necessary during implementation. Alternative 1 would also reduce the length of the roads necessary to access activity areas by about 2 miles. Similar to the Proposed Project, riverine activities on both sides of the Trinity River would use adjacent upland and staging areas to dispose of and/or stockpile excavated or processed materials within the boundaries of the sites. These sites include public and private lands within a narrow corridor parallel to the river.

The activities proposed for the Phase 2 sites are similar to those proposed for the Remaining Phase 1 sites; however, because only broad restoration concepts have been developed for the Phase 2 sites, the Draft Master EIR provides a programmatic description of the Phase 2 site activities, which respond to the conceptual objectives for these sites.

9 Affected Environment and Environmental Consequences

Chapter 3, Regulatory Setting, describes federal, state, and local acts, regulations, and policies applicable to the Proposed Project. Chapter 4 describes the affected environment and the environmental consequences of implementing each project alternative. Consistent with the intended uses of a Master EIR, the descriptions of potentially affected resources in this chapter take a large-scale, region-wide view of existing environmental conditions. To the extent possible, the chapter also provides information useful in characterizing the resources associated with the Remaining Phase 1 and Phase 2 sites.

The analyses are presented by environmental resource area and include discussions of the existing environmental setting, significance criteria, potential environmental impacts, and mitigation measures. The descriptions of the existing regional and local conditions in the Environmental Setting sections of Chapter 4 are used as the environmental baseline for analyzing the significance of the potential effects of the Proposed Project and the alternatives with respect to each specific resource or issue area.

Chapter 7 expands the environmental setting as it pertains to the Remaining Phase 1 sites and analyzes the site-specific environmental consequences associated with implementing the proposed rehabilitation activities at these sites. The regulatory framework, environmental setting, methodology, and significance criteria discussed in the Master EIR (Chapters 3 and 4) are generally applicable to the Remaining Phase 1 sites, and this information is not repeated in Chapter 7.

The following subsections summarize the environmental consequences of implementing each project alternative. In instances where site-specific impacts are more specific than those described in the Master EIR, the site-specific impacts are summarized. A complete summary of all project impacts and associated mitigation measures for all of the action alternatives are presented at the end of this Executive Summary (Table ES-1, Draft Master EIR, and Table ES-2 EA/Draft EIR).

9.1 Land Use

Sections 4.2 and 7.2 evaluate the impacts of the Proposed Project and the alternatives on land uses. Impacts were considered significant if implementation of the project alternatives could disrupt existing land uses adjacent to the project sites; be inconsistent with the goals, policies, and objectives of the BLM's Redding Resource Management Plan, the STNF Land and Resource Management Plan, DWR's Hamilton Ranch Management Plan, the Trinity County General Plan, or other local community plans, policies, and ordinances; or affect the availability of a locally important mineral resource recovery site.

The No-Action Alternative would not adversely affect transportation or traffic circulation. However, the beneficial effects of the Proposed Project—an increase in habitat for anadromous fish and reestablishment of riparian vegetation—would not be realized under this alternative.

Either action alternative would result in significant impacts related to the availability of a locally important mineral resource recovery site. Implementation of the mitigation measures identified in sections 4.2 and 7.2 would reduce these impacts to a less-than-significant level.

9.2 Geology, Fluvial Geomorphology, and Soils

Sections 4.3 and 7.3 evaluate the geologic, geomorphic, and soil impacts of the Proposed Project and the alternatives. Impacts were considered significant if implementation of the project alternatives could subject structures and people to geologic hazards, including ground shaking and liquefaction; result in increased erosion and short-term sedimentation of the Trinity River; or interfere with the development of mineral resources.

The No-Action Alternative would not adversely affect geology, fluvial geomorphology, or soils. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in significant impacts related to erosion and short-term sedimentation of the Trinity River as well as the development of mineral resources. Implementation of the mitigation measures identified in sections 4.3 and 7.3 would reduce these impacts to a less-than-significant level.

9.3 Water Resources

Sections 4.4 and 7.4 evaluate the impacts of the Proposed Project and alternatives on water. Impacts were considered significant if implementation of the project alternatives could result in a temporary or permanent increase in the base flood elevation; result in a permanent decline in groundwater elevations or a permanent change in groundwater quality; or expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.

The No-Action Alternative would not adversely affect water resources. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Neither action alternative would result in significant impacts related to water resources, and no mitigation measures are required.

9.4 Water Quality

Sections 4.5 and 7.5 evaluate the impacts of the Proposed Project and alternatives on water quality. Impacts were considered significant if implementation of the project alternatives could result in short-term, temporary increases in turbidity and total suspended solids during construction; short-term, temporary increases in turbidity and total suspended solids following construction; contamination of the Trinity River from hazardous materials spills; increased stormwater runoff and a subsequent potential for erosion; or degradation of the beneficial uses of the Trinity River identified in the Basin Plan.

The No-Action Alternative would not adversely affect water quality. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in significant impacts related to short-term, temporary increases in turbidity and total suspended solids levels during and following construction; potential contamination of the Trinity River from hazardous materials spills; and potential degradation of the beneficial uses of the Trinity River. Implementation of the mitigation measures identified in sections 4.5 and 7.5 would reduce these impacts to a less-than-significant level.

9.5 Fishery Resources

Sections 4.6 and 7.6 evaluate the impacts of the Proposed Project and alternatives on fishery resources in the Trinity River basin. Impacts were considered significant if implementation of the project alternatives

could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state listed coho salmon; increased erosion and sedimentation levels that could adversely affect fishes, including the coho salmon; the accidental spill of hazardous materials that could adversely affect fishes, including the coho salmon; the mortality of rearing fishes, including the coho salmon; the permanent or temporary loss of SRA habitat for anadromous salmonids; or temporary impairment of fish passage during in-stream construction.

Under the No-Action Alternative, there would be no effects on fishery resources other than those associated with current ongoing actions. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative could result in significant impacts related to potential spawning and rearing habitat for anadromous fishes, increased erosion and sedimentation levels, accidental spill of hazardous materials, mortality of rearing fishes; loss of shaded riverine aquatic habitat; and temporary impairment of fish passage. Implementation of the mitigation measures identified in sections 4.6 and 7.6 would reduce these impacts to a less-than-significant level.

9.6 Vegetation, Wildlife, and Wetlands

Sections 4.7 and 7.7 evaluate the impacts of the Proposed Project and alternatives on vegetation, wildlife, and wetlands resources. Impacts were considered significant if implementation of the project alternatives could result in the loss of jurisdictional waters, including wetlands; the loss of upland plant communities; the loss of individuals of a special-status plant species; impacts to the state-listed little willow flycatcher, foothill yellow-legged frog, and western pond turtle; impacts to nesting Vaux's swifts, yellow warblers, yellow-breasted chats, bald eagles, and northern goshawks; impacts to special-status bats and the ring-tailed cat; temporary loss of non-breeding habitat for several special-status birds; impacts to BLM and U.S. Forest Service (USFS) sensitive species; restriction of terrestrial wildlife movement through the project area; and the spread of non-native and invasive plant species.

The No-Action Alternative would not adversely affect vegetation, wildlife, and wetlands. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative could result in the temporary loss of jurisdictional waters including wetlands; the loss of individuals of a special-status plant species; impacts to the state-listed little willow flycatcher, foothill yellow-legged frog, and western pond turtle; impacts to nesting Vaux's swifts, yellow warblers, yellow-breasted chats, bald eagles, and northern goshawks; impacts to special-status bats and the ring-tailed cat; temporary loss of non-breeding habitat for several special-status birds; impacts to BLM and USFS sensitive species; and the spread of non-native and invasive plant species. Implementation of the mitigation measures identified in sections 4.7 and 7.7 would reduce these impacts to a less-than-significant level.

9.7 Recreation

Sections 4.8 and 8.8 evaluate the impacts of the Proposed Project on recreation. Impacts were considered significant if implementation of the project alternatives could disrupt recreational activities, such as boating, fishing, and swimming, in the Trinity River; result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries; lower the Trinity River's aesthetic value for recreationists by increasing its turbidity levels; or affect Wild and Scenic River values.

The No-Action Alternative would not adversely affect recreational resources. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in significant impacts related to disruption of recreational activities; increased safety risk to recreational users or resource damage to recreational lands; and lowering of the Trinity River's aesthetic value for recreationists. Implementation of the mitigation measures identified in sections 4.8 and 7.8 would reduce these impacts to a less-than-significant level.

9.8 Socioeconomics, Population, and Housing

Sections 4.9 and 7.9 evaluate the impacts of the Proposed Project and alternatives on socioeconomics, population, and housing. Impacts were considered significant if implementation of the project alternatives could result in the disruption or displacement of local businesses; an increased demand for housing during construction; or concentrated population growth.

The No-Action Alternative would not adversely affect socioeconomic resources . However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Neither action alternative would result in significant impacts related to socioeconomic resources, and no mitigation measures are required.

9.9 Cultural Resources

Sections 4.10 and 7.10 evaluate the impacts of the Proposed Project and alternatives on cultural resources. Impacts were considered significant if implementation of the project alternatives could cause a substantial adverse change in the significance of a known cultural resource or result in the disturbance of undiscovered prehistoric or historic resources.

The No-Action Alternative would not adversely affect cultural resources. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in potentially significant impacts related to the disturbance of undiscovered prehistoric or historic resources. Implementation of the mitigation measures identified in sections 4.10 and 7.10 would reduce these impacts to a less-than-significant level.

9.10 Air Quality

Sections 4.11 and 7.11 evaluate the impacts of the Proposed Project on air quality and greenhouse gas emissions. Impacts were considered significant if implementation of the project alternatives could result in an increase in the levels of fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$); an increase in construction vehicle exhaust emissions; burning of vegetative materials; an increase in greenhouse gas emissions and effects on climate change; and short-term and localized fugitive dust, gas, and diesel emissions and smoke that could affect adjacent residences and schools.

The No-Action Alternative would not adversely affect air quality and greenhouse gas emissions. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in potentially significant impacts related to an increase in the levels of fugitive dust and associated particulate matter; an increase in construction vehicle exhaust emissions; burning of vegetative materials; and fugitive dust, gas, and diesel emissions and smoke that could affect adjacent residences and schools. Implementation of the mitigation measures identified in sections 4.11 and 7.11 would reduce these impacts to a less-than-significant level.

9.11 Aesthetics

Sections 4.12 and 7.12 evaluate the impacts of the Proposed Project and alternatives on aesthetic resources. Impacts were considered significant if implementation of the project alternatives could result in the degradation and/or obstruction of a scenic view from key observation areas; substantially change the character of, or be disharmonious with, existing land uses and aesthetic features; be inconsistent with federal and state Wild and Scenic River Act or Scenic Byway requirements; or generate increased daytime glare and/or nighttime lighting.

The No-Action Alternative would not adversely affect aesthetic values. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in potentially significant impacts related to the degradation and/or obstruction of a scenic view. Implementation of the mitigation measures identified in sections 4.12 and 7.12 would reduce these impacts to a less-than-significant level.

9.12 Hazards and Hazardous Materials

Sections 4.13 and 7.13 evaluate the impacts of the Proposed Project and alternatives related to hazards and hazardous materials. Impacts were considered significant if implementation of the project alternatives could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard; could interfere with emergency response and evacuation plans by temporarily slowing traffic flow; could contribute to wildland fire potential and catastrophic fire behavior in the project area; or could contribute to an increased risk of landslides and flooding.

The No-Action Alternative would not adversely affect socioeconomic resources. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Neither action alternative would result in significant impacts related to hazards and hazardous materials, and no mitigation measures are required.

9.13 Noise

Sections 4.14 and 7.14 evaluate the impacts of the Proposed Project and alternatives related to noise. Impacts were considered significant if implementation of the project alternatives could result in noise impacts to nearby sensitive receptors.

The No-Action Alternative would not adversely affect noise levels in the vicinity of the project sites. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in potentially significant impacts related to an increase in noise levels that could affect sensitive receptors. Implementation of the mitigation measures identified in sections 4.14 and 7.14 would reduce these impacts to a less-than-significant level.

9.14 Public Services and Utilities/Energy

Sections 4.15 and 7.15 evaluates the impacts of the Proposed Project and alternatives on public services and utilities. Impacts were considered significant if implementation of the project alternatives could disrupt existing electrical and phone service during construction activities; result in the generation of increased solid waste; result in disruption of emergency services, school bus routes, or student travel routes during construction activities; or result in a substantial use of nonrenewable energy resources.

The No-Action Alternative would not adversely affect public services or utilities. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in potentially significant impacts related to disruption of emergency services, school bus routes, or student travel routes during construction activities. Implementation of the mitigation measures identified in sections 4.15 and 7.15 would reduce these impacts to a less-than-significant level.

9.15 Transportation/Traffic Circulation

Sections 4.16 and 7.16 evaluate the impacts of the Proposed Project and alternatives on transportation and traffic circulation. Impacts were considered significant if implementation of the project alternatives would reduce/close existing traffic lanes; would generate short-term increases in vehicle trips; would obstruct access to adjacent land uses; would increase wear and tear on local roadways; activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians; or could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.

The No-Action Alternative would not adversely affect transportation or traffic circulation. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Either action alternative would result in potentially significant impacts related to short-term increases in vehicle trips; obstruction of access to adjacent land uses; increased wear-and-tear on local roadways; and safety hazards to motorists, bicyclists, pedestrians, and equestrians. Implementation of the mitigation measures identified in sections 4.16 and 7.16 would reduce these impacts to a less-than-significant level.

9.16 Tribal Trust

Section 7.17 evaluates the impacts of the Proposed Project and alternatives on Tribal Trust. The need to restore and maintain the natural production of anadromous fish in the mainstem Trinity River originates partly from the federal government's trust responsibility to protect the fishery resources of the region's Indian Tribes. The Proposed Project could potentially affect anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health. It is not anticipated that these impacts will affect the sociocultures and economies of the Tribes. The No-Action Alternative would not impact Tribal Trust assets. Construction-related impacts to Tribal Trust assets are expected to be short-term and outweighed by the overall benefits to these Tribal Trust assets through implementation of the Trinity River Restoration Program.

The No-Action Alternative would not adversely affect Tribal Trust assets. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Neither action alternative would result in significant impacts related to Tribal Trust assets, and no mitigation measures are required.

9.17 Environmental Justice

Section 7.18 evaluates the impacts of the Proposed Project and alternatives related to environmental justice. Federal agencies are required to identify and address disproportionately high and 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. No racial or ethnic group is disproportionately associated with the project area. There is no evidence to suggest that the Proposed Project would cause a disproportionately high, adverse human health or environmental effect on minority and low-income populations, compared to other residents in the general vicinity of the Proposed Project or elsewhere in Trinity County.

The No-Action Alternative would not adversely affect environmental justice. However, the beneficial effects of the Proposed Project would not be realized under this alternative.

Neither action alternative would result in significant impacts related to environmental justice, and no mitigation measures are required.

9.18 Other Impacts and Commitments

9.18.1 Cumulative Impacts

Cumulative impacts are the impacts on the environment that result from the incremental impacts of the Proposed Project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or entity undertakes such other actions. State CEQA Guidelines and Council on Environmental Quality NEPA regulations require that the cumulative impacts of a proposed project be addressed in an environmental document such as this Draft Master EIR – EA/Draft EIR when the cumulative impacts are expected to be significant (14 CCR 15130[a], 40CFR 1508.25[a][2]). When a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," the lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

The analysis of cumulative impacts in Chapters 5 and 8 address the cumulative impacts of the Proposed Project, as well as the No-Action Alternative and Alternative 1. It is recognized that the Proposed Project may be implemented in an interactive manner with other projects. In addition, these other projects may affect the impacts of the Proposed Project.

The cumulative impacts section identifies related projects through the list approach, based on input from the lead and cooperating agencies. The geographic scope of the area examined for cumulative effects is the Trinity River corridor between Lewiston Dam and the confluence of the North Fork Trinity River (Helena, California). The following projects were considered in this section:

- Fish Habitat Management
- Trinity River Mainstem Fishery Restoration Project
- California Coastal Salmonid Restoration Program/Five-Counties Salmonid Conservation Program
- Clean Water Action Section 303(d) Total Maximum Daily Load Requirements Program

No potentially adverse cumulative impacts are anticipated to result from the No-Action Alternative, Proposed Action, or Alternative 1. Instead, the action alternatives as mitigated will benefit, rather than adversely affect, geology, fluvial geomorphology, and soils; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; and Tribal Trust assets. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the action alternatives will contribute to long-term environmental benefits.

9.18.2 Growth-Inducing Impacts

Chapter 5 evaluates the potential for growth that could be induced by implementation of the Proposed Project and alternatives and assesses the level of significance of any expected growth inducement. The potential for growth inducement is limited by the nature and location of the rehabilitation activities described in Chapter 2.

River rehabilitation projects are typically implemented in specific areas during a finite period. Although the TRRP was established to implement the ROD, thereby increasing the fishery resources of the Trinity River, growth-inducing impacts within Trinity County were not anticipated. Section 15126(g) of the CEQA Guidelines provides definitions and guidance in determining the growth-inducing impacts of a proposed project. Specifically, a project is defined to be growth-inducing if it would

- accelerate the rate of planned growth,
- remove obstacles to population growth,
- tax existing community service facilities, or
- foster, promote, or sustain economic or population growth.

Growth itself is not assumed to be beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth-inducing, an evaluation is made to determine if significant impacts on the environment would result from that growth.

Growth was evaluated in terms of Trinity County growth policies; general information on population demographics; vacant land and projected build out; Trinity County's constraints to development; and proposed land uses.

There would be no significant growth-inducing impacts as a result of the action alternatives. In general, all parcels associated with the Proposed Project have been subdivided to the fullest extent possible under existing zoning designations.

9.19 Consultation and Coordination

Chapter 3 summarizes the scoping process, consultation, coordination, and applicable laws, policies, and regulations used to develop the Draft Master EIR – EA/Draft. The lead agency for the Draft Master EIR – EA/Draft EIR is Reclamation, as defined by NEPA, and the Regional Water Board, as defined by CEQA. The primary cooperating (NEPA) and responsible and trustee (CEQA) agencies are

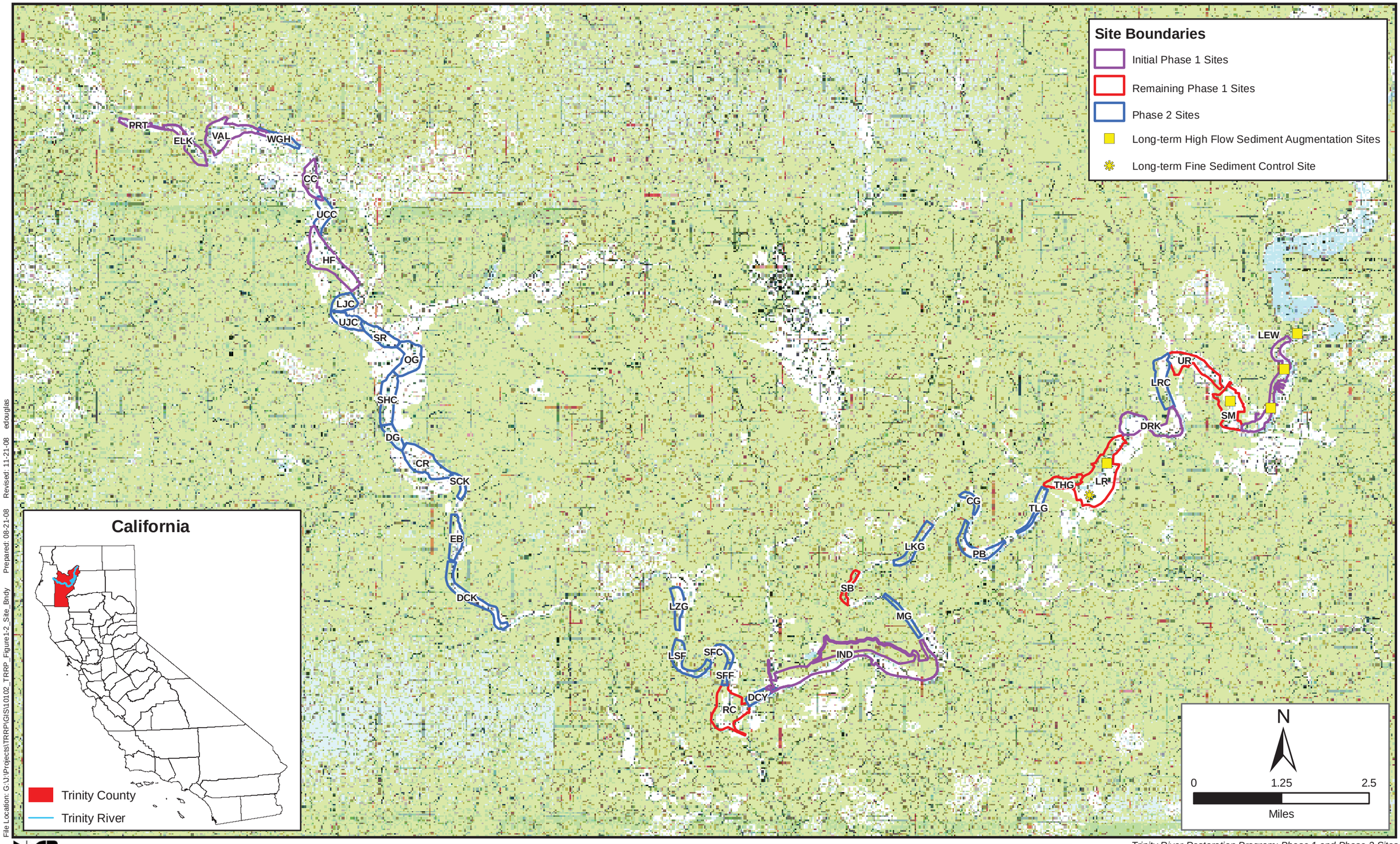
- U.S. Department of Interior, Bureau of Land Management
- Shasta-Trinity National Forest
- Hoopa Valley Tribe
- Yurok Tribe
- Trinity County Resource Conservation District
- California Department of Transportation
- California Department of Fish and Game
- California Department of Water Resources
- Trinity County

A summary of the public scoping process that has been completed to date and a list of agencies, groups, and individuals that provided comments and/or comment letters on the NOP that was circulated by the Regional Water Board are included in Chapter 1 of the Draft Master EIR – EA/Draft EIR. In addition, a

list of agencies and organizations consulted during the preparation of the environmental document; a list of the related laws, rules, regulations, and federal executive orders that were considered in the preparation of this Draft Master EIR – EA/Draft EIR; and a discussion of how this Draft Master EIR – EA/Draft EIR is consistent with federal (NEPA) and state (CEQA) statutes are included in Chapter 3. Finally, Chapter 3 includes a summary of the various discretionary approval processes that have been completed or are still being coordinated concurrent with the NEPA/CEQA environmental review process and a summary of governing laws for which a consistency determination will need to be made.

9.20 Environmental Commitments and Mitigation Measures

Tables ES-1 summarizes potential project impacts and mitigation measures prescribed for potentially significant impacts for each environmental resource and issue area.



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North State Resources, Inc.

Trinity River Restoration Program: Phase 1 and Phase 2 Sites

Figure ES-1
TRRP Project Sites

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Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
4.2 Land Use		
Impact 4.2-1: Implementation of the project could disrupt existing land uses adjacent to the proposed project site.		
Mitigation Measures	Since no significant impact was identified, no mitigation is required.	Since no significant impact was identified, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.2-2: Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the DWR Hamilton Ranch Management Plant, the Trinity County General Plan, or other local community plans, policies, and ordinances		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.2-3: Implementation of the project could affect the availability of a locally important mineral resource recovery site.		
Mitigation Measures	**3a** Reclamation will provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures.	**3a** Reclamation will provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
4.3 Geology, Fluvial Geomorphology, and Soils		
Impact 4.3-1: Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.3-2: Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River.		
Mitigation Measures	**2a** Reclamation will implement the following measures during construction activities: ▪ Areas where ground disturbance would 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. **2b** Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention 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 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 shall be used as a guide to develop this plan:	**2a** Reclamation will implement the following measures during construction activities: ▪ Areas where ground disturbance would 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. **2b** Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention 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 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 shall be used as a guide to develop this plan:

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	▪ Restore disturbed areas to pre-construction contours to the fullest extent feasible. ▪ Salvage, store, and use the highest quality soil for revegetation. ▪ Discourage noxious weed competition and control noxious weeds. ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction. ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. ▪ To the fullest extent possible, cease excavation activities during significantly wet or windy weather. ▪ Use bales 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 depth. 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 shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion. ▪ Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, erosion control structures must be in place and operational at the end of each construction day.	▪ Restore disturbed areas to pre-construction contours to the fullest extent feasible. ▪ Salvage, store, and use the highest quality soil for revegetation. ▪ Discourage noxious weed competition and control noxious weeds. ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction. ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. ▪ To the fullest extent possible, cease excavation activities during significantly wet or windy weather. ▪ Use bales 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 depth. 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 shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion. Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, erosion control structures must be in place and operational at the end of each construction day.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.		
Mitigation Measures	**3a** Reclamation will implement the following measures during construction: ▪ Areas where ground disturbance would 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 wil be limited to the minimum necessary to complet all rehabilitation activities. ▪ All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications. **3b** Reclamation will prepare an erosion and sedimentation control plan (SWPPP) as stipulated in Mitigation Measure 4.3-2b. **3c** Reclamation will coordinate with private land owners and owners of active mining claims to 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.	**3a** Reclamation will implement the following measures during construction: ▪ Areas where ground disturbance would 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 wil be limited to the minimum necessary to complet all rehabilitation activities. ▪ All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications. **3b** Reclamation will prepare an erosion and sedimentation control plan (SWPPP) as stipulated in Mitigation Measure 4.3-2b. **3c** Reclamation will coordinate with private land owners and owners of active mining claims to 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.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
4.4 Water Resources		
Impact 4.4-1: Implementation of the proposed project could result in a temporary or permanent increase in the BFE.		
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.4-2: Implementation of the project could result in a permanent decline in groundwater elevations or permanent changes in groundwater quality.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.4-3: Implementation of the project would expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
4.5 Water Quality		
Impact 4.5-1: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.		
Mitigation Measures	**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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels.	**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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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 would 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	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 would 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

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	1b To ensure that turbidity levels do not exceed the thresholds described above (4.5-1a) 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 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU. **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. **1d** Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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	**1b** To ensure that turbidity levels do not exceed the thresholds described above (4.5-1a) 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 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU. **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. **1d** Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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. **1e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols). ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed 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.	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. **1e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols). ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed 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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.5-2: Construction of the project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.		
Mitigation Measures	**2a** Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in	**2a** Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	the Trinity River basin (North Coast Regional Water Quality Control Board 2007). **2b** To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed. ▪ If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. ▪ If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed. **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 Chapter 2 (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.	the Trinity River basin (North Coast Regional Water Quality Control Board 2007). **2b** To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed. ▪ If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. ▪ If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed. **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 Chapter 2 (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.5-3: Construction of the project could cause contamination of the Trinity River from hazardous materials spills.		
Mitigation Measures	**3a** Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements. **3b** Reclamation will ensure that any construction equipment that would 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 must be adequately treated prior to discharge if that is the desired disposal option. **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. 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.	**3a** Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements. **3b** Reclamation will ensure that any construction equipment that would 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 must be adequately treated prior to discharge if that is the desired disposal option. **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. 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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.5-4: Construction of the project could result in increased stormwater runoff and subsequent potential for erosion		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.		
Mitigation Measures	The significance of impacts related to sediment, settleable materials, suspended materials, turbidity, and increased stormwater runoff and subsequent potential for erosion, as well as mitigation measures that would reduce the significance of these impacts, are addressed under Impacts 4.5-1, 4.5-2, and 4.5-4. The significance of, and mitigation for, chemical constituents and toxicity impacts are addressed under Impact 4.5-3.	The significance of impacts related to sediment, settleable materials, suspended materials, turbidity, and increased stormwater runoff and subsequent potential for erosion, as well as mitigation measures that would reduce the significance of these impacts, are addressed under Impacts 4.5-1, 4.5-2, and 4.5-4. The significance of, and mitigation for, chemical constituents and toxicity impacts are addressed under Impact 4.5-3.
Level of Significance after Mitigation	Less than significant	Less than significant
4.6 Fishery Resources		
Impact 4.6-1: Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally and state-listed coho salmon.		
Mitigation Measures	**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). **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 and will be free of contaminants, such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or	**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). **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 and will be free of contaminants, such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	greater.	greater.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.6-2: Implementation of the project could result in increased erosion and sedimentation levels that could adversely affect fishes, including federally and state-listed coho salmon.		
Mitigation Measures	**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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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 would be tolerated will be defined in discharge permits as the full width of the	**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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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 would be tolerated will be defined in discharge permits as the full width of the

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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 **2b** To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU. **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	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 **2b** To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU. **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

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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. **2d** Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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. **2e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including	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. **2d** Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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. **2e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including roadside

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	Proposed Action	Alternative 1
	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.	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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.6-3: Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally and state-listed coho salmon.		
Mitigation Measures	**3a** Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: ▪ Equipment and materials will be stored away from wetland and surface water features. ▪ Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. ▪ 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.	**3a** Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: ▪ Equipment and materials will be stored away from wetland and surface water features. ▪ Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. 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.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including federally and state-listed coho salmon.		
Mitigation Measures	**4a** To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15. **4b To** avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, and 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. **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. **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. **4e** To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select	**4a** To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15. **4b To** avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, and 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. **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. **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. **4e** To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	locations where water velocities are too high and juvenile salmonids would not be expected to be holding. **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, would 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.	locations where water velocities are too high and juvenile salmonids would not be expected to be holding. **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, would 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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.6-5: Implementation of the project would result in the permanent and temporary loss of SRA habitat for anadromous salmonids.		
Mitigation Measures	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 the floodplain. Boundary markers will be installed along all riparian areas outside of delineated rehabilitation activity areas. These markers will prevent construction access so that impacts to riparian vegetation are minimized. To compensate for the loss of riparian vegetation in the project boundaries, Reclamation will implement the following measures: **5a** Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats	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 the floodplain. Boundary markers will be installed along all riparian areas outside of delineated rehabilitation activity areas. These markers will prevent construction access so that impacts to riparian vegetation are minimized. To compensate for the loss of riparian vegetation in the project boundaries, Reclamation will implement the following measures: **5a** Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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.	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.
	5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.	**5b** Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.
	5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 Project site boundaries after 10 years.	**5c** Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 Project site boundaries after 10 years.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.		
Mitigation Measures	**6a** Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites. **6b** Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and 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. **6c** The number of vehicle and equipment crossings of the Trinity River will be minimized. **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	**6a** Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites. **6b** Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and 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. **6c** The number of vehicle and equipment crossings of the Trinity River will be minimized. **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

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	temporary impairment to fish passage related to a bridge.	temporary impairment to fish passage related to a bridge.
Level of Significance after Mitigation	Less than significant	Less than significant
	4.7 Vegetation, Wildlife, and Wetlands	
Impact 4.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.		
Mitigation Measures	**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. **1b** Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD. **1c** Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, will determine whether there is	**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. **1b** Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD. **1c** Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, will determine whether there is

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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 3 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 habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.	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 3 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 habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-2: Implementation of the project would result in the loss of upland plant communities.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.7-3: Construction of the project could result in the loss of individuals of a special-status plant species.		
Mitigation Measures	**3a** A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, the following measures will be implemented.	**3a** A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, the following measures will be implemented.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	3b Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary. **3c** If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFG staff.	**3b** Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary. **3c** If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFG staff.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.		
Mitigation Measures	**4a** Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) 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. **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. **4c** A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the project 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 will be used to ensure that no nests of this species within or immediately	**4a** Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) 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. **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. **4c** A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the project 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 will be used to ensure that no nests of this species within or immediately

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	adjacent to the project sites) would be disturbed during project implementation. If an active nest is found, CDFG will be contacted prior to the start of construction to determine the appropriate mitigation measures. **4c** If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project 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.	adjacent to the project sites) would be disturbed during project implementation. If an active nest is found, CDFG will be contacted prior to the start of construction to determine the appropriate mitigation measures. **4c** If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project 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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-5: Construction activities associated with the project could result in impacts to foothill yellow-legged frogs.		
Mitigation Measures	**5a** If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for 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. **5b** In the event that a yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits. **5c** Mitigation measures presented in section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.	**5a** If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for 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. **5b** In the event that a yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits. **5c** Mitigation measures presented in section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	5d The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.	**5d** The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-6: Construction activities associated with the project could result in impacts to western pond turtles.		
Mitigation Measures	**6a:** A minimum of one survey for 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 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. **6b:** Prior to construction in open water habitat, a qualified biologist will trap and move turtles out of the construction area to nearby suitable habitats. **6c:** During construction, in the event that a pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits. **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. **6e:** The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.	**6a:** A minimum of one survey for 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 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. **6b:** Prior to construction in open water habitat, a qualified biologist will trap and move turtles out of the construction area to nearby suitable habitats. **6c:** During construction, in the event that a pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits. **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. **6e:** The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.
Level of Significance after Mitigation	Less than significant	Less than significant

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	Proposed Action	Alternative 1
Impact 4.7-7: Construction activities associated with the project could result in impacts to nesting Vaux's swifts, yellow warblers, and yellow-breasted chats.		
Mitigation Measures	In order to avoid and/or minimize impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts, the following measures will be implemented: **7a:** Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented. **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 August. 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. **7c:** A qualified biologist will conduct a minimum of one preconstruction survey for these species within the project site(s) and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be used to ensure that no nests of these species within or immediately adjacent to the project site(s) 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. **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 project will be removed before the onset of the nesting season, if feasible. This will help preclude	In order to avoid and/or minimize impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts, the following measures will be implemented: **7a:** Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented. **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 August. 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. **7c:** A qualified biologist will conduct a minimum of one preconstruction survey for these species within the project site(s) and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be used to ensure that no nests of these species within or immediately adjacent to the project site(s) 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. **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 project will be removed before the onset of the nesting season, if feasible. This will help preclude

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	nesting and substantially decrease the likelihood of direct impacts.	nesting and substantially decrease the likelihood of direct impacts.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawks.		
Mitigation Measures	In order to avoid and/or minimize impacts to nesting bald eagles and northern goshawks, the following measures will be implemented: **8a:** Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented. **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 would be expected. If it is not possible to schedule construction during this time, the following mitigation measures will be implemented. **8c:** Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald eagle and northern goshawk nests. If an active nest is found within 500 feet of the construction area to be disturbed by these activities, the biologist, in consultation	In order to avoid and/or minimize impacts to nesting bald eagles and northern goshawks, the following measures will be implemented: **8a:** Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented. **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 would be expected. If it is not possible to schedule construction during this time, the following mitigation measures will be implemented. **8c:** Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald eagle and northern goshawk nests. If an active nest is found within 500 feet of the construction area to be disturbed by these activities, the biologist, in consultation

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	with the CDFG, will determine the extent of a construction-free buffer zone to be established around the nest. **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 project 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.	with the CDFG, will determine the extent of a construction-free buffer zone to be established around the nest. **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 project 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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.		
Mitigation Measures	In order to avoid and/or minimize impacts to roosting special-status bats and the ring-tailed cat, the following measures will be implemented: **9a:** A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would 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. CDFG will also be notified of any active bat nurseries within the disturbance zones. **9b:** If an active maternity roost or hibernaculum is found,	In order to avoid and/or minimize impacts to roosting special-status bats and the ring-tailed cat, the following measures will be implemented: **9a:** A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would 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. CDFG will also be notified of any active bat nurseries within the disturbance zones. **9b:** If an active maternity roost or hibernaculum is found,

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	the project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project 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 the darker hours. **9c:** If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that 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, the individuals will be safely evicted under the direction of a qualified biologist. 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.	the project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project 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 the darker hours. **9c:** If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that 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, the individuals will be safely evicted under the direction of a qualified biologist. 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.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.7-10: Construction activities associated with the project could result in the temporary loss of non-breeding habitat for several special-status birds.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.		
Mitigation Measures	Since no significant impacts for the Pacific fisher were identified, no mitigation is required. Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less-than-significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less-than-significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less-than-significant level.	Since no significant impacts for the Pacific fisher were identified, no mitigation is required. Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less-than-significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less-than-significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less-than-significant level.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.7-12: Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.		
Mitigation Measures	Since no significant impact was identified for these alternatives, no mitigation is required.	Since no significant impact was identified for these alternatives, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.7-13: Implementation of the project could result in the spread of non-native and invasive plant species.		
Mitigation Measures	In order to avoid and/or minimize the potential introduction and/or spread of noxious weeds, the following measures will be implemented: **13a:** When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed. **13b:** Preclude the use of rice straw in riparian areas. **13c:** Limit any import or export of fill to materials to those that are known to be weed free. **13d:** Ensure all construction equipment is thoroughly washed prior to entering 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. **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. **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.	In order to avoid and/or minimize the potential introduction and/or spread of noxious weeds, the following measures will be implemented: **13a:** When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed. **13b:** Preclude the use of rice straw in riparian areas. **13c:** Limit any import or export of fill to materials to those that are known to be weed free. **13d:** Ensure all construction equipment is thoroughly washed prior to entering 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. **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. **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.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	4.8 Recreation	
Impact 4.8-1:	**Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.**	
Mitigation Measures	**1a** Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM, STNF, and DFG (e.g., Bucktail River Access, Steel Bridge Campground, Douglas City Campground, Indian Creek River Access, and Junction City Campground). Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction. **1b** Reclamation will repair and/or replace any facilities associated with Remaining Phase 1 or Phase 2 sites that are impacted by project activities. This measure would include installation of interpretive signage consistent with the requirements of the STNF and 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.	**1a** Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM, STNF, and DFG (e.g., Bucktail River Access, Steel Bridge Campground, Douglas City Campground, Indian Creek River Access, and Junction City Campground). Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction. **1b** Reclamation will repair and/or replace any facilities associated with Remaining Phase 1 or Phase 2 sites that are impacted by project activities. This measure would include installation of interpretive signage consistent with the requirements of the STNF and 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.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries.		
Mitigation Measures	**2a** Please see mitigation measure 1a above.	**2a** Please see mitigation measure 1a above.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.8-3: Construction activities associated with the project could lower the river's aesthetic values for recreationists by increasing its turbidity.		
Mitigation Measures	**3a** 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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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	**3a** 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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	minimum of 7 days) a zone of turbidity dilution within which higher percentages would 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. **3b** To ensure that turbidity levels do not exceed the thresholds described above (4.8-3a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. ▪ If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels	minimum of 7 days) a zone of turbidity dilution within which higher percentages would 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. **3b** To ensure that turbidity levels do not exceed the thresholds described above (4.8-3a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. ▪ If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	are at or below 20 NTU. **3c** 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. **3d** Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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. **3e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated	are at or below 20 NTU. **3c** 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. **3d** Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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. **3e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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.	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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.8-4: Implementation of the project could affect Wild and Scenic River values.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
4.9 Socioeconomic, Population, and Housing		
Impact 4.9-1: Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Beneficial	Beneficial
Impact 4.9-2: Implementation of the project could result in the disruption or displacement of local businesses.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	N/A	N/A
Impact 4.9-3: Implementation of the project would result in an increased demand for housing during construction.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.9-4: Implementation of the project would result in concentrated population growth.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
4.10 Cultural Resources		
Impact 4.10-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a known cultural resource.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.		
Mitigation Measures	**2a** Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel	**2a** Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	shall be instructed that upon discovery of buried cultural resources, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist shall be consulted. Once the find has been identified, Reclamation shall be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA. **2b** 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 shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC shall 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 U.S.C. 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 shall be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.	shall be instructed that upon discovery of buried cultural resources, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist shall be consulted. Once the find has been identified, Reclamation shall be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA. **2b** 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 shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC shall 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 U.S.C. 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 shall be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	4.11 Air Quality	
Impact 4.11-1: 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.		
Mitigation Measures	**1a:** Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: ▪ Inactive construction areas will be watered as needed to ensure dust control. ▪ Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1–2 feet vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in section 4.3, Geology, Fluvial Geomorphology, and Soils, and section 4.5, 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	**1a:** Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: ▪ Inactive construction areas will be watered as needed to ensure dust control. ▪ Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1–2 feet vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in section 4.3, Geology, Fluvial Geomorphology, and Soils, and section 4.5, 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

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	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.	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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.		
Mitigation Measures	**2a:** Reclamation will comply with NCUAQMD Rule 104 (3.0) 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).	**2a:** Reclamation will comply with NCUAQMD Rule 104 (3.0) 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).
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.11-3: Construction activities associated with the project and removal of vegetation could result in vegetative materials that managers will decide to burn.		
Mitigation Measures	**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. **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: ▪ Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined by calling 1-866-BURN-DAY).	**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. **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: ▪ Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined by calling 1-866-BURN-DAY).

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	▪ 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 ºF). ▪ 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. ▪ 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. **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.	▪ 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 ºF). ▪ 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. ▪ 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. **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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.11-4: Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.11-5: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions and smoke that could affect adjacent residences and schools.		
Mitigation Measures	**5a:** Construction activity occurring within 300 feet of the Lewiston or Douglas City elementary schools will be limited to the period when school is not in session. **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. **5c:** Reclamation will notify residences within 300 feet of Remaining Phase 1 and Phase 2 and project activity and the Lewiston, Douglas City, and Junction City elementary schools will be notified of construction activity located near the schools prior to site construction activities. **5d:** Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation sites, which contains a phone number for the public to contact for concerns related to air quality.	**5a:** Construction activity occurring within 300 feet of the Lewiston or Douglas City elementary schools will be limited to the period when school is not in session. **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. **5c:** Reclamation will notify residences within 300 feet of Remaining Phase 1 and Phase 2 and project activity and the Lewiston, Douglas City, and Junction City elementary schools will be notified of construction activity located near the schools prior to site construction activities. **5d:** Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation sites, which contains a phone number for the public to contact for concerns related to air quality.
Level of Significance after Mitigation	Less than significant	Less than significant
4.12 Aesthetics		
Impact 4.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.		
Mitigation Measures	In order to minimize impacts to visual resources resulting from the removal of vegetation in the project area, mitigation measures 4.7-1a through 1c, as described in section 4.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable for either alternative. Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) will be mitigated through the implementation of mitigation measures 4.8-3a through 3f,	In order to minimize impacts to visual resources resulting from the removal of vegetation in the project area, mitigation measures 4.7-1a through 1c, as described in section 4.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable for either alternative. Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) will be mitigated through the implementation of mitigation measures 4.8-3a through 3f,

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
	as described in section 4.8 (Recreation). These measures will be implemented where applicable for either alternative.	as described in section 4.8 (Recreation). These measures will be implemented where applicable for either alternative.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.12-2: Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.14-3: The project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.12-4: The project could generate increased daytime glare and/or nighttime lighting.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
4.13 Hazardous Materials		
Impact 4.13-1: Implementation of the project may increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.13-2: Construction activities associated with the project may interfere with emergency response/evacuation plans by temporarily slowing traffic flow.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.13-3: Implementation of the project may contribute to area wildland fire potential and catastrophic fire behavior in the project area.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.13-4: Implementation of the project may contribute to an increased risk of landslide and flooding.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
4.14 Noise		
Impact 4.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.		
Mitigation Measures	**1a:** Construction activities near residential areas would 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. **1b:** Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices. **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).	**1a:** Construction activities near residential areas would 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. **1b:** Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices. **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).
Level of Significance after Mitigation	Less than significant	Less than significant
4.15 Public Services and Utilities/Energy		
Impact 4.15-1: Implementation of the project could disrupt existing electrical and phone service during construction activities.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.15-2: Construction of the project could result in the generation of increased solid waste.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.15-3: Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.		
Mitigation Measures	**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. **3b:** Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures. **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.	**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. **3b:** Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures. **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.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.15-4: Construction of the proposed project could result in a substantial use of nonrenewable energy resources.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
4.16 Transportation/Traffic Circulation		
Impact 4.16-1: Construction activities would reduce/close existing traffic lanes.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 4.16-2: Construction activities would generate short-term increases in vehicle trips.		
Mitigation Measures	**2a** Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.	**2a** Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.16-3: Implementation of the project would obstruct access to adjacent land uses.		
Mitigation Measures	**3a** Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River. **3b** During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period.	**3a** Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River. **3b** During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Impact 4.16-4: Construction activities would increase wear and tear on local roadways.		
Mitigation Measures	**4a** Reclamation will perform a pre-construction survey of local federal, state, and private 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 would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.	**4a** Reclamation will perform a pre-construction survey of local federal, state, and private 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 would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.		
Mitigation Measures	**5a:** Reclamation will prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities.	**5a:** Reclamation will prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 4.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.

Table ES-1. Summary of Impacts and Mitigation Measures for the Remaining Phase 1 and Phase 2 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	N/A	N/A

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
7.2 Land Use		
Impact 7.2-1: Implementation of the project could disrupt existing land uses adjacent to the project site.		
Mitigation Measures	Since no significant impact was identified, no mitigation is required.	Since no significant impact was identified, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.2-2: Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the DWR Hamilton Ranch Management Plant, the Trinity County General Plan, or other local community plans, policies, and ordinances		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.2-3: Implementation of the project could affect the availability of a locally important mineral resource recovery site.		
Mitigation Measures	**3a** Reclamation will provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures.	**3a** Reclamation will provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
7.3 Geology, Fluvial Geomorphology, and Soils		
Impact 7.3-1: Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.3-2: Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.3-2 apply (section 4.3.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.3-2 apply (section 4.3.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.3-3 apply (section 4.3.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.3-3 apply (section 4.3.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
7.4 Water Resources		
Impact 7.4-1: Implementation of the proposed project could result in a temporary or permanent increase in the BFE.		
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.4-2: Implementation of the project could result in a permanent decline in groundwater elevations or permanent changes in groundwater quality.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.4-3: Implementation of the project would expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
7.5 Water Quality		
Impact 7.5-1: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.5-1 apply (section 4.5.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.5-1 apply (section 4.5.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.5-2: Construction of the project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.5-2 apply (section 4.5.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.5-2 apply (section 4.5.2). No additional mitigation measures are required.

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.5-3: Construction of the project could cause contamination of the Trinity River from hazardous materials spills.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.5-3 apply (section 4.5.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.5-3 apply (section 4.5.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.5-4: Construction of the project could result in increased stormwater runoff and subsequent potential for erosion		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.5-5 apply (section 4.5.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.5-5 apply (section 4.5.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
7.6 Fishery Resources		
Impact 7.6-1: Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally and state-listed coho salmon.		
Mitigation Measures	Mitigation measures detailed under Impact 4.6-1 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.6-1 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.6-2: Implementation of the project could result in increased erosion and sedimentation levels that could adversely affect fishes, including federally and state-listed coho salmon.		
Mitigation Measures	Mitigation measures detailed under Impact 4.6-2 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.6-2 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.6-3: Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally and state-listed coho salmon.		
Mitigation Measures	Mitigation measures detailed under Impact 4.6-3 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.6-3 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including federally and state-listed coho salmon.		
Mitigation Measures	Mitigation measures detailed under Impact 4.6-4 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.6-4 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.6-5: Implementation of the project would result in the permanent and temporary loss of SRA habitat for anadromous salmonids.		
Mitigation Measures	Mitigation measures detailed under Impact 4.6-5 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.6-5 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.		
Mitigation Measures	Mitigation measures detailed under Impact 4.6-6 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.6-6 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
7.7 Vegetation, Wildlife, and Wetlands		
Impact 7.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-1 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-1 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-2: Implementation of the project would result in the loss of upland plant communities.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.7-3: Construction of the project could result in the loss of individuals of a special-status plant species.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-3 in the Master EIR apply (section 4.7.2). Mitigation measure 4.7-3a shall apply only to those portions of the sites not	Mitigation measures detailed under Impact 4.7-3 in the Master EIR apply (section 4.7.2). Mitigation measure 4.7-3a shall apply only to those portions of the sites not

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
	previously surveyed. No additional mitigation measures are required.	previously surveyed. No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-4 in the Master EIR apply are (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-4 in the Master EIR apply are (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-5: Construction activities associated with the project could result in impacts to foothill yellow-legged frogs.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-5 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-5 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-6: Construction activities associated with the project could result in impacts to western pond turtles.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-6 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-6 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-7: Construction activities associated with the project could result in impacts to nesting Vaux's swifts, yellow warblers, and yellow-breasted chats.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-7 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-7 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawks.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-8 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-8 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-9 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-9 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.7-10: Construction activities associated with the project could result in the temporary loss of non-breeding habitat for several special-status birds.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-11 in the Master EIR for special-status species apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-11 in the Master EIR for special-status species apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.7-12: Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.		
Mitigation Measures	Since no significant impact was identified for these alternatives, no mitigation is required.	Since no significant impact was identified for these alternatives, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.7-13: Implementation of the project could result in the spread of non-native and invasive plant species.		
Mitigation Measures	Mitigation measures detailed under Impact 4.7-13 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.7-13 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
4.8 Recreation		
Impact 7.8-1: Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.		
Mitigation Measures	Mitigation measures detailed under Impact 4.8-1 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.8-1 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries.		
Mitigation Measures	Mitigation measures detailed under Impact 4.8-2 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.8-2 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.8-3: Construction activities associated with the project could lower the river's aesthetic values for recreationists by increasing its turbidity.		
Mitigation Measures	Mitigation measures detailed under Impact 4.8-3 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.8-3 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.8-4: Implementation of the project could affect Wild and Scenic River values.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
7.9 Socioeconomic, Population, and Housing		
Impact 7.9-1: Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Beneficial	Beneficial
Impact 7.9-2: Implementation of the project could result in the disruption or displacement of local businesses.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.9-3: Implementation of the project would result in an increased demand for housing during construction.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.9-4: Implementation of the project would result in concentrated population growth.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
7.10 Cultural Resources		
Impact 7.10-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a known cultural resource.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.10-2 apply (section 4.10.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.10-2 apply (section 4.10.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
	7.11 Air Quality	
Impact 7.11-1: 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.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.11-1 apply (section 4.11.2). No additional mitigation measures are required.	▪ Mitigation measures detailed under the Master EIR Impact 4.11-1 apply (section 4.11.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.11-2 apply (section 4.11.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.11-2 apply (section 4.11.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.11-3: Construction activities associated with the project and removal of vegetation could result in vegetative materials that managers will decide to burn.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.11-3 apply (section 4.11.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.11-3 apply (section 4.11.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.11-4: Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.11-5: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions and smoke that could affect adjacent residences and schools.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.11-5 apply (section 4.11.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.11-5 apply (section 4.11.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
7.12 Aesthetics		
Impact 7.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.		
Mitigation Measures	Mitigation measures detailed under the Master EIR Impact 4.12-1 apply (section 4.12.2). No additional mitigation measures are required.	Mitigation measures detailed under the Master EIR Impact 4.12-1 apply (section 4.12.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.12-2: Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.14-3: The project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Level of Significance after Mitigation	N/A	N/A
Impact 7.12-4: The project could generate increased daytime glare and/or nighttime lighting.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
7.13 Hazardous Materials		
Impact 7.13-1: Implementation of the project may increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.13-2: Construction activities associated with the project may interfere with emergency response/evacuation plans by temporarily slowing traffic flow.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.13-3: Implementation of the project may contribute to area wildland fire potential and catastrophic fire behavior in the project area.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.13-4: Implementation of the project may contribute to an increased risk of landslide and flooding.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant
7.14 Noise		
Impact 7.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.		
Mitigation Measures	Mitigation measures detailed under Impact 4.14-1 in the Master EIR apply (section 4.14.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.14-1 in the Master EIR apply (section 4.14.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
7.15 Public Services and Utilities/Energy		
Impact 7.15-1: Implementation of the project could disrupt existing electrical and phone service during construction activities.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.15-2: Construction of the project could result in the generation of increased solid waste.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.15-3: Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.		
Mitigation Measures	Mitigation measures detailed under Impact 4.15-3 in the Master EIR apply (section 4.15.2). No additional mitigation measures are required.	Mitigation measures detailed under Impact 4.15-3 in the Master EIR apply (section 4.15.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.15-4: Construction of the proposed project could result in a substantial use of nonrenewable energy resources.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
7.16 Transportation/Traffic Circulation		
Impact 7.16-1: Construction activities would reduce/close existing traffic lanes.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.16-2: Construction activities would generate short-term increases in vehicle trips.		
Mitigation Measures	The mitigation measure detailed under Impact 4.16-2 in the Master EIR applies (section 4.16.2). No additional mitigation measures are required.	The mitigation measure detailed under Impact 4.16-2 in the Master EIR applies (section 4.16.2). No additional mitigation measures are required.
Level of Significance after Mitigation	Less than significant	Less than significant

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
Impact 7.16-3: Implementation of the project would obstruct access to adjacent land uses.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 7.16-4: Construction activities would increase wear and tear on local roadways.		
Mitigation Measures	The mitigation measure detailed under Impact 4.16-4 in the Master EIR applies (section 4.14.2). No additional mitigation is required.	The mitigation measure detailed under Impact 4.16-4 in the Master EIR applies (section 4.14.2). No additional mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.		
Mitigation Measures	The mitigation measure detailed under Impact 4.16-5 in the Master EIR applies (section 4.14.2). No additional mitigation is required.	The mitigation measure detailed under Impact 4.16-5 in the Master EIR applies (section 4.14.2). No additional mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 7.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Table ES-2. Summary of Impacts and Mitigation Measures Remaining Phase 1 Sites

	Proposed Action	Alternative 1
7.17 Tribal Trust		
Impact 7.17-1: Implementation of the project may reduce the quantity or quality of Tribal trust assets.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
7.18 Environmental Justice		
Impact 7.18-1: Implementation of the project could adversely affect a minority or low-income population and/or community.		
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

Draft Finding of No Significant Impact

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

DRAFT
FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), the Trinity River Restoration Program (TRRP) office of the U.S. Bureau of Reclamation (Reclamation) has found that the Proposed Action, supported by the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Final Master Environmental Impact Repor*t and *Part 2: Environmental Assessment/Final Environmental Impact Report* (Final Master EIR – EA/Final EIR), will result in no significant impacts on the human environment considering the context and intensity of impacts.

Part 1 of the supporting documentation, referred to as a Master Environmental Impact Report (Master EIR), is a programmatic document prepared in part to meet the requirements of the California Environmental Quality Act (CEQA). The state Master EIR is analogous to the federal Trinity River Mainstem Fisheries Restoration Final Environmental Impact Statement (FEIS) programmatic document prepared in 2000. Much of the design and analysis for the Proposed Action is discussed in the Draft Master EIR, which, as noted above, is Part 1 of the combined Draft Master EIR – EA/Draft EIR document. Part 2 of this document is an Environmental Assessment (EA) that has been prepared to support the authorization of the Proposed Action at the Remaining Phase 1 sites. Preparation of an Environmental Impact Statement to further analyze possible impacts is not required pursuant to Section 102(2) of the National Environmental Policy Act of 1969 and 40 CFR 1508.27.

Reference: Environmental Assessment for Remaining Phase 1 Channel Rehabilitation and Sediment Management Activities: Trinity River Mile 92.2 to 109.7

Environmental review by:

_____ _____

F. Brandt Gutermuth — Date
Environmental Specialist, Trinity River Restoration Program

Approved by:

_____ _____

Mike A. Hamman — Date
Executive Director, Trinity River Restoration Program — FONSI No.TR-EA 0109

FINDING OF NO SIGNIFICANT IMPACT

Remaining Phase 1 Channel Rehabilitation and Sediment Management Activities: Trinity River Mile 92.2 to 109.7

LEAD AGENCY

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BACKGROUND AND NEED

Completion of the Trinity and Lewiston Dams in 1964 blocked migratory fish access to habitat upstream of Lewiston Dam, eliminated coarse sediment transport from over 700 square miles of the upper watershed, and restricted anadromous fish populations to the remaining habitat below Lewiston 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 included encroachment of riparian vegetation, establishment of riparian berms[1], and fossilization of point bars at various locations along the river, as far downstream as the North Fork Trinity River. These geomorphic changes resulted in a decrease in the diversity of species and age classes of riparian vegetation along the river, impaired floodplain access, and adversely affected fish habitat.

In 1994, the U.S. Fish and Wildlife Service (USFWS) as the NEPA lead agency began the NEPA process for developing the Trinity River Mainstem Fishery Restoration Environmental Impact Statement (EIS). The 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) directed Department of the Interior agencies to implement the Flow Evaluation Alternative as the Preferred Alternative identified in the FEIS/EIR to restore the Trinity River's anadromous fishery. The ROD directed the U.S. Bureau of Reclamation (Reclamation), through the Trinity River Restoration Program (TRRP), to restore the Trinity River fishery by implementing a combination of higher releases from Lewiston Dam (up to 11,000 cubic feet per second [cfs]), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an Adaptive Environmental Assessment and Management Program. The FEIS functions as project-level guidance for policy decisions associated with

[1] The condition is not as extensive as early studies indicated (e.g., the Trinity River Flow Evaluation Final Report 1999).

managing Trinity River flows and as a programmatic NEPA document providing first-tier support of related mechanical restoration and sediment management actions.

The TRRP, acting under the guidance of the Trinity Management Council (TMC), provides overall program direction to restore, enhance, and conserve the natural production of anadromous fisheries, native plant communities, and associated wildlife resources of the Trinity River basin. The TRRP provides technical and administrative support to the TMC related to both scientific evaluation of restoration progress and management implementation. The TRRP is responsible for the overall implementation of the ROD. The Remaining Phase 1 Channel Rehabilitation and Sediment Management Activities: Trinity River Mile 92.2 to 109.7 (project) is part of the mechanical channel rehabilitation and sediment management components of the ROD. The project is located between Lewiston Dam and the North Fork of the Trinity River and is designed to create, restore, and enhance the full range of anadromous fish habitats in the Trinity River by restoring fluvial processes. Activities to restore fluvial processes include rescaling the river channel and floodplain and managing coarse sediment at the Remaining Phase 1 sites, augmenting gravel at high-flow placement areas, and controlling fine sediment at the Hamilton Ponds. Specifically, this project would selectively remove fossilized berms and encroaching riparian vegetation; revegetate and/or reestablish complex and diverse assemblages of native riparian vegetation; and recreate alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of Lewiston and Trinity dams. These rehabilitation activities are expected to increase habitat suitability and availability for salmonids and other native fish and wildlife species during a wide range of river flow conditions.

Implementing channel rehabilitation work at the remaining six Phase 1 sites would continue implementation of the ROD throughout the reach. Implementation of the Proposed Action (Proposed Project) at the Sawmill site, expected in 2009, would be the fifth in a sequence of channel rehabilitation projects (Hocker Flat constructed in 2005, the Canyon Creek Suite in 2006, Indian Creek in 2007, and Lewiston-Dark Gulch in 2008) to implement the ROD's mechanical channel rehabilitation components, and to rework the Trinity River floodplain based on pre-dam channel morphology characteristics. In addition to ongoing annual sediment management at the Hamilton Ponds and coarse sediment augmentation during high flows, activities at the Sawmill site constitute the third TRRP channel rehabilitation project to implement portions of the ROD's coarse sediment management activities. Gravel processing and augmentation activities initially occurred at the Indian Creek and Lewiston–Dark Gulch sites under both high and low flow conditions (e.g., in-channel gravel bar construction). The Proposed Action identified for the Remaining Phase 1 sites is intended to meet the overarching goals of the TRRP: to enhance river processes in order to increase channel complexity and fisheries habitat throughout the mainstem Trinity River downstream of Lewiston Dam. Implementation of the Proposed Action would contribute to the restoration of aquatic habitat in the mainstem Trinity River through the development of properly functioning channel conditions. Rehabilitation activities as described in the Draft Master EIR – EA/Draft EIR, combined with ROD flow releases, are expected to contribute to the restoration of the Trinity River mainstem fishery.

The EA/Final EIR for the project considered three alternatives: the No-Action Alternative, the Proposed Action, and Alternative 1. After inclusion of all mitigation measures (discussed in detail in Part 1 of the Draft Master EIR – EA/Draft EIR), no significant impacts were determined for the Proposed Action pursuant to NEPA or the California Environmental Quality Act (CEQA). Details concerning these alternatives and other alternatives considered but not carried forward for evaluation are included in Part 2 of *Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites* (Draft Master EIR – EA/Draft EIR). The Proposed Action maximizes environmental benefits with less-than-significant environmental impacts and is preferred for implementation. The Proposed Action is described below.

The FEIS acknowledged that the various rehabilitation sites exhibit a variety of conditions that require site-specific designs. The FEIS also recognized that, in many instances, the entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to initiate development of a dynamic alluvial channel that will promote the formation and maintenance of an alternate bar channel in both treated and untreated areas.

An interdisciplinary team of the TRRP identified discrete activity areas within the boundaries of the six Remaining Phase 1 sites. Activity areas were identified based on the type of activity that would occur in a specific place and include in-channel, riverine, upland, construction staging, road, and temporary crossing areas. Remaining Phase 1 channel rehabilitation site locations and their associated number of discrete activity areas are as follows: Sawmill, 43; Upper Rush Creek, 31; Lowden Ranch, 24; Trinity House Gulch, 17; Steel Bridge Day Use, 11; and Reading Creek, 30. Access to these areas requires existing and new roads and low-flow crossings of the Trinity River in portions of the Remaining Phase 1 sites that would otherwise be inaccessible. The type, extent, and level of activity in each area may be different, depending on the alternative.

For each site, riverine activities are labeled with an R followed by the construction site number (e.g., R-1, R-2); upland activities are labeled with a U and followed by the construction site number (e.g., U-1, U-2); in-channel work areas (e.g., coarse sediment placement or grade control removal) are identified with an IC; and staging/use areas are characterized with a C. Temporary low-flow channel crossings are labeled with an X, and roads are identified as existing or new. In the Lewiston area, four site locations were defined as Sawmill (SM), Upper Rush Creek (URC), Lowden Ranch (LR) and Trinity House Gulch (THG). In the Douglas City area, two site locations were defined as Steel Bridge Road Day Use (SB) and Reading Creek (RC). The setting and additional details on these activity areas are provided in Chapters 2, 4, and 7 of the Draft Master EIR – EA/Draft EIR.

The TRRP has developed programmatic objectives for channel rehabilitation projects, which are described in Chapter 2 of the Draft Master EIR – EA/Draft EIR. The programmatic objectives were used to identify a number of specific activities that could be applied at each site location. Each activity area was established to meet a suite of specific objectives in conformance with the overall goals and objectives outlined for the TRRP. The activities included in the Proposed Action for the Remaining Phase 1 sites focus on modifying existing grade control features, reconnecting the river's floodplain with the river, establishing or expanding side-channel habitat, and enhancing the bed and banks of the Trinity River for

increased river function and aquatic habitat development. Removal of alluvial material at select locations will provide opportunities to enhance the development of alternate point bars and supplement coarse sediment. Ultimately, the goal of these channel rehabilitation efforts is to provide functional aquatic habitat for all life stages of anadromous salmonids under a range of flow conditions; to provide suitable salmonid rearing habitat, which is presently believed to be a limiting factor in the system; and to reestablish healthy alluvial river geomorphic processes, which will ultimately maintain high-quality salmonid habitat at a dynamic equilibrium.

The Proposed Action includes 15 rehabilitation activities. Each rehabilitation activity is identified with an alpha code for reference throughout the Draft Master EIR – EA/Draft EIR. The rehabilitation activities are shown in Table 1.

Table 1. Remaining Phase 1 Rehabilitation Activities

Label	Activity Type
A	Recontouring and vegetation removal
B	Constructed inundation surface (450 cfs*)
C	Constructed inundation surface (1,000 – 4,500 cfs)
D	Constructed inundation surface (6,000 cfs)
E	Low-flow side channel (300 cfs)
F	Medium-flow side channel (1000 cfs)
G	Alcove (450 cfs; 6,000 cfs)
H	Grade control removal
I	Sediment management (coarse and fine)
J	Placement of excavated materials
K	Staging/use areas (includes gravel processing and stockpiling)
L	Roads, existing
M	Roads, new
N	Temporary channel crossings (Trinity River and Tributaries)
O	Revegetation

Note: cfs = cubic feet per second.

Activities A–I would all occur within riverine areas included for rehabilitation activities as part of the Proposed Action. However, the type and degree of activity would differ slightly for each area along the Remaining Phase 1 reaches. Activities J and K would be associated with the transfer, placement, and stabilization of material excavated from the riverine areas. The location and extent of material stockpiled, transported, and placed would differ for each area. Other activities, including road creation, water crossings, and processing/transportation of alluvial materials, are designed to minimize impacts to the resources described in Chapters 4 and Chapter 7 of the Draft Master EIR – EA/Draft EIR, as revised in the Final Master EIR – EA/Final EIR. The inclusion of in-channel activities is intended to enhance the ability of the river to readjust to changes in the flow and sediment regime provided by the ROD. The Riparian Revegetation Management Plan, prepared in cooperation with the California Department of Fish and Game, U.S. Army Corps of Engineers (USACE), and the Regional Water Quality Control Board – North Coast Region (Regional Water Board), will be implemented to ensure that riparian habitat (e.g., riparian vegetation) is restored in a manner (species and size classes) that supports the TRRP object of

restoring the form and function of an alluvial river over time. Implementation of the Riparian Revegetation Management Plan will also ensure that the State of California's requirement of "no net-loss of riparian habitat" is met through a 1:1 replacement of affected riparian habitat over time. Project monitoring requirements will allow critical evaluation in order to adjust future rehabilitation plans to incorporate those practices that perform best in the field. A comprehensive discussion of these rehabilitation site activities is provided in Chapter 2 of the Draft Master EIR – EA/Draft EIR.

The Proposed Action meets the requirements of the Trinity River ROD, the Endangered Species Act (ESA), the Clean Water Act, NEPA, the Clean Air Act, the Wild and Scenic Rivers Act , the National Historic Preservation Act, and the Resource Management Plan for the Redding Field Office of the Bureau of Land Management as amended by the Northwest Forest Plan.

FINDINGS

The No-Action Alternative, Proposed Action, and Alternative 1 were evaluated in the EA with respect to their impacts in the following issue areas: land use; geomorphic environment; water resources; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; socioeconomics; tribal trust; cultural resources; air quality; environmental justice; aesthetics; hazards and hazardous materials; noise; public services and utilities/energy; and transportation/traffic circulation. Based on the following summary of the implementation effects of the Proposed Action (as discussed fully in the Master EIR – EA/EIR), implementation of the Proposed Action would result in no significant impacts to the quality of the human environment.

Land Use

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

Geology, Fluvial Geomorphology, and Soils

Implementation of the Proposed Action is consistent with the 10 healthy river attributes described in the Trinity River Flow Evaluation Study that provide a basis for the TRRP efforts to restore and enhance native fish and wildlife populations. Project construction activities and disturbance would increase the potential for short-term wind and water erosion and could interfere with mineral resources. However, project implementation would include sediment and erosion control measures, and mitigation measures to reduce and avoid potential impacts on mineral resources. Therefore, the Proposed Action would not have significant impacts on geologic resources or processes.

Water Resources

Based on the USACE hydraulic model HEC-RAS, implementation of the Proposed Action, including excavation or placement of alluvial materials in the 100-year floodplain and low-flow channel, would not increase the base flood elevation of the Trinity River. Additionally, project implementation would not result in significant risk of injury, death or loss involving flooding or erosional processes. The proposed activities are expected to have minimal, if any, effects on groundwater elevations or groundwater quality. Therefore, the Proposed Action would not have a significant impact on water resources.

Water Quality

Implementation of the Proposed Action , including construction activities in and adjacent to the low-flow channel, could temporarily increase turbidity and total suspended solids in the water column. It could also result in a spill of hazardous materials (e.g., grease, solvents) into the Trinity River. Construction activities would be staged and timed to minimize potential water quality effects, and appropriate mitigation measures would be implemented to avoid and reduce water quality impacts. Therefore, the Proposed Action would not have a significant impact on water quality.

Fisheries Resources

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

Any temporary construction impacts on fish-rearing habitat are expected to be offset by permanent beneficial changes to physical rearing habitat associated with project implementation. Improved river access to the floodplain during flows in excess of summer base flows (450 cubic feet per second), is expected to increase the availability of the slow, shallow edge habitat preferred by juvenile salmonids. Collective improvements in fluvial channel dynamics contributed by the Proposed Action in conjunction with future channel rehabilitation projects throughout the Trinity River between Lewiston Dam and the North Fork Trinity River are ultimately expected to improve rearing habitat diversity for all anadromous salmonids. Because of the Proposed Action's limited construction near the water, inclusion of mitigation measures to protect fishes, and generally localized effects, no significant effects would occur to fisheries resources.

Vegetation, Wildlife, and Wetlands

Construction activities associated with the Proposed Action would result in a temporary loss of riparian vegetation, but the value provided by this vegetation would be offset by restoring floodplain function and riverine processes. Revegetation of alluvial features (i.e., floodplains) would increase structural and species diversity and would speed reestablishment of native riparian vegetation. Long-term changes in river inundation periods are expected to increase both seasonal and perennial riparian habitats.

Reclamation conducted informal consultation with the USFWS concerning effects to the ESA-listed northern spotted owl. Based on the consultation, the known lack of suitable habitat and spotted owl nests in the area (nest data provided by the STNF), and Trinity River bird distribution data provided by the Forest Service's Redwood Sciences Laboratory, Reclamation determined that a biological assessment was not required because the project would have no effect on the northern spotted owl or its critical habitat.

Specific design and contract criteria are included in the project description to ensure that project activities occur in a manner that addresses potential impacts to special-status species, including avian and amphibian species. These activities and prescriptive measures, combined with rapid riparian revegetation rates, ensure that the Proposed Action will not result in significant project impacts to vegetation, wildlife, and wetlands.

Recreation

The Trinity River was federally designated as a National Wild and Scenic River in 1981. Implementation of the Proposed Action would result in a long-term benefit to the form and function of the Trinity River, thereby enhancing the Outstandingly Remarkable Values for which it was designated as a Wild and Scenic River, including its anadromous fishery. Implementation of the project would alter the riverine environment; however, construction under the Proposed Action would not permanently affect the scenic or recreational values of the Trinity River for which it was designated. Although the Proposed Action could result in limited temporary interruptions of public access and use, river access would continue to be available at a number of temporary locations within the project boundaries and adjacent to the project sites. Because of the continued availability of river use and access, the generally localized effects, and inclusion of mitigation measures to protect recreationists, impacts on recreation resulting from project implementation would not be significant.

Socioeconomics, Population, and Housing

The Proposed Action could directly generate short-term income growth through the payment of wages and salaries, but would result in little increased long-term economic activity. A short-term increase in demand for housing in the general vicinity (i.e., Weaverville) could also occur as construction workers seek lodging during the construction period. However, because of the limited project size and duration, there would be no significant impact on socioeconomic conditions, population, or housing.

Tribal Trust

TRRP's overarching goals of restoring, enhancing, and conserving the natural production of anadromous fisheries, native plant communities, associated wildlife resources, and overall health of the Trinity River basin are consistent with federal Tribal Trust responsibilities. The primary TRRP goals originate partly from the federal government's trust responsibility to protect fishing rights for ceremonial, subsistence, and commercial purposes of the region's Indian tribes. Several short-term impacts that would affect Tribal Trust assets are considered acceptable provided that long-term fishery and healthy river goals are supported. These impacts are generally associated with construction activities, which would temporarily affect fish and wildlife resources, vegetation, and water quality in localized areas of the Remaining Phase 1 sites. Potential impacts on Tribal Trust assets would be avoided and minimized by project design criteria and mitigation measures provided to protect Tribal Trust assets. While some level of impact to fisheries and water quality cannot be avoided during construction activities, the impacts that would occur to these Tribal Trust assets would be kept at a less-than-significant level. Therefore, the Proposed Action would not have a significant impact on Tribal Trust assets.

Cultural Resources

Cultural resources identified within the Area of Potential Effect are primarily associated with dredger tailing piles at the Sawmill, Lowden Ranch, Trinity House Gulch, and Reading Creek sites. The types of dredger tailings identified include dragline dredge, ground sluice placer, bucket-line dredge, and placer. A hydraulic mining cut was identified at the Sawmill site, and a river crossing, known as "Lowden crossing," was identified near Lowden Ranch in Grass Valley. Reclamation archaeologists determined that one of the identified cultural resource sites (Reading Creek Ground Sluice Placer Tailings and Historic Artifacts) is eligible for listing on the National Register of Historic Places (NRHP). Therefore, the project was revised during the planning stages to avoid potentially significant features. If cultural materials or human remains are encountered during work for the project, the impacts would be negligible because construction would be halted and the proper agency contacted. Because of these pre-project cultural resource surveys, subsequent design changes to avoid potentially significant resources, and mitigation measures to cover potential finds during construction, project impacts to cultural resources during implementation of the Proposed Action would not be significant.

Air Quality

Construction associated with the Proposed Action requires the use of equipment that would temporarily contribute to air pollution in the Trinity River basin in the form of ozone precursors, particulate matter (PM_{10}), and greenhouse gas emissions. Because Reclamation would include provisions in construction contract documents that minimize construction-related impacts on air quality resulting from project activities, the Proposed Action would not result in a significant impact on air quality.

Environmental Justice

There is no evidence to suggest that the Proposed Action would cause a disproportionately high adverse human health or environmental effect on minority or low-income populations. The Proposed Action would not have a significant impact on environmental justice.

Aesthetics

Over the long-term, implementation of the Proposed Action is expected to complement the visual resources and aesthetic values of the project area by restoring the function and form typical of an alluvial river. Design of the Proposed Action incorporates the diversity of the landscape and vegetation types in the project vicinity into the character of the rehabilitated riverine and upland areas. Excavated material and disturbed dredger tailings piles would be placed in a manner that blends into the contours of the existing dredger tailings piles. Retention of existing topographic features would lessen the degree of visual impacts and improve the aesthetic quality of the affected reach of the Trinity River. Changes to the landscape will not be noticeable in the long term. Based on these findings, the Proposed Action would not have a significant impact on aesthetics.

Hazardous Materials

Implementation of the Proposed Action would potentially release hazardous materials through accidental spills that could pose a public hazard. However, Reclamation will ensure that the contractor follows Best Management Practices to prevent the release of hazardous materials into the environment (e.g., oils, gasoline) and to provide adequate response measures in case a spill does occur. These practices would ensure that implementation of the Proposed Action would not have a significant impact with respect to hazardous materials.

Noise

Construction and traffic associated with the Proposed Action would generate noise. To minimize potential noise impacts, construction activities would be scheduled between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Additional time constraints may be imposed for activities occurring immediately adjacent to residences and schools. Gravel placement would use local topography to dampen/deflect/decrease the noise leaving the site. During working hours, Reclamation will ensure that the contractor will operate all equipment to minimize noise impacts to nearby sensitive receptors (residences, etc.) so that no significant project impacts from noise would occur.

Public Services and Utilities/Energy

Construction work and temporary road closures would be staged in a manner to allow for access by emergency service providers. Therefore, no significant effects to public services would result from implementation of the Proposed Action.

Transportation/Traffic Circulation

Implementation of the Proposed Action would minimize the use of heavy construction equipment to transport material to and from the project work site. Equipment would be staged on site during construction. Since local roads are built to service occasional heavy equipment traffic, no measurable road wear would result from ingress or egress of construction equipment or during hauling of restoration materials (e.g., gravel) to the sites. For safety reasons, Reclamation will ensure that the contractor will implement a traffic control plan to protect the public during construction. Implementation of these

planning measures will ensure that no significant effects to traffic circulation would result from project implementation.

SUMMARY

Implementation of the Proposed Action, including mitigation measures, would contribute to the long-term environmental quality and sustainability of the Trinity River ecosystem with no significant impacts to the environment.

FINDING OF NO SIGNIFICANT IMPACT IN ACCORDANCE WITH 40 CFR 1508.27

After considering the environmental effects described for the Proposed Action in the Draft Master EIR and EA specific to the Remaining Phase 1 sites, it has been determined that it will not have a significant effect on the quality of the human environment considering the context and intensity of impacts. Furthermore, it is determined that the Proposed Action is not a major federal action, individually or cumulatively, and will not significantly affect the quality of the environment. Therefore, an environmental impact statement is not needed. This determination is based on the Draft Master EIR – EA/Draft EIR and the context and intensity of the following factors (40 CFR 1508.27):

1) **There will be no significant effects, beneficial or adverse, resulting from implementation of this project.** The finding is not biased by the beneficial effects of the action. The construction of the Remaining Phase 1 rehabilitation sites along a 17.5-mile reach of the Trinity River is expected to provide localized improvements in aquatic and riparian habitats that currently exist at the sites. The sites will incrementally assist in meeting long-term needs to enhance fish habitat and provide properly functioning river conditions. Viewed within the context of a *healthy* Trinity River, and against implementing the larger river restoration program required under the ROD, this channel rehabilitation project will not result in any significant impacts.

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

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

4) **Based on public participation and the involvement of resource specialists, effects of the Proposed Action on the quality of the human environment are not expected to be highly controversial.** Previously, the types of activities associated with the Proposed Action have received general support by Trinity County and its citizenry. Controversy that existed has been resolved through the planning process; therefore, these effects are not determined to be highly controversial. With input from technical staff from the lead, cooperating, and responsible agencies, environmental, social, and economic issues have been addressed in the Draft Master EIR – EA/EIR so that this project should avoid major scientific controversy over environmental effects.

5) **There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks.** The effects of the Proposed Action have been clearly evaluated in the Draft Master EIR – EA/Draft EIR. Furthermore, similar actions have been completed by the TRRP in the past with no unpredicted developments.

6) **These actions do not set a precedent for other projects that may be implemented to meet the goals and objectives of the Trinity River Restoration Program.** The Trinity River Mainstem Fishery Restoration EIS, the ROD, and the Trinity River Flow Evaluation Report all evaluated and recommended channel rehabilitation projects on the Trinity River below Lewiston Dam. The EIS constitutes the basis for tiering in this instance. The environmental effects of future projects will be analyzed based on need dictated by the ROD, but the need will be balanced by any new information collected during implementation of this project and other recently implemented projects.

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

8) **Based on surveys accomplished prior to this decision, this action will not adversely affect sites or structures eligible for the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural, or historic resources**. Interdisciplinary teams and individual resource experts have visited the sites and provided recommendations to modify the location of one of the upland disposal areas to avoid a potentially significant cultural resource feature associated with the dredger tailings within the boundaries of the Remaining Phase 1 sites. These modifications would avoid the site that Reclamation determined is eligible for listing on the NRHP. Based on project design and measures described in the Draft Master EIR – EA/Draft EIR, the decision maker has

determined that the project would not result in the destruction of scientific, cultural, or historic resources.

9) **The project would not adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973**. A biological opinion addressing foreseeable TRRP activities (National Marine Fisheries Service 2000) was written in response to a biological assessment that reflected the findings in the Trinity River Mainstem Fishery Restoration EIS. The opinion was written because Trinity River coho salmon are federally listed as threatened. The opinion describes adverse effects that could result from the channel rehabilitation measures that are included in the preferred alternative described in the EIS. Such adverse effects were determined to be minor and short-lived, dwarfed by the long-term beneficial outcome from implementing the Proposed Action. The displacement of juvenile coho salmon "…is not expected to result in lethal take of these fish." (National Marine Fisheries Service 2000).

   The bald eagle has been removed from the Endangered Species list, and consultation is no longer required for this species. The project may affect but would not likely adversely affect the bald eagle because eagles are not known nor expected to nest within or near the project area. There is a potential to temporarily displace foraging eagles for short periods of time (at discrete activity areas) during a time of relatively low eagle foraging activity in the area. Other reaches of the Trinity River would remain undisturbed and available for foraging eagles. Fish, and thus foraging eagles, are expected to start reusing the area immediately following project implementation.

   Informal consultation with the USFWS concerning effects to the ESA-listed northern spotted owl was conducted by Reclamation. Based on this informal consultation, known lack of suitable habitat and spotted owl nests in the area (nest data provided by the U.S. Forest Service), and Trinity River bird distribution data provided by the Redwood Sciences Laboratory, Reclamation determined that a biological assessment was not required since the project would have no effect on the northern spotted owl or its critical habitat.

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

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

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

- Section 404, Clean Water Act, Nationwide Permit 27 (San Francisco District, U.S. Army Corps of Engineers),
- Section 401, Clean Water Act Water Quality Certification (Regional Water Quality Control Board – North Coast Region),
- Section 402, Clean Water Act National Pollutant Discharge Elimination System (NPDES) Stormwater Pollution Prevention Plan (Regional Water Quality Control Board – North Coast Region),
- Section 10, Endangered Species Act, Incidental Take Permit (National Marine Fisheries Service)
- Encroachment Permits (Trinity County),
- Floodplain Development Permit (Trinity County).

Findings Required by Other Laws and Regulations

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

Implementation Date

The Proposed action will be implemented in phases beginning in summer 2009. It is expected that all Phase 1 projects will be completed by 2014.

Contact

For additional information concerning the overall decision to implement the Proposed Action, contact Brandt Gutermuth, Project Manager, Trinity River Restoration Program, P.O. Box 1300, and 1313 Main Street, Weaverville California, 96093.

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Volume II: Draft Master Environmental Impact Report
Part 1: Draft Master Environmental Impact Report
Part 2: Environmental Assessment/Draft Environmental Impact Report

June 2009

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

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

Federal Cooperating Agencies for NEPA
Shasta–Trinity National Forest
Bureau of Land Management

Cooperating Tribal Agencies
Hoopa Valley Tribe
Yurok Tribe

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Project Proponent's Consultant
North State Resources, Inc.

Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
5C Program	Five Counties Salmonid Conservation Program
ACHP	Advisory Council on Historic Preservation
ACS	Aquatic Conservation Strategy
ADT	average daily traffic
AEAM	Adaptive Environmental Assessment and Management
af	acre-feet
afa	acre feet annually
a.m.	morning
APE	Area of Potential Effect
Assistance Program	Trinity River Potable Water and Sewage Disposal System Assistance Program
BA	Biological Assessment
Basin Plan	Water Quality Control Plan for the North Coast Region, as amended June 28, 2001
BA/EFHA	Biological Assessment/Essential Fish Habitat Assessment
BEA	U.S. Bureau of Economic Analysis
BFE	base flood elevation
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
BMP	best management practice
C	staging area
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Cal Fire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CED	Center for Economic Development
CELSOC	Consulting Engineers and Land Surveyors of California
Census	U.S. Bureau of the Census
CEQ	President’s Council on Environmental Quality

CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CG	China Gulch
CHP	California Highway Patrol
CLOMR	conditional letter of map revision
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
Commission	California State Fish and Game Commission
County	Trinity County
CNDDB	California Natural Diversity Database
CR	Chapman Ranch
CRA	California Resources Agency
CRHR	California Register of Historic Resources
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
d_{50}	mean diameter of channel bed material
dB	logarithmic decibel
dBA	"A-weighted" decibel scale
DC	Douglas City
DCCVFD	Douglas City Community Volunteer Fire Department
DCK	Dutch Creek
DEIS	Draft Environmental Impact Statement
DG	Deep Gulch
DOI	U.S. Department of the Interior
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EA	Environmental Assessment
EA/DEIR	Environmental Assessment/Draft Environmental Impact Report
EB	Evan's Bar
EDD	California Employment Development Department
EFH	essential fish habitat
EFHA	Essential Fish Habitat Assessment
e.g.	for example
EIR	Environmental Impact Report
EIS	Environmental Impact Statement

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
et al.	and others
et seq.	and the following ones
FACW	facultative wetland species
FDA	Food and Drug Administration
FEIS/EIR	Final Environmental Impact Statement/Environmental Impact Report
FEMA	Federal Emergency Management Agency
FH	Flood Hazard
FHO	Flood Hazard Overlay
FIRM	Flood Insurance Rate Maps
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impacts
fps	feet per second
FR	Federal Register
FY	fiscal year
GHG	greenhouse gas
GIS	geographic information system
H_2S	hydrogen sulfide
HEC-RAS	Hydraulic Engineering Center River Analysis System
Hg	mercury
HPTP	Historic Property Treatment Plan
HVT	Hoopa Valley Tribe
IAP	Integrated Assessment Plan
IC	in-channel activity area
i.e.	that is
ISMS	Interagency Species Management System
JCVFD	Junction City Volunteer Fire Department
KFMC	Klamath Fishery Management Council
kg	kilogram
KMP	Klamath Mountains Province
KOP	key observation point
KRTAT	Klamath River Technical Advisory Team
L	liter
L_{dn}	day-night average sound level

L_{eq}	equivalent noise levels
LCSD	Lewiston Community Services District
LJC	Lower Junction City
LKG	Limekiln Gulch
LOMP	letter of map revision
LR	Lowden Ranch
LRC	Lower Rush Creek
LRMP	Land and Resource Management Plan
LSF	Lower Steiner Flat
LWD	large woody debris
LZG	Lorenz Gulch
M	existing roads and access routes
maf	million acre-feet
MBP	Middle Poker Bar
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
MCL	maximum contaminant level
MDBM	Mount Diablo Base and Meridian
MEIR	Master Environmental Impact Report
MFF	maximum fishery flows
mg	milligram
MG	McIntyre Gulch
ml	milliliters
mm	millimeters
MMRP	Mitigation Monitoring and Reporting Program
MOU	memorandum of understanding
mph	miles per hour
MSA	Magnuson-Stevens Fishery Conservation and Management Act
msl	mean sea level
N	new roads and access routes
NAAQS	National Ambient Air Quality Standards
NAD	North American Datum
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NFMA	National Forest Management Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_X	nitrogen oxide gases
NO_2	nitrogen dioxide
NOD	Notice of Determination
NOP	Notice of Preparation

NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	North State Resources, Inc.
NTU	nephelometric turbidity unit
O_3	ozone
OBL	obligate
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OG	Oregon Gulch
OHP	Office of Historic Preservation
OHW	ordinary high water mark
OPR	Governor's Office of Planning and Research
ORVs	Outstandingly Remarkable Values
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
Pb	lead
PB	Poker Bar
PFMC	Pacific Fishery Management Council
pga	peak ground acceleration
PL	Public Law
p.m.	night
$PM_{2\,5}$	fine particulate matter (particulate matter less than 2.5 microns in aerodynamic diameter)
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
PRC	Public Resources Code
PUD	Public Utility District
Q	flow rate (typically expressed in cfs)
Q_{50}	50-year flood flow
Q_{100}	base or 100-year flood flow
Q_{max}	maximum unobstructed flow
Q_{MCR}	maximum controlled-flow release
Q_{1997}	estimated flow during 1/1/97
R	riverine activity area
RC	Reading Creek
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
REIS	Regional Economic Information System

Regional Water Board	North Coast Regional Water Quality Control Board
RM	River Mile
RMP	Resource Management Plan
RNA	research natural area
ROD	Record of Decision
ROW	right-of-way
RPM	reasonable and prudent measures
RVD	Recreational Visitor Day
S&Gs	standards and guidelines
SB	Steel Bridge Road Day Use
SCH	State Clearinghouse
SCK	Soldier's Creek
SEIS	Supplemental Environmental Impact Statement
SFC	Stein Flat Campground
SFF	Steiner Flat Feather Edge
SHC	Sheridan Creek
SHPO	California State Historic Preservation Officer
SIA	special interest area
SLC	California State Lands Commission
SO_2	sulfur dioxide
SM	Sawmill
SMARA	Surface Mining and Reclamation Act
SONCC	Southern Oregon/Northern California Coasts
SR	State Route
SRA	shaded riverine aquatic
STAR	Southern Trinity Area Rescue
State Water Board	State Water Resources Control Board
STNF	Shasta-Trinity National Forest
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCEHD	Trinity County Environmental Health Department
TCLP	Toxicity Characteristic Leaching Procedure
TCRCD	Trinity County Resource Conservation District
TCSD	Trinity County Sheriff's Department
TCWMC	Trinity County Weed Management Cooperative
THG	Trinity House Gulch
TLG	Tom Lang Gulch
TMC	Trinity Management Council
TMDL	Total Maximum Daily Load
TRD	Trinity River Diversion
TRFE	Trinity River Flow Evaluation
TRFES	Trinity River Flow Evaluation Study
TRRP	Trinity River Restoration Program
TRSSH	Trinity River Salmon and Steelhead Hatchery
U	upland activity area

UCC	Upper Conner Creek
UFC	Upper Junction City
URC	Upper Rush Creek
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAU	visual assessment unit
VFD	volunteer fire department
VQO	visual quality objectives
VRM	Visual Resource Management
WAPA	Western Area Power Authority
WCSD	Weaverville Community Services District
WDR	Waste Discharge Requirements
WGH	Wheel Gulch
WMA	Weed Management Area
WSE	water-surface elevation
WSRA	Wild and Scenic Rivers Act
X	temporary crossing
YT	Yurok Tribe

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CHAPTER 1

Introduction and Background

Chapter 1
Introduction and Background

1.1 Overview

The U.S. Bureau of Reclamation (Reclamation) proposes to conduct mechanical channel rehabilitation and sediment management activities on the mainstem Trinity River below Lewiston Dam as part of the Trinity River Restoration Program (TRRP), an ongoing program to help restore the anadromous fishery of the Trinity River. The proposed river channel rehabilitation activities would recreate complex fish habitat and provide conditions suitable for reestablishing and sustaining native riparian vegetation. These proposed channel rehabilitation activities would occur at 23 locations called the "Phase 2" sites, plus the remaining phase 1 locations referred to as the "Remaining Phase 1" sites in this document. For the Remaining Phase 1 sites, sediment management activities and mechanical channel rehabilitation plans are sufficiently developed to allow detailed analysis. Activities at these sites are scheduled for implementation in the next 2 years. Activities at the Phase 2 sites are anticipated to occur at a later stage of the ongoing program.

Sediment management activities will include the introduction of coarse sediment (e.g., spawning gravel) to the river at strategic locations as well as activities to reduce the introduction of fine sediment to the river. In addition to the introduction of coarse sediment to the river in conjunction with mechanical channel rehabilitation sites, coarse sediment activities would occur at as many as five discrete locations on the Trinity River between Lewiston Dam and Indian Creek. Primarily, activities associated with coarse sediment management include gravel processing and transport and introduction of gravel to the Trinity River. Fine sediment management activities focus on those actions required to maintain the sediment retention basins known as the Hamilton Ponds located near the mouth of Grass Valley Creek. These activities focus on the removal of sand that has settled out in the Hamilton Ponds and transporting it to a stable location away from the Trinity River.

This document is divided into two parts. Part 1 is the Draft Master Environmental Impact Report (Draft Master EIR). This part of the document evaluates the environmental impacts of the proposed rehabilitation and sediment management activities at the 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 the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.). In addition to addressing direct and indirect impacts associated with the Proposed Project and the alternatives, the Draft Master EIR 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 Environmental Assessment/Draft Environmental Impact Report (EA/Draft 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/Draft EIR has been prepared to comply with the National Environmental Policy Act (NEPA) (42 United States Code [USC], Section 4321 et seq.) and the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.).

Reclamation is serving as the federal lead agency under NEPA, and the North Coast Regional Water Quality Control Board (Regional Water Board) is serving as the state lead agency under CEQA. Reclamation is responsible for the funding and implementation of the rehabilitation and sediment management activities. As managers of public lands within the watershed and along the mainstem Trinity River, the Shasta-Trinity National Forest (STNF) and the Bureau of Land Management (BLM) are serving as NEPA cooperating agencies. Based on their past and on-going involvement in the TRRP and the Trinity Management Council (TMC), and their jurisdiction over tribal trust resources (e.g., fish, wildlife) the Hoopa Valley Tribe (HVT) and Yurok Tribe (YT) also serve as cooperating agencies. From a CEQA perspective, the Trinity County Resource Conservation District (TCRCD), in its role as a potential TRRP funding agency serves as a cooperating agency, while responsible agencies include the California Department of Transportation (Caltrans), the California Department of Fish and Game (CDFG), California Department of Water Resources (DWR) and Trinity County.

This combined NEPA/CEQA document evaluates the environmental impacts of the proposed channel rehabilitation and sediment management activities at both programmatic and project-specific level. Part 1 addresses the effects of all proposed activities at a programmatic level with a focus on the potential environmental effects that may occur at all rehabilitation sites and the cumulative effects of implementing all proposed activities. Part 2 evaluates the environmental consequences of the proposed channel rehabilitation and sediment management activities at the Remaining Phase 1 sites at a project-specific level.

The Master EIR also meets the elements required for a Program EIR pursuant to California Code of Regulations, title 14, section 15168. A Master EIR and Program EIR serve similar functions in providing programmatic level review from which site-specific projects may tier. For subsequent site-specific projects proposed more than five years from certification of the Master EIR, the lead agency may rely on this document as a Program EIR, or in the alternative, make the findings under California Code of Regulations, title 14, section 15179.

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 (see Figure 1-1). 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

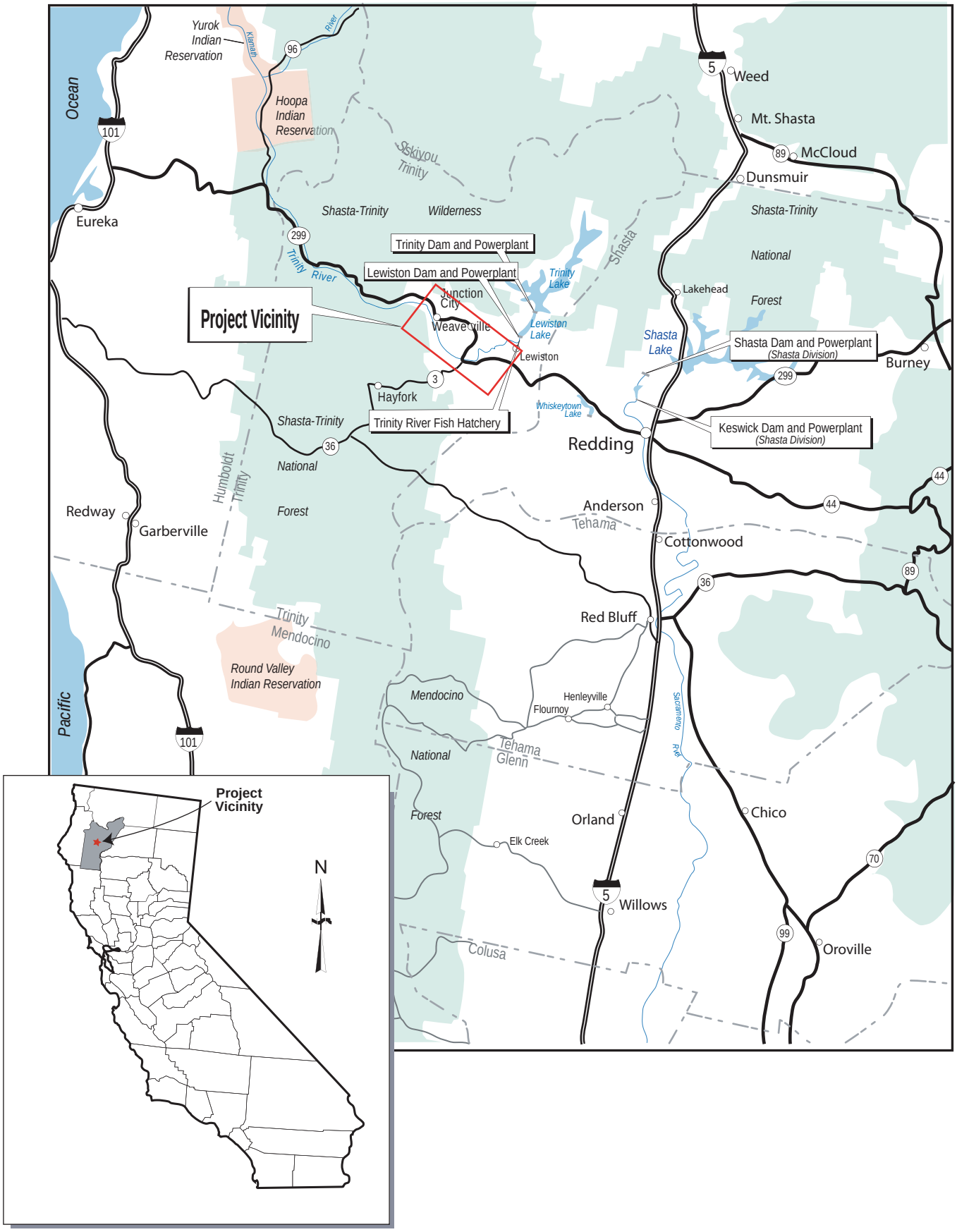

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Figure 1-1
Project Vicinity

federal lands managed by the USDA Forest Service, BLM, and, to a lesser extent, Reclamation. Ownership along the Trinity River corridor is a mixture of public, Tribal, and private lands.

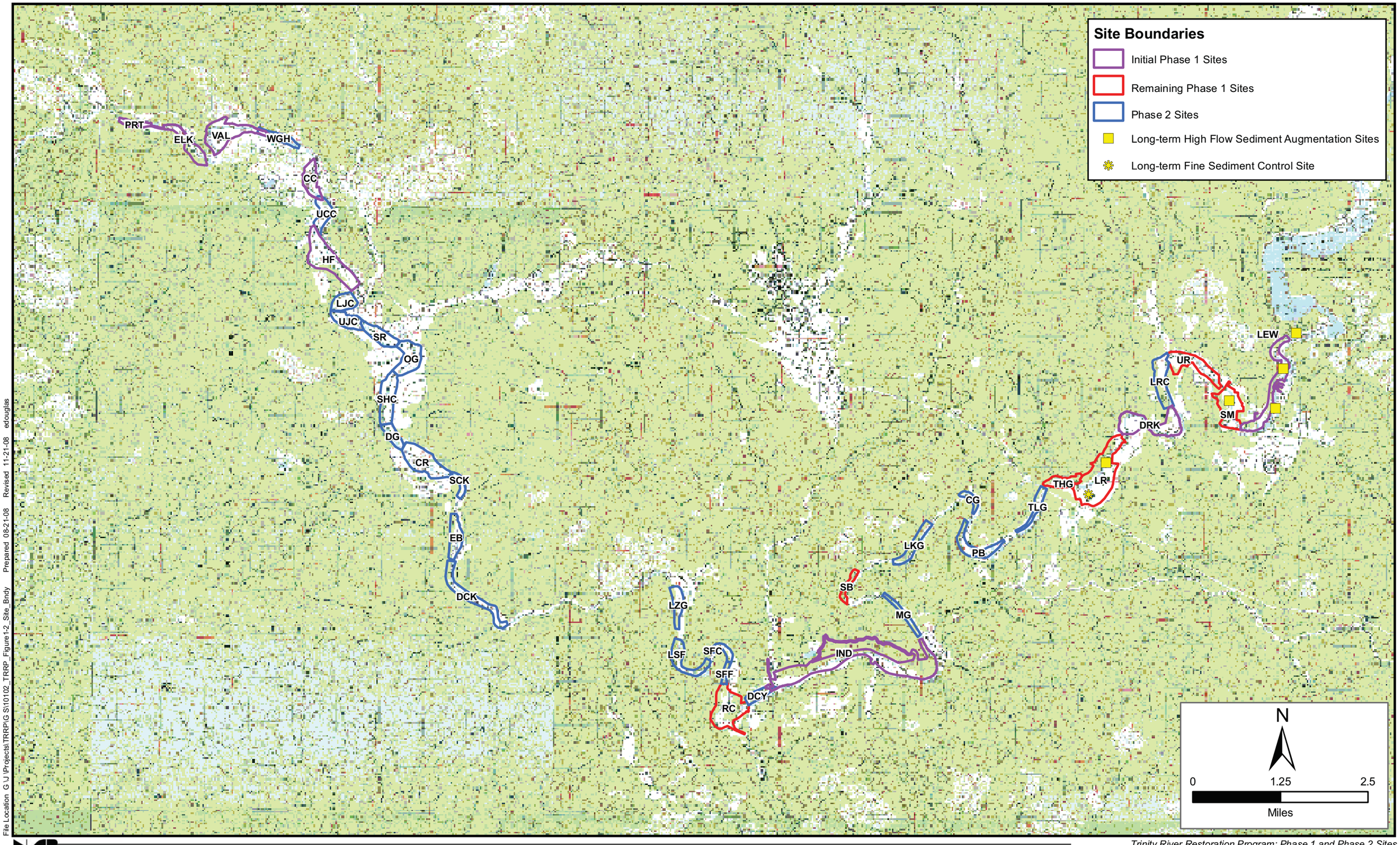
The Trinity River flows generally southward until impounded by Trinity Dam and Lewiston Dam. The river drains a watershed of approximately 2,965 square miles; about one-quarter of this area is above Lewiston Dam. From Lewiston Dam, the river flows westward for 112 miles until it enters the Klamath River near the town of Weitchpec, 43.5 miles upstream from the Pacific Ocean. The Klamath River flows northwesterly for approximately 40 miles from its confluence with the Trinity River before entering the Pacific Ocean.

The topography of the Trinity River basin is predominantly mountainous, and the basin is heavily forested. 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, Tribal, and private forestlands, much of which is used for timber production and other natural resource-related uses. Two scenic byways, State Route 299 (SR 299) and State Route (SR 3), cross the county. State Route 299 is the primary travel corridor through Trinity County, connecting the Central Valley with the coastal communities of Humboldt County. 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.

1.3 Project Location

The general setting for the Proposed Project is the mainstem Trinity River below Lewiston Dam. Collectively, the Proposed Project encompasses 29 rehabilitation site locations along the 40-mile reach of the mainstem Trinity River from Lewiston Dam to the North Fork Trinity River. As shown on Figure 1-2, the Remaining Phase 1 sites (6 locations) are concentrated between Lewiston and Douglas City (about a 16-mile reach) and the Phase 2 sites (23 locations) are located from about Rush Creek (River Mile 107) to Wheel Gulch (River Mile 75). The boundaries established for the Remaining Phase 1 sites are based on detailed site evaluations and are definitive, while the Phase 2 site boundaries are conceptual and subject to change as the planning process progresses. Figure 1-2 also illustrates the location of mechanical channel rehabilitation projects completed by the TRRP in addition to several long-term sediment management sites.

TRRP staff, with interdisciplinary review from TMC technical staff, developed the site boundaries to incorporate the wide range of rehabilitation activities that were considered. These activities include removal of encroaching riparian vegetation, rehabilitation of floodplain and in-channel alluvial features, construction of off-channel habitat for aquatic- and riparian-dependent species, sediment management, and rehabilitation of upland habitat.



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North State Resources, Inc.

Trinity River Restoration Program: Phase 1 and Phase 2 Sites

Figure 1-2
TRRP Project Sites

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1.4 Project History and Background

1.4.1 Trinity and Lewiston Dams

Completion of Trinity Dam and Lewiston Dam in 1964 blocked anadromous fish access to habitat upstream of Lewiston Dam, restricting these fish to habitat below Lewiston Dam. The location of the Trinity River relative to other components of the Central Valley Project (CVP) is shown on Figure 1-1. The dams also eliminated sediment supply from more than 700 square miles of the upper watershed. 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 included 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 U.S. Fish and Wildlife Service (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 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, nine pilot bank rehabilitation projects between Lewiston Dam and the North Fork Trinity River were implemented between 1991 and 1993, among other actions.

1.4.2 Central Valley Project Improvement Act

In 1992, Congress enacted the Central Valley Project Improvement Act (CVPIA). One purpose of the CVPIA (Section 3406) 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 Study (TRFES) 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 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.

1.4.3 Trinity River Mainstem Fishery Restoration

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/Environmental Impact Report (EIS/EIR). The ROD for the Final EIS/EIR (FEIS/EIR) (December 19, 2000) directed Department of the Interior (DOI) agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the FEIS/EIR. In addition to the Flow Evaluation Alternative, elements of the Mechanical Restoration Alternative were included in the decision (U.S. Department of Interior 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). After the ROD was issued, the decision was challenged in federal court; ultimately, the ROD was upheld by the United States Court of Appeals for the Ninth Circuit. Based on this outcome, the flows prescribed by the 2000 ROD are deemed to constitute the "existing [hydrological] environment" for CEQA purposes, and are considered the basis for the environmental analysis under both NEPA and CEQA.

While the ROD identified a number of components that were included in the TRRP, this document focuses on the mechanical channel rehabilitation and fine and coarse sediment management components that would be implemented over time and at various locations along the river. The ROD acknowledged the benefit of implementing mechanical channel rehabilitation activities in two phases. To date, rehabilitation activities have been fully or partially implemented at four Phase 1 Rehabilitation Projects. In addition to the 13 mechanical channel sites identified in the ROD where construction has been done (e.g., Hocker Flat, Valdor Gulch), side channel and coarse sediment augmentation efforts have been implemented at various locations (i.e., Indian Creek and Dark Gulch side channel sites and the Lewiston Hatchery coarse sediment augmentation site). During the development of the Canyon Creek Suite project, an additional non-ROD site (Pear Tree) was added based on post-ROD evaluations. Phase 1 will be complete once the proposed activities at the Remaining Phase 1 sites evaluated in this document have been completed. Phase 2 as defined in this document includes mechanical channel rehabilitation at 23 locations (24 ROD sites). Coarse sediment management may occur at some of these sites in conjunction with other rehabilitation activities. Fine sediment management will continue to occur on a periodic basis at the Hamilton Ponds. The Phase 2 sites are interspersed with the Phase 1 sites along the 40-mile reach of the mainstem Trinity River downstream of Lewiston Dam.

To ensure the efficient use of resources, the TRRP has also incorporated sediment management activities (coarse and fine) at locations within, or adjacent to several Phase 1 sites. Fine sediment management control activities are ongoing at the confluence of Grass Valley Creek in conjunction with the maintenance of the Hamilton Ponds. Coarse sediment management activities have been implemented at the Indian Creek project (processing of gravel/dredger tailings for river placement) and coarse sediment augmentation has been implemented at various locations associated with TRRP's Lewiston-Dark Gulch project (which included work at Lewiston and Dark Gulch site locations). The TRRP proposes to expand the coarse sediment management activities at the Remaining Phase 1 and Phase 2 sites evaluated in this document.

1.4.4 Trinity River Basin Chronology

The following is a brief chronology summarizing the most pertinent legislation, authorities, and management actions that have occurred relevant to the Trinity River basin.

- 1938 – Construction of the CVP was authorized by the Rivers and Harbors Act
- 1955 – Congress authorized the construction and operation of the TRD.
- 1964 – The TRD was completed and fully operational.
- 1976 – The Pacific Fishery Management Council (PFMC) was established.

- 1981 – The Secretary of the Interior made the decision to temporarily increase Trinity River instream flows and the USFWS is ordered to initiate 12-year Trinity River Flow Evaluation Study.
- 1983 – The USFWS prepared an EIS in support of Trinity River Restoration efforts.
- 1984 – The Trinity River Basin Fish and Wildlife Management Act was passed by Congress.
- 1991 – The Secretary of Interior made the decision to temporarily increase Trinity River flows to 340,000 af until the TRFE was completed (Lujan Decision).
- 1992 – Congress passed the Central Valley Project Improvement Act (PL 102-575).
- 1994 – The USFWS, HVT and Trinity County initiated an EIS/EIR for the Trinity River Mainstem Fishery Restoration program.
- 1996 – Congress reauthorized and amended the Trinity River Basin Fish and Wildlife Management Act (PL 104-43).
- 2000 – The Secretary of Interior signed the Record of Decision for Trinity River Mainstem Fishery Restoration FEIS
- 2001 – The ROD is challenged in United States District Court for the Eastern District of California, resulting in issuance of preliminary injunction urging Department of the Interior to undertake preparation of Supplemental EIS (SEIS), although non-flow aspects of the ROD are allowed to proceed.
- 2002 – Reclamation's TRRP office is established in Weaverville.
- 2004 – U.S. Court of Appeals for the Ninth Circuit entered opinion reversing District Court with regard to preparation of an SEIS. Immediate implementation of all aspects of the 2000 ROD is mandated. Subsequently, all parties to the litigation acknowledged the court's opinion.
- 2005 – The TRRP completed the Trinity River Bridges Project.
- 2006 – The TRRP completed several infrastructure improvement projects, including the relocation of little yellow house and realignment of roads in the Poker Bar subdivision.
- 2005 – The TRRP completed the Hocker Flat Project.
- 2006 – The TRRP completed the Canyon Creek Project.
- 2007 – The TRRP completed the Indian Creek Project.
- 2008 – The TRRP completed the Lewiston-Dark Gulch Project.

Additional details concerning the legislative and management history can be found in the Trinity River Mainstem Fishery Restoration FEIS/EIR (U.S. Fish and Wildlife Service et al. 1999) and the EA/Final EIRs for the referenced TRRP projects. These documents are on file at the TRRP office in Weaverville, California.

1.4.5 Restoration Programs in the Trinity River Basin

A variety of restoration activities has been undertaken by the TRRP during the past 7 years, as summarized below, and additional information is available on the TRRP program website[1]. This section also provides a brief discussion of other watershed restoration programs and activities occurring within the basin.

Trinity River Restoration Program

The fundamental purpose of the TRRP is to restore (non-hatchery) anadromous fish populations of the Trinity River to levels existing just prior to construction of the TRD of the CVP. The 2000 ROD for the Trinity River Mainstem Fishery Restoration FEIS/EIR outlined six specific and integral components of the TRRP:

- implementation of a variable annual flow regime according to recommendations provided in the TRFES,
- mechanical channel rehabilitation,
- fine and coarse sediment management,
- watershed restoration,
- infrastructure improvement, and
- adaptive environmental assessment and management.

The objective of the TRRP is to create a dynamic alluvial channel that exhibits the characteristics of the pre-dam river but at a smaller scale. This approach is intended to implement Trinity River restoration goals while ensuring that the water storage/delivery, power production, and flood control objectives of the TRD are maintained.

The TRRP acts under guidance of the Trinity Management Council (TMC), which provides overall program direction in order to restore, enhance, and conserve the natural production of anadromous fisheries, native plant communities, and associated wildlife resources of the Trinity River basin in sufficient quantity and quality to ensure long-term sustainability. TMC member agencies include Reclamation, USFWS, National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS), HVT, YT, the California Natural Resources Agency (represented by the California Department of Fish and Game (CDFG) and the California Department of Water Resources (DWR)), and Trinity County. Technical experts from each of these agencies and their consultants participated in the design and review of the rehabilitation sites, including site-specific designs for the Remaining Phase 1 sites.

An integral part of the TRRP is the implementation of an Adaptive Environmental Assessment and Management (AEAM) Program. As described in the FEIS, an AEAM process is important for management of complex physical and biological systems like the Trinity River. The TRRP office has been located in Weaverville, California, to ensure that all components of the program are efficiently implemented and coordinated with the numerous agencies, Tribes, and stakeholders involved. Specific

[1] http://www.trrp.net/RestorationProgram/index.htm

activities of the TRRP include project development, implementation, and monitoring activities throughout the Trinity River basin.

The AEAM Program is a formal, systematic, and rigorous program of learning from the outcomes of management actions, accommodating changes, and rapidly improving management actions. The proposed rehabilitation activities addressed in this document have been developed in a manner compatible with the AEAM Program elements. These elements include the following:

- define measurable goals and objectives;
- develop testable hypotheses of how to achieve the goals and objectives through management actions;
- predict river response to management actions before implementing these actions;
- reevaluate objectives, refine hypotheses, improve models, and improve management; and
- continually self-examine AEAM science and management via external peer review.

TRRP Channel Rehabilitation Activities

The ROD for the Trinity River Mainstem Fishery FEIS/EIR specified that mechanical channel rehabilitation activities would be implemented on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River. Conceptually, the overall intent of these activities was to selectively remove fossilized berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); revegetate and provide conditions for regrowth/sustenance of native riparian vegetation; and reestablish alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the TRD. The ROD also acknowledged that the TRD eliminated supplies of coarse sediment from upstream sources and the resultant need to ensure that the sediment flux of the mainstem Trinity River is managed to complement the flow and mechanical channel rehabilitation components. Sediment management actions were anticipated, including the introduction of coarse sediment at selected locations, as well as reducing the fine sediment fraction that is introduced into the mainstem Trinity River from Grass Valley Creek.

The Trinity River Mainstem Fishery Restoration FEIS/EIR identified 44 potential channel rehabilitation sites and 3 potential side-channel sites for consideration by the TRRP. 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.

Each original site was labeled using a numeric system. Subsequently, a systematic and detailed evaluation of the Trinity River identified 104 specific rehabilitation sites that offered rehabilitation opportunities. These sites were labeled using an alpha descriptor. For planning purposes, each TRRP channel rehabilitation/side channel site has been associated with a rehabilitation project name. Table 1-1 lists the initial Phase 1 projects, site locations, and their corresponding numeric and alpha site identifiers

for the sites that have been completed or are currently under construction. Activities at the Hocker Flat, Canyon Creek Suite, Indian Creek, Lewiston, and Dark Gulch site locations have been implemented.

Table 1-1. Initial Phase 1 Sites (Name-Number-Label)

Rehab Project	Site Location	ROD Site umber	TRRP Site Label
Hocker Flat	Hocker Flat (HF)	39	CK, CL, CM
Canyon Creek Suite	Conner Ck (CC), Valdor Gulch (VAL), Elkhorn (ELK), & Pear Tree (PRT)	0[2], 41, 43, 44	CN, CO, CP, CS, CT-R, CT-L, CU-R, CU-L, CV, CW, CX
Indian Creek	Indian Ck (IC)	19, 20, SC3[3]	AU, AV, AW, AX, AY, AZ, BA, BBl
Lewiston-Dark Gulch	Lewiston (LEW), Dark Gulch (DRK)	1, 2, 3, 4 7, 8, 9, SC1	ZZ, A, B, C, D E, N, O, P, Q, R

Table 1-2 lists the Remaining Phase 1 site names and their corresponding numeric and alpha site identifiers.

Table 1-2. Remaining Phase 1 Sites (Name-Number-Label)

Site Location	ROD Site Number	TRRP Site Label
Sawmill (SM)	5	F, H, I-L, I-R, J
Upper Rush Creek (URC)	6a[4]	K
Lowden Ranch (LR)	10	T-R, T_L, S
Trinity House Gulch (THG)	11, SC2	U-sc, V-2R
Steel Bridge Day Use (SB)	17	AP, AQ-IL, AQ-2L
Reading Creek (RC)	21, 22	BH, BG, BF-1R, BF-2R, BE-2R, BE-1L, Bd, 2L

Table 1-3 shows Phase 2 site names and their corresponding numeric and alpha site identifiers.

Table 1-3. Phase 2 Sites (Name-Number-Label)

Original Site Location	Updated Site Location	ROD Site Number	TRRP Site Label
Lower Rush Creek (LRC)	no change	6b	M, L-L, L-R
Upper Poker Bar (UPB)	Tom Lang Gulch (TLG)	12	Y, X, W-1R, W-2R, V-1R
Middle Poker Bar (MBP)	Poker Bar (PB)	13	AD, AC, AB, AA, Z
Lower Poker Bar (LPB)	China Gulch (CG)	14	Af, AE
Upper Steel Bridge (USB)	Limekiln Gulch (LKG)	16[5]	AJ-2R, AJ-1R, AI, AL, AK
McIntyre Gulch (MG)	no change	18	AS-1L, AS-1R, AS-2L, AR
Douglas City (DCY)	no change	N/A	BC-1L, BC-1R, BC-2R, BC-2L

[2] The Pear tree site (PRT), site 0, was implemented as a Canyon Creek Suite site location, but was not identified in the ROD.
[3] SC = Side channel
[4] Original ROD site 6 was expanded to two sites: Upper Rush Creek = 6a and Lower Rush Creek = 6b.
[5] Original ROD site 15 has been merged within other sites.

Table 1-3. Phase 2 Sites (Name-Number-Label)

Original Site Location	Updated Site Location	ROD Site Number	TRRP Site Label
Steiner Flat No. 1 (SF1)	Steiner Flat Feather Edge (SFF)	N/A	N/A
Steiner Flat No. 2 (SF2)	Steiner Flat Campground (SFC)	23	BJ, BI
Steiner Flat No. 3 (SF3)	Lower Steiner Flat (LSF)	24, 25	BN-2L, BN-1R, BM, BL, BK-1R, BK-2R
Steiner Flat No. 4 (SF4)	Lorenz Gulch (LZG)	26	BP-1L, BP-2L, BO-1L, BO-2L, BO-1R
Dutch Creek (DCK)	no change	27	BU-L, BV-sc, BX-R, BX-L, BW, BV, BU
Evan's Bar (EB)	no change	28	BX-Lsc, BX-R
Soldier Creek (SCK)	no change	29	BZ, BY-L, BY-R
Upper Chapman Ranch (UCR)	Chapman Ranch (CR)	30	CB-2R, CB-1R, CB-1L, CB-2L, CA-R, CA-L
Lower Chapman Ranch (LCR)	Deep Gulch (DG)	31	CD, CC
Sheridan Creek (SHC)	no change	32	CE
Oregon Gulch (OG)	no change	33	CF
Sky Ranch (SR)	no change	34, 35	CH, CG-1R, CG-2R
Upper Junction City (UJC)	no change	36, 37	CJ, CI
Lower Junction City (LJC)	no change	38	CJ
Upper Conner Creek (UCC)	no change	40	CN, CM
Wheel Gulch (WGH)	no change	42	CR-r, CR-L

Figure 1-2 shows the locations of the Remaining Phase 1 project sites and the Phase 2 project sites.

Other Trinity River Basin Watershed Restoration Efforts

In conjunction with the TRRP projects, numerous other watershed restoration projects are being planned and implemented throughout the Trinity River basin. Beginning in the late 1980s, the HVT Tribe conducted watershed assessments on each of the major tributary watersheds within the Reservation. These assessments identified a number of watershed restoration projects that have been implemented by the HVT. Projects, including road stabilization and decommissioning and stream restoration efforts have been implanted in the Mill Creek, Supply Creek, and Tish Tang Creek watersheds over the past 20 years.

The YT and the Trinity County Resource Conservation District (TCRCD) are implementing projects along the Lower Klamath River and South Fork Trinity River, respectively, with funding provided by the CDFG's Coastal Salmon Recovery Program. BLM; STNF; the State Water Resources Control Board (State Water Board); the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS); and the National Fish and Wildlife Foundation are also funding and/or implementing numerous upslope watershed restoration projects throughout the basin, including the South Fork Trinity River watershed.

Working through the Five Counties Salmonid Conservation Program (5C Program) and using grant funding provided by CDFG and the State Water Board, Trinity County has inventoried all county road crossings of fish-bearing streams in the Trinity River basin and is currently implementing the highest ranked fish migration removal projects. The 5C Program has also completed a sediment source inventory on county roads and is prioritizing and implementing projects to reduce road-related sediment sources. Similarly, BLM has recently completed a comprehensive sediment source inventory of its roads in the Trinity River watershed. As opportunities are available, this inventory will provide the basis for developing sediment source reduction projects on lands managed by BLM throughout the watershed.

1.5 Purpose of This Document

As stated previously, this document addresses both CEQA and NEPA requirements. Both statutes 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. By preparing a single document in two parts, the involved agencies improve intergovernmental coordination and avoid unnecessary duplication of effort.

Under CEQA, a Master EIR may be prepared for 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 forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines Section 15175, et. seq.), a process known as "tiering." The project-level analysis in the EA/Draft EIR of the activities proposed at the Remaining Phase 1 sites is tiered from this Draft Master EIR, and Reclamation anticipates that the Master EIR will be used as a tiering document for the project-level CEQA analyses of the Phase 2 projects.

The EIS portion of the Trinity River Mainstem Fishery Restoration EIS/EIR functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing "first-tier" review of other potential actions, including the Proposed Project. However, the Trinity County Board of Supervisors chose not to certify the EIR portion because of the litigation in federal court. Lack of certification precludes use of that EIR as a first tier CEQA document. For this reason, the Master EIR and the EIR portion of the EA/EIR are intended to function as a complete, stand-alone CEQA document not dependent on any prior CEQA document for addressing impacts that must be analyzed under CEQA.

The CEQA Guidelines identify several types of EIRs, each applicable to specific circumstances. This document has been prepared to function as both a master and a project-level EIR, pursuant to California Public Resources Code Section 21156. A Master EIR evaluates at a programmatic level the direct and indirect environmental impacts, cumulative impacts, impacts, growth-inducing impacts, and irreversible significant effects on the environment of subsequent specific projects. A project-level EIR evaluates the environmental impacts of a specific project (CEQA Guidelines, Section 15161), focusing primarily on the changes in the environment that would occur because of project implementation and evaluates all phases of a particular project (i.e., planning, construction, and operation).

The Master EIR also meets the elements required for a Program EIR pursuant to California Code of Regulations, title 14, section 15168. A Master EIR and Program EIR serve similar functions in providing programmatic level review for which site-specific project may tier from. One substantive difference between the two types of documents is limitations on the use of a Master EIR if the document was certified more than five years prior to the filing of an application for a subsequent project. The Trinity River Restoration Project is expected to continue for more than five years from the certification of this document and state and federal agencies intend to rely on this programmatic analysis the length of the project. For subsequent site-specific projects proposed more than five years from certification of the Master EIR, the lead agency may rely on this document as a Program EIR, or in the alternative, make the findings under California Code of Regulations, title 14, section 15179.

The decision to prepare a stand-alone Master EIR and project-level EIR in the absence of a certified EIR for the Trinity River Mainstem Fishery Restoration is consistent with the CEQA Guidelines. To comply with the ROD, Reclamation, in cooperation with other federal agencies, is required to proceed with all of the measures outlined in the FEIS. The decision to facilitate mechanical channel rehabilitation projects and sediment management activities requires various permits from state agencies, including the Regional Water Board, as described in Chapter 3. The Regional Water Board's role extends beyond its CEQA responsibility to ensure that state and local permitting requirements are satisfied and that the Master EIR and project-level EIR portions of this NEPA/CEQA document are legally adequate for use by the Regional Water Board and the other state and local agencies responsible for CEQA compliance.

1.6 Scoping and Public Involvement

The Regional Water Board initiated the formal public scoping process by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on March 27, 2008. The NOP was circulated to the public; to local, state, and federal agencies; and to other interested parties to solicit comments on the Proposed Project. The public scoping period was March 27, 2008, through May 12, 2008, and scoping comments were received through September 15, 2008.

Reclamation and the Regional Water Board held a joint NEPA/CEQA scoping meeting on April 16, 2008, at the Douglas City Firehall in Douglas City, California. During this meeting, the Proposed Project was introduced and members of the public were asked to assist Reclamation and the Regional Water Board in identifying issues that should be addressed in this document. No substantive comments were brought forward during this public meeting, although the lead agencies' representatives responded to a number of questions. During the public comment period, the lead agencies received three scoping comments. These comments are summarized below.

- Native American Heritage Commission – Recommended that the lead agencies follow the standard protocol of consulting with Native American contacts in Trinity County. Also reinforced the need to comply with the CEQA Guidelines provisions pertaining to archaeological resources and Native American interests.

- Lewiston Trails Group – Recommended that mitigation measures be considered for impacts to the Lowden Ranch site related to recreational access and use. This letter referred to a letter submitted to the TRRP in 2004 regarding this group's interest in the Lowden Ranch area.

Two open house sessions to discuss the Remaining Phase 1 sites were also held in 1) Lewiston, California at the Moose Lodge on September 10, and 2) Douglas City, California at the Firehall on September 11, 2008.

The scoping process, in conjunction with informal input from members of the TMC and other stakeholders, led to a determination that the Proposed Project could result in significant impacts as defined by CEQA. This part of the document addresses the following issues:

- land use;
- geology, fluvial geomorphology, and soils;
- water resources;
- water quality;
- fishery resources;
- vegetation, wildlife, and wetlands;
- recreation;
- socioeconomics, population, and housing;
- cultural resources;
- air quality;
- aesthetics;
- hazardous materials;
- noise;
- public services and utilities/energy;
- transportation and traffic circulation; and
- cumulative impacts.

The issues listed above have been addressed in previous documents prepared by the TRRP, and no new issues emerged during the scoping process. These issues were used to develop the descriptions of the resource areas and the associated impact analysis presented in Chapters 4 and 7 of this document.

1.6.1 Public Review

This document is being circulated to local, state, and federal agencies and to interested organizations and individuals who may wish to review and comment on the analysis provided in this Draft Master EIR and EA/Draft EIR. Publication of this document initiates the beginning of a 45-day public review period. The Regional Water Board and Reclamation will hold a public workshop during the review period at which public comment (written and oral) on the Draft Master EIR and EA/Draft EIR will be accepted.

However, to ensure proper interpretation of remarks, written comments are highly encouraged. The workshop is tentatively planned for June 2009 at the Trinity Public Utility District office, 26 Ponderosa Lane (off Highway 299), Weaverville, California.

A notice of the time and location of the public workshop will be published in the Weaverville Trinity Journal newspaper at least one week in advance. All written comments and questions regarding this document that raise issues under NEPA, CEQA, or both, should be addressed to:

Brandt Gutermuth, Environmental Specialist
Trinity River Restoration Program
United States Department of the Interior – Bureau of Reclamation
P.O. Box 1300
1313 South Main Street
Weaverville, California 96093
bgutermuth@mp.usbr.gov
Phone: (530) 623-1800,
Fax: (530) 623-5944

Mr. Gutermuth will ensure that the Regional Water Board, as the CEQA lead agency, receives copies of comments submitted so that it can review and respond to them, as required by CEQA. This document will be sent to the State Clearinghouse and will be available online at the TRRP and Reclamation websites: *http://www.trrp.net/implementation/remainingP1.htm* and *http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=3138.*

Copies of this document will be available for review at the following locations:

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

U.S. Department of Interior
Bureau of Land Management
Redding Field Office
355 Hemsted Drive
Redding, CA 96002

Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd, Suite A
Santa Rosa, California 95403

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

U.S. Forest Service
(Trinity River Management Unit)
Weaverville Ranger Station
360 Main Street
Weaverville, California 96093

Copies of all referenced documents, as well as the December 19, 2000 ROD and the Trinity River Mainstem Fishery Restoration FEIS/EIR, are available for public review at:

Trinity River Restoration Program Office
U.S. Department of the Interior – Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093

CHAPTER 2

Proposed Project and Alternatives Development

Chapter 2
Project Description and Alternatives Development

This chapter describes the project objectives and discusses the process used to develop the alternatives analyzed in this document. It also describes the design criteria, design concepts, and site locations associated with the action alternatives. Three alternatives are considered in this document: the No-Project Alternative, the Proposed Project, and Alternative 1. Alternatives considered but not selected for evaluation are also briefly discussed. The term Proposed Project rather than Proposed Action is used for consistency; for the purposes of this document, the two terms are synonymous.

2.1 Background

The Trinity River Mainstem Fishery Restoration FEIS/EIR identified 44 potential channel rehabilitation sites and three potential side channel sites between Lewiston Dam and the North Fork Trinity River (U.S. Fish and Wildlife Service et al. 2000). These sites were originally prescribed for rehabilitation in the Trinity River Flow Evaluation Report (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999) and included in the preferred alternative identified in the ROD. The ROD prescribed that the rehabilitation efforts at these sites be implemented in phases. Early TRRP planning efforts resulted in the identification of two phases, Phase 1 and Phase 2. Subsequently, in a detailed review of the ROD sites, these 47 sites were further defined and a list of 104 specific sites was established to facilitate the TRRP planning process. Tables 1-1, 1-2, and 1-3 in Chapter 1 show the relationship between the sites identified in the ROD and the sites defined subsequent to the ROD. 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.

The first of the post-ROD channel rehabilitation projects (Hocker Flat, Canyon Creek, and Indian Creek) focused on modifying alluvial features, including berm removal at sites where pronounced fossilized riparian berms developed in response to changes in the flow regime and sediment flux that resulted from construction and operation of the TRD. Although berm removal and reforming alluvial features continue to be emphasized in conjunction with ongoing channel rehabilitation efforts, the restoration of alluvial processes, coupled with the creation of high-value (low velocity and close proximity to vegetation) margin and side-channel habitat, will enhance the TRRP's objective of increasing habitat for anadromous fish. This approach is consistent with the recognition in the Trinity River Mainstem Fishery Restoration FEIS/EIR that the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The 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.

The TRRP has developed a number of programmatic objectives for the channel rehabilitation sites that help frame the alternative development process consistent with CEQA. The programmatic objectives are intended to be used to identify specific activities that could be implemented at the sites discussed in this document. Consistent with these objectives, the goal of the channel rehabilitation activities described and evaluated in this document is to reestablish fluvial processes and to improve the quality and quantity of habitat for anadromous fish. The TRRP has identified 15 discrete activities that are incorporated into the Proposed Project, as described further in this chapter. Over the past 4 years, the TRRP has implemented one or more of these activities at the first 16 Phase 1 sites (see Table 1-1) in association with the Hocker Flat, Canyon Creek, Indian Creek, and Lewiston–Dark Gulch projects.

The alternative development process considered input from stakeholders, particularly local residents and resource agency personnel; existing engineering data; and social, physical, and biological factors. The intent of the Master EIR is to provide CEQA compliance for activities at both the Remaining Phase 1 and Phase 2 sites; because the design concepts are further developed for the Remaining Phase 1 sites, the following sections provide more detail for these sites. For Phase 2, this process was based on more general concepts that facilitate a programmatic review and allow distinctions to be made between the Proposed Project and the alternatives during subsequent environmental reviews.

Consistent with the AEAM Program, the Proposed Project reflects the collective experience of the TRRP and the TMC from the implementation of previous mechanical channel rehabilitation projects (Hocker Flat, Canyon Creek, Indian Creek, and Lewiston–Dark Gulch). Information derived from the implementation of these projects, coupled with information on the biological and physical responses to these projects, was considered in the alternatives development process.

2.2 Goals and Objectives

Collectively, the activities included in the Proposed Project are intended to meet the overarching goal of the TRRP: create, restore, and enhance the full range of habitats for native anadromous fishes, including salmon and steelhead. This document focuses on activities that are intended to restore fluvial processes through the rescaling of the river channel and floodplain within, and to some extent beyond, the boundary of a specific rehabilitation site. Consequently, fluvial processes are expected to affect a larger area than the specific Remaining Phase 1 and Phase 2 sites based on successful TRRP rehabilitation projects constructed over the past 4 years. At discrete sites, specific in-channel (below water line and contiguous with the active channel during construction) and riverine (within the ordinary high water line, but not contiguous with the active channel) activities in conjunction with coarse and fine sediment management will assist in reestablishing fluvial processes and interactions. These rehabilitation activities could result in the rapid development of a larger and more complex expanse of river and floodplain habitats. This habitat expansion is expected to increase habitat suitability and availability for salmonids and other native fish and wildlife species at various river flows.

With input from stakeholders, the lead agencies considered the following objectives in the alternative development process:

- Protect and/or enhance the outstandingly remarkable values (ORVs) associated with the designation of a Wild and Scenic River (federal and California).
- Induce changes in channel geometry in response to constructing channel and floodplain features designed for the river's current and future hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the Proposed Project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment and incorporate this information into the AEAM Program.
- Provide safe and reasonable access as required to support project planning, implementation, and monitoring.
- Develop partnerships with willing participants and encourage positive landowner interest and involvement.
- Use the post-ROD flow regime as the basis for site design.
- Integrate known fluvial and ecological theories and relationships with the sites' measured physical and biological attributes and evaluate the response over a definitive period.
- Balance the benefits of rehabilitation activities in a manner that minimizes or reduces the resource impacts at one or more sites.
- Where practicable, preserve unique and valuable geomorphic and biological features such as hydraulic controls, high-quality spawning or adult holding habitat, and cottonwood galleries.
- Facilitate recovery of native fish and wildlife resources that are in decline or are listed as threatened or endangered.
- Encourage the use of bioengineering techniques (e.g., use of wood and vegetation) as needed to protect and/or stabilize private properties while providing aquatic habitat.

The following objectives apply to the lead, cooperating, responsible, and trustee agencies for the Proposed Project, including the USFS, BLM, Regional Water Board, the HVT, the YT, the State Lands Commission (SLC), CDFG, Caltrans, Trinity County, and the TCRCD:

- compliance with the California Water Code and the Water Quality Control Plan for the North Coast Region (Basin Plan) to ensure the highest reasonable quality of waters of the state and allocation of those waters to achieve the optimum balance of beneficial uses;

- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, native plant, and jurisdictional wetland resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation and to protect the beneficial uses of water.

2.3 Mechanical Channel Rehabilitation Activities and Activity Areas

This document is informed by a multi-scale planning effort that focuses on the Remaining Phase 1 and Phase 2 sites along the Trinity River. The 2000 ROD emphasized the following rehabilitation activities: selectively removing fossilized berms and encroaching riparian vegetation; revegetating and/or reestablishing complex and diverse assemblages of native riparian vegetation; and recreating alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the TRD. This section describes these channel rehabilitation activities in light of present information and the locations where they would occur under the Proposed Project, beginning with a summary of the criteria used to define these activities. Also described are the proposed coarse and fine sediment management activities, which could be conducted concurrently with the mechanical channel rehabilitation activities or as stand-alone projects over an extended period. The ROD acknowledged the need for coarse sediment augmentation downstream of the Lewiston Dam for the life of the TRD. Although the TRRP has developed specific objectives for the Phase 2 sites as well as specific activities that could occur, the planning for these sites remains conceptual at this time.

2.3.1 Rehabilitation Criteria

As stated previously, the TRRP has developed a number of programmatic objectives for channel rehabilitation projects. The following criteria provide the basis for the development of the Proposed Project, including both the Remaining Phase 1 and Phase 2 sites. These criteria provide the basis for the type and location of activities described in the following sections. Specifically, they are intended to be used to:

- increase the area, quality, and availability of habitat for anadromous salmonids (specifically fry, juvenile, and spawner life stages) over a range of flows;
- increase the structural complexity of the types of riverine habitat available and thereby increase the range of anadromous salmonid life histories that can be supported;
- increase the overall surface area of the channel that would be inundated at various flows, thereby enhancing opportunities for development of complex riparian habitat;
- establish conditions such that the ROD flow regime will frequently scour the bed of the river surfaces and inhibit the development of berms;

- recruit a diverse assemblage of riparian vegetation into areas that may provide fish habitat as well as onto the surfaces within and above the OHW [ordinary high water mark], including floodplain surfaces that are not subject to high-flow scouring;
- develop a sequence of point bars by encouraging lateral migration of the channel at flows characteristic of the 2.5-year recurrence interval discharge;
- develop low-water alcoves at the base of side channels or scour channels that provide low-velocity aquatic habitat at flows ranging from approximately 300 to 6,000 cfs;
- develop side channels that will function at flows of 300 cfs or greater;
- develop high-flow scour channels that will function at flows $\geq$6,000 cfs;
- increase the area, quality, and availability of habitats for native wildlife species that may benefit from enhancement of the form and function of the riparian corridor (e.g., migratory birds, western pond turtles (*Actinemys marmorata*), and yellow-legged frogs (*Rana boylii*));
- increase recreation opportunities (e.g., fishing access, watchable wildlife facilities) along the Trinity River corridor consistent with federal, state, and local requirements and guidelines (e.g., the STNF Land and Resource Management Plan (LRMP), and BLM Resource Management Plan (RMP)); and
- reduce the occurrence of noxious and invasive plant species (e.g., Himalayan blackberry and yellow star thistle (*Rubus discolor* and *Centaurea solstitialis*)).

2.3.2 Rehabilitation Activities

One or more of the activities listed in Table 2-1 could be implemented at each of the Remaining Phase 1 or Phase 2 sites. Specific activities have been identified for each activity area among the Remaining Phase 1 sites; in contrast, activities at Phase 2 sites are conceptual, but would include some or all the activities listed in Table 2-1. As the table shows, each activity has been assigned an alphabetic label; these labels are used throughout this document.

The type, area, and magnitude of activity within each site boundary vary, based on a number of factors. For the Remaining Phase 1 sites, discrete activity areas were defined by the interdisciplinary design team to include riverine areas, upland areas, and construction support areas. While these areas are intended to encompass the full range of activities, typically the actual area that will be treated would be smaller. For each Remaining Phase 1 site, 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 (e.g., gravel placement or grade control removal) are labeled with an IC; and staging/use areas are labeled with a C. Temporary channel crossings are labeled with an X, and roads are identified as existing or new. As explained above, specific activities for each of the Phase 2 sites have not yet been identified, but they could include one or more of the activities identified in Table 2-1.

Table 2-1. Rehabilitation Activities

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

Activities described below are intended to emphasize modifying existing grade control features, reconnecting the river's floodplain with the river, establishing or expanding side-channel habitat, and enhancing the bed and banks of the Trinity River to promote well-distributed aquatic habitat over a range of flows. Removal of alluvial material at select locations within the IC areas could provide opportunities to enhance the development of alternate point bars and supplement coarse sediment. Collectively, these activities are intended to enhance aquatic habitat for anadromous fish under a range of flow conditions.

In addition to the activities included in Table 2-1, several others are common to all activity areas to varying degrees. These common activities—vegetation removal, watering, and monitoring—are briefly discussed at the end of this section.

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 in most cases would not be removed from the activity area. Activity A also includes grading to construct or enhance topographic features that could develop into functional riparian habitat; excavation and fill will be balanced such that there is no net change in the volume of earthen material within the activity area. 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 – 300 cfs, 1,000 to 4,500 cfs, and 6,000 cfs)

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 ordinary high water mark (OHW) correlates to a 1.5-year recurrence flow (6,000 cfs as measured below Rush Creek; 6,600 cfs as measured below Canyon Creek). These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the OHW mark and cause more frequent inundation of these surfaces. Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation.

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

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to enhance the establishment of a diverse assemblage of native vegetation. If initial revegetation establishment is less successful than anticipated, additional efforts will be made to establish riparian vegetation consistent with the CDFG policy of no net loss in riparian vegetation from pre-project levels.

Activities E and F (Side Channels – 300 cfs; 1,000 cfs)

Modifications to historic 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. Side channels constructed for 1,000 cfs flows would provide habitat for salmonid rearing when water is flowing through the channels. As flows recede, these side channels would drain naturally, reducing the likelihood of stranding of aquatic organisms.

Side channels would be constructed to leave small berms at 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 will be left in place for removal by subsequent high flows. Side channels may be pumped to uplands and dewatered during construction to remove turbid water before opening the side channel to the river.

Activity G (Alcoves – 300 cfs)

Alcoves would be excavated to design elevations at the downstream end of side channels (300 cfs) or other appropriate locations. These would be continuously inundated (approximately 1–2 feet deep during low flows) and would provide year-round juvenile fish habitat.

Activity H (Grade Control Removal)

Grade control structures, including constructed features, would be removed to increase channel complexity via promotion of channel migration, increased sinuosity, reduced fine sediment storage, increased coarse sediment transport, and restoration of bars.

Activity I (Sediment Management, Coarse and Fine)

In addition to site-specific creation and enhancement of alluvial features (bars), sediment management activities would occur at various sites. Sediment management activities include augmentation of coarse sediment (e.g., spawning gravel) and removal of fine sediment (0.5-0.8 millimeter size fraction) at key locations. Long-term, large-scale coarse sediment augmentation sites would be established at select locations to encourage channel migration and the development of alternate bars. Augmentation activities also include efforts required to provide a long-term supply of coarse sediment and ensure that the TRRP has the administrative access necessary to implement these activities at specific locations. Selected vegetation would be removed to facilitate the introduction of this coarse sediment along the channel margin. As appropriate, salvaged large woody debris (LWD) would be retained and incorporated into riverine/in-channel activities to provide additional habitat complexity. Coarse sediment would be introduced via mechanized equipment (e.g., conveyor, mechanical placement below the OHW) into the river channel under various high-flow conditions in a manner that facilitates the river's ability to route the coarse sediment downstream during high-flow periods. Injection of coarse sediment during peak ROD spring flows would not require in-channel placement with equipment; however, in-channel placement during summer project construction would require equipment placement during low-summer flow conditions.

Fine sediment management activities are concentrated at the Hamilton Ponds on Grass Valley Creek, near its confluence with the Trinity River. These activities involve periodic excavation of the Hamilton Ponds to remove accumulated fine sediment.

Activity J (Placement of Excavated Materials)

Excavated materials would be placed in spoils 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, revegetation of upland areas, including efforts required for erosion control, would be consistent with agency requirements and with authorization from land managers and owners. Refer to Activity O (Revegetation) for more information.

Activity K (Staging Areas)

Excavated materials would be transported across the staging areas to stockpile areas. Water would be applied for construction purposes, including dust abatement, as directed by the Contracting Officer. At select sites, staging areas may also be used for the processing and storage of coarse sediment required for long-term sediment management activities.

Activity L and M (Roads, Existing and New)

Existing roads would be used to access most activity areas within the Remaining Phase 1 and Phase 2 sites. Individual road segments may be used for one or more activities (e.g., access for equipment and personnel, removal of material, revegetation efforts, and monitoring activities). Roads used for TRRP activities may be constrained by load limits or other stipulations of the landowner/manager and may require substantial improvements (e.g., widening, surfacing).

The location of some activity areas would require construction of new roads for specific project purposes. Site-specific locations will consider factors like topography, soils, existing vegetation, and the need for future vehicle access. Best management practices (BMPs) will 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 mainstem Trinity River, existing and constructed side-channels, and tributaries. These temporary crossings may include constructed fords, temporary bridges, or other site improvements to facilitate access for construction-related traffic. If required, temporary bridges would be used when crossings will be made outside of the summer (July 15-September 15) in-channel work window. All temporary crossings will be designed and constructed to meet the requirements for heavy equipment such as trucks, excavators, and scrapers. Fords would be constructed using native alluvial materials excavated from the bed and bank of the Trinity River or adjacent sources. With the exception of rip-rap or other stabilizing materials, material will be primarily extracted from activity areas within identified TRRP sites.

Due to requirements to retain navigability and minimize impacts to aquatic resources, ford crossings would be submerged to depths of at least 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. If temporary bridges or other constructed crossings are used, abutment material may be extracted from activity areas. All temporary crossings will be constructed in a manner that does not impede navigability at the specific site.

Activity O (Revegetation)

Impacts to vegetation are anticipated at most of the activity areas. Revegetation of riparian areas would rely primarily on natural recruitment of native species; however, if necessary, vegetation planting would occur to address landowner requests and fish and wildlife requirements. In general, the TRRP objective is to ensure that riparian vegetation impacted by TRRP activities is replaced at a 1:1 ratio within the Trinity River corridor. Additional planting, seeding and mulching is also planned to control or inhibit the reestablishment of noxious and invasive plant species.

Common Activities

Three activities are common to all sites, although the extent and magnitude of these activities would vary. These common activities, vegetation removal, water use, and monitoring, are broadly described below.

Vegetation Removal

Vegetation would be removed at all sites, as follows:

- Remove vegetation to provide access to activity areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and vegetation masticator).

- Remove stumps, roots, and vegetative matter to allow river scour on excavated floodplain surfaces. Some LWD will be retained for use in the floodplain to enhance fish habitat.

- Dispose of removed vegetation by chipping, hauling offsite, burning, burying within spoils areas, or other appropriate methods. Reclamation will 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 will be preserved and protected.

- Mechanically remove submerged roots from river fringe areas with ripping bars or excavator buckets. Equipment chassis (i.e., tires, tracks) would remain outside of the wetted portion of the river channel when removing submerged roots.

Water Use

Water would be used at all sites, in accordance with the following.

- Riparian water rights held by public and private landowners on the Trinity River would be used to obtain Trinity River water to support restoration. Dust abatement water would be obtained from on-site seep wells or the Trinity River. When drafting from the Trinity River, pump intakes would be in conformance with criteria established by NMFS and CDFG 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 feet per second (fps).

- In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Any surface water sources used for irrigation would be developed in order to comply with the water rights of land management agencies and landowners. Pump intakes would be in conformance with criteria established by NMFS and CDFG 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 will 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 will 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 will 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 will be integrated into the Mitigation Monitoring and Reporting Plan (MMRP) to ensure that authorized activities are consistent with the AEAM. Key elements of the IAP include:

1. Create and maintain spatially complex channel morphology.

2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals.

3. Restore and maintain natural production of anadromous fish populations.

4. Restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.

5. Establish and maintain riparian vegetation that supports fish and wildlife.

6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Additional information on the IAP is available on the TRRP website: *http://www.trrp.net/science/IAP.htm*

2.3.3 Activity Areas

Each of the Remaining Phase 1 sites has been organized into discrete activity areas to help ensure consistent project management and implementation. A brief description of each type of activity area is

provided in the following section. As stated previously, Phase 2 sites are not addressed in the same level of detail.

In-Channel Activity Areas (IC)

In-channel (IC) activity areas are intended to reestablish the properly functioning condition of the river (e.g., dynamic alternate bar sequences) as described in the Trinity River Mainstem Fishery Restoration FEIS/EIR. A variety of construction techniques will be used to modify gradient; diversify the type and location of alluvial features (e.g., point bars); provide functional side channels under a range of flows; and establish locations for the addition of coarse sediment. The TRRP expects to place an average of 10,000 to 15,000 tons of clean coarse sediment in the Trinity River annually, either in conjunction with specific channel rehabilitation activities or at sites established as long-term injection points. Long term is viewed as the next 20 years and beyond. The volume would vary on an annual basis based on the water year type, available coarse sediment, and the TRRP flow release schedule.

Riverine Activity Areas (R)

Riverine (R) activities would require removal of vegetation and excavation of alluvial material from the bed and banks of the Trinity River. These activities emphasize modifying the bed and banks of the Trinity River, allowing reestablishment of the alluvial processes impaired by the construction and operation of the TRD. Such modifications at strategic locations would promote the river processes necessary for the restoration and maintenance of alternate bars and over-bank flows, thereby enhancing rearing habitat for native aquatic organisms. Additionally, construction of alcoves, low-flow side channels, and high-flow scour channels would maintain and/or provide habitat that would be available to juvenile salmonids and other native aquatic organisms over a range of flows.

Upland Activity Areas (U)

The objectives for all upland (U) activity areas are to establish a suitable location for the disposal of excavated material (i.e., sand, gravel, cobble, and cleared vegetation, primarily from the riverine areas), provide a long-term location for stockpiling coarse sediment that would be available for gravel supplementation and, to a reasonable extent, encourage reestablishment of native upland vegetation. Additionally, the activities occurring at these areas would include measures to enhance upland and riparian habitat, while inhibiting the introduction and spread of noxious and invasive vegetation, notably Himalayan blackberry, yellow star-thistle, and Dalmatian toadflax (*Linaria genistifolia*).

Specific design criteria have been established for the disposal of excavated material in upland areas. The criteria include placing material above the 100-year floodplain elevation to minimize impacts to Federal Emergency Management Agency (FEMA) base flood elevations (BFE) and identifying locations that would not inhibit future land use activities, such as recreation access and parking. The criteria also include using existing topographic features to reduce observable changes in the line and form of tailing piles.

Staging Areas (C)

Staging areas are required for construction activities, including gravel processing, storage of equipment and materials, temporary placement of topsoil, and placement of necessary sanitation facilities. Project activities may include construction of temporary access routes (N-Roads) to and between staging areas and activity areas. Additionally, these areas may be used for the processing and storage of coarse sediment required for long-term sediment management activities. At the completion of the project, remediation measures will be performed at the staging areas and access routes in accordance with realty agreements with individual landowners.

Roads (M, N)

Existing roads and access routes (M) in the project vicinity would be evaluated and upgraded as necessary to provide the necessary access. Any new roads and access routes (N) required would be constructed to the standard necessary to limit impacts from erosion and runoff. New roads would be decommissioned at project completion when requested by landowners.

Temporary Crossings (X)

Some activities and treatments may require construction of temporary stream crossings (X) over the Trinity River or its tributaries to provide access for vehicles and construction equipment during low-flow conditions (approximately 300 to 600 cfs). All temporary stream crossings would incorporate design specifications appropriate to address resource impacts identified in this document.

2.3.4 Sediment Management Activities

In addition to the mechanical channel rehabilitation projects, the Proposed Project includes implementation of a Sediment Management Plan. Sediment management activities, directed toward both coarse and fine sediment, would occur primarily at sites above Weaver Creek, as shown on Figure 1-2.

Coarse Sediment Management

In addition to site-specific placement and/or removal of coarse sediment at the Remaining Phase 1 and Phase 2 sites described in this document, the Proposed Project includes long-term coarse sediment augmentation at five sites illustrated in Figure 1-2. Located downstream of Lewiston Dam, these sites were selected by the TRRP in consultation with the TMC in order to ensure that introduced material is transported downstream to replenish the alluvial material that is remobilized over time.

Augmentation at these five sites is expected to occur primarily during high spring flows when coarse sediment may be introduced to the river mechanically by the TRRP and immediately transported downstream. In addition, coarse sediment placed at the Lewiston–Dark Gulch Project in 2009 or at the long-term introduction sites may also be directly placed in-channel with heavy equipment during summer low-flow conditions (within the July 15 through September 15 work window). The TRRP, along with TMC representatives, will use ongoing monitoring in conjunction with water year projections to determine the precise location and extent of these activities on a yearly basis. The TRRP flow release

schedule will also be a factor in determining the volume of material used for augmentation during high-flow periods.

Fine Sediment Management

Over time, restoration activities in the Grass Valley Creek watershed, including construction of two sediment retention ponds at the mouth of Grass Valley Creek (see Figure 1-2), have reduced the overall contribution of fine sediment to the mainstem Trinity River. These ponds—Upper and Lower Hamilton ponds—require periodic maintenance (i.e., dredging) to restore their storage capacity. The need to dredge Upper Hamilton pond is based on: 1) the water year and 2) the amount of accumulated fine sediment retained during the water year. Typically, in wet and extremely wet years, the ponds retain more fine sediment than during dry years. For purposes of this document, Upper Hamilton pond may require dredging on an annual basis for the next 5-10 years.

Typically, pond maintenance consists of the following steps:

- Inflow to the upper pond is closed by diverting Grass Valley Creek flow into a bypass channel. The permeability of the alluvial material ensures that some water remains in the pond during dredging activities.
- The dredging area is isolated from the rest of the pond using a turbidity curtain.
- Fine sediments (e.g., silt, clay, and sand$\leq$ 8 mm[1]) are removed from the pond using an excavator and a dump truck.
- Dredge material is placed at a disposal site within the Lowden Ranch (LR) site boundary.
- The turbidity curtain is removed, and inflow to the basin is restored.

2.3.5 Bank Stabilization Measures

Sediment management includes measures to address bank erosion that could affect aquatic and/or riparian habitat or the infrastructure (e.g., wells, levees, drain fields) that has been constructed along the Trinity River. These measures may be used to minimize erosion at Remaining Phase 1 or Phase 2 sites or at other locations (i.e., private property protection) within the 40-mile reach of the Trinity River influenced by TRRP actions. Although bank erosion is a natural process that can be beneficial by providing a source of coarse sediment, bank stabilization measures may in some instances be implemented in a way that balances the benefits to habitat with the impacts to the human environment.

Several factors influence the specific bank stabilization measures discussed in this section. Hydrology and channel morphology are key factors in determining the type, location and level of effort required to stabilize eroding banks. Access and availability of materials and, to some extent, the various regulatory requirements determine the feasibility and overall applicability of these measures.

[1] Fine sediment is defined as the size fraction capable of passing through an 8 mm mesh screen.

While there are a wide range of bank stabilization measures available to address site-specific erosional processes along the river, the measures specified in the California Salmonid Stream Habitat Restoration Manual, Third Edition are considered adequate to address the range of bank erosion sites within the 40-mile reach of the Trinity River below Lewiston Dam. Measures that incorporate bio-engineering elements, using native materials are more likely to be consistent with regulatory requirements. Bank stabilization measures with bio-engineering elements could include:

- log cribbing,
- live vegetated crib wall,
- log bank armoring,
- log wing deflectors,
- tree revetment,
- native material revetment,
- willow wall revetment, and
- willow siltation baffles.

Depending on actual site conditions, one or more of these measures may be used as modified to meet the specific stabilization objectives. Additional revegetation efforts using native vegetative materials could also be used to enhance the stabilizing qualities of these structures. The following websites identify approaches to bioengineering techniques that are typically considered by federal, state, and local agencies (*http://plant-materials.nrcs.usda.gov/technical/riparian.html*, *http://www.dfg.ca.gov/nafwb/manual.html*).

2.4 Description of Remaining Phase 1 and Phase 2 Sites

2.4.1 Remaining Phase 1 Sites

The Remaining Phase 1 sites include Sawmill, Upper Rush Creek, Lowden Ranch, Trinity House Gulch, Steel Bridge Day Use, and Reading Creek. The location and specific rehabilitation objectives for each site are described below.

Sawmill (SM)

This site is located between RM 108.9 and 109.7. The river at this site has a relatively coarse bed, owing to the transport deficit typical of this reach. Much of the channel is relatively steep, straight, and simple. Post-dam and pre-ROD riparian encroachment and extensive dredge tailing deposits constrain fluvial dynamics. Although the side-channel complex on river right is functional and provides some habitat value, shallow edge habitat is lacking and riparian/floodplain habitat is limited. The dredge tailings offer a source of coarse sediment for gravel augmentation. Over time, several artificial grade controls that were installed in the main channel have failed and continue to pose hazards to navigation.

Objectives at this site include removal of artificial grade controls, lowering of adjacent floodplain surfaces, and removal of vegetation that restricts river access to the floodplain. Planned additions of

coarse sediment are expected to foster a self-maintaining, dynamic, complex, and sinuous morphology affording improved habitat conditions for fish and wildlife.

Upper Rush Creek (UR)

This site is located between RM 107.9 and 108.8. The site is dominated by the presence of the Rush Creek delta at the downstream end of the site. A side channel constructed for fish rearing along the left bank has several artificial grade controls (including a tarp dam) that inhibit flow, thereby reducing potential ecological values. A constructed berm isolates the side channel and limits its ability to function under the full range of flows. Over time, floodplain and backwater/off channel habitats along the right bank near the upstream boundary have been influenced by residential and recreational developments; the riparian area on the downstream left bank appears to be isolated from the main channel.

Objectives at this site include the removal of artificial grade controls, lowering of floodplain surfaces, placement of LWD, and removal of vegetation that restricts river access to its floodplain. The resulting increase in salmonid habitat would benefit from the placement of LWD in the constructed side channel. Finally, the removal of invasive vegetation (e.g., Himalayan blackberry) would help to promote fluvial processes.

Lowden Ranch (LR)

This site is located between RM 104.0 and 105.4. The river at this site is confined by tailings piles along the left bank. The channel is straight and lacks meanders that are proportional to the post-TRD flow regime.

Objectives at this site include the addition of coarse sediment, removal of tailing piles, lowering and reconnection of the floodplain, and enhancement of complexity via other means that are used to restore fluvial processes. In conjunction with the proposed channel rehabilitation activities, this site also provides an opportunity to implement site-specific bank stabilization measures on a private parcel within the site boundary. In addition, this site could be used as a long-term gravel injection site in conjunction with sediment management activities.

Trinity House Gulch (THG)

This site is located between RM 104.0 and 104.3. The upstream site boundary is contiguous with the LR site and immediately below the confluence with Grass Valley Creek. The river in this reach is alluvial, but steep banks confine the channel and isolate it from the adjacent floodplain. Encroachment of riparian vegetation, combined with simplified channel geometry, limits the availability and diversity of aquatic habitat over a range of flows. The ecological function of the site is also impaired by a lack of shade and riparian cover.

The post-TRD influence of Grass Valley Creek, including extensive accumulations of fine sediment has isolated the river from historic floodplains on both sides of the river. Over the past several decades, extensive efforts have been made to reduce the fine-sediment contribution of Grass Valley Creek to the Trinity River. To date, these efforts have resulted in substantial reductions in fine sediment that is

transported and available for deposition downstream. Locally, this effect has reduced the amount of fine sediment that may be deposited on the alluvial features in the vicinity of the THG site.

Objectives at this site include lowering the floodplain in order to increase connectivity under a range of flows, reconnecting the main channel to the right bank via a constructed side channel and/or backwater feature, and removal of encroaching riparian vegetation.

Steel Bridge Day Use (SB)

Located between RM 98.6 and 98.9, this site is at the upstream end of a sharp bend in the river controlled by valley morphology. A small riparian berm on the left bank limits channel/floodplain connectivity and the alluvial processes have been simplified, thereby reducing habitat quality and quantity. Prior to the ROD, post-TRD flows resulted in riparian encroachment at select locations within this site.

Objectives at this site include berm and vegetation removal to enhance shallow edge habitat over a range of flows, construction of several point bars, and lowering the historic floodplain in order to increase habitat complexity under a range of flows. Planting of a conifer and riparian forest on the left bank above the OHW mark could encourage the establishment of a diverse riparian forest and provide future wood recruitment to the river.

Reading Creek (RC)

Located between RM 92.2 and 93.5, this site encompasses a large bend controlled by valley morphology. The development of post-TRD berms in conjunction with various features associated with several periods of mining activity (e.g., ponds, dredge tailings, roads) have modified the alluvial form and function of the river at this site. Extensive alterations to the topography throughout this site make it difficult to understand fully the changes to the bed and banks of the river. As the river straightens downstream of the bend, large sand deposits (berms) have formed along the margin, suggesting a change in the depositional environment. Over time, these berms, coupled with dense riparian vegetation, have confined the channel, resulting in further isolation from the floodplain, particularly under post-ROD flow conditions. These conditions inhibit dynamic geomorphic processes from occurring and have greatly reduced salmonid habitat (especially salmonid rearing and other low-velocity aquatic habitats) at a range of flows. The adjacent upland surface is largely abandoned by the effects of the post-dam flow regime and is hydrologically disconnected under the post-ROD flows, further limiting low-velocity aquatic edge habitats. Several areas have ponds behind a berm section, which likely promote stranding of fish.

Objectives at this site include removal of berms and excavation of terraces (constructed floodplains) to increase low-velocity areas and add off-channel areas to increase aquatic habitats. Lowering of adjacent uplands and revegetation will enhance riparian and upland vegetation and improve cover and riparian habitat. Lowering of unnatural high-elevation areas along the channel, along with removal of some of the monotypic even-aged, narrow stands of alders associated with berms, could promote alluvial processes and channel complexity, and improve associated habitat values and functions. Placement of fill at select locations could reduce the likelihood of stranding fish, while creating potential riparian and wetland habitat.

Activity Areas

In total, 158 discrete activity areas were identified by the TRRP within the boundaries of the Remaining Phase 1 sites. Each site is labeled using an alphabet system that corresponds to the site name. The site name, alpha code, and corresponding figure illustrating the site are listed below.

- Sawmill SM Figure 2-1a
- Upper Rush Creek UR Figure 2-1b
- Lowden Ranch LR Figure 2-1c
- Trinity House Gulch THG Figure 2-1d
- Steel Bridge Day Use SB Figure 2-1e
- Reading Creek RC Figure 2-1f

Table 2-2 lists the activity areas associated with the Remaining Phase 1 sites. Each activity area has been assigned a unique identifier that corresponds to the type of activity area and the site name. For example, U-1 SM is the identifier for upland activity area 1 at the SM site. The table also shows the size of the activity areas, whether they are located on the right or left bank of the Trinity River (looking downstream), and the primary use anticipated for each area.

Table 2-2. Remaining Phase 1 Sites - Activity Areas

Activity Area	Size (acres)[a]	River Right/Left	Primary Use
Sawmill Site (103.42 Acres within the Site Boundary)			
U-1 SM	0.833	Right	Stockpile location
U-2 SM	1.384	Right	Stockpile location
IC-1 SM	0.064	Left	Grade control removal
IC-2 SM	0.163	Left	Course sediment addition
IC-3 SM	0.413	Right	Course sediment addition
R-3 SM	0.053	Right	Side channel
IC-5 SM	0.216	Right	Course sediment addition
IC-4 SM	0.819	Right	Course sediment addition
IC-6 SM	0.205	Right	Course sediment addition
IC-7 SM	0.219	Left	Course sediment addition
IC-8 SM	0.230	Right	Course sediment addition
IC-9 SM	0.298	Right	Course sediment addition
IC-10 SM	0.347	Left	Course sediment addition
IC-11 SM	0.282	Left	Course sediment addition
R-1 SM	0.447	Right	Constructed inundation surface
R-4 SM	0.241	Right	Course sediment addition

Table 2-2. Remaining Phase 1 Sites - Activity Areas

Activity Area	Size (acres)[a]	River Right/Left	Primary Use
R-5 SM	0.096	Right	Low flow side channel
R-2 SM	3.878	Right	Constructed inundation surface
R-6 SM	0.207	Right	Constructed inundation surface
R-7 SM	0.123	Right	Low flow side channel
R-8 SM	5.960	Right	Constructed inundation surface
R-9 SM	0.173	Right	Low flow side channel
R-10 SM	3.932	Left	Constructed inundation surface
U-3 SM	1.417	Left	Stockpile location
C-1 SM	1.709	Right	Staging area
C-2 SM	0.487	Right	Staging area
C-3 SM	0.163	Right	Staging area
C-4 SM	0.665	Right	Staging area
C-6 SM	0.446	Right	Access road - existing
C-5 SM	0.332	Left	Access road - new
C-7 SM	0.186	Left	Access road – new Staging area,
C-8 SM	0.216	Right	Access road - new
C-9 SM	0.012	Right	Access road - new
C-10 SM	0.108	Right	Access road - new
C-11 SM	0.009	Right	Access road - new
C-12 SM	0.105	Left	Access road - new
C-13 SM	5.920	Left	Staging area, gravel processing
X-1 SM	0.041	Right	Crossing
X-2 SM	0.018	Right	Crossing
X-3 SM	0.015	Right	Crossing
X-4 SM	0.006	Right	Crossing
X-5 SM	0.025	Right	Crossing
X-6 SM	0.014	Right	Crossing
Upper Rush Creek Site (92.27 Acres within the Site Boundary)			
R-5 UR	3.674	Left	Berm removal
R-4 UR	2.031	Right	Side channel enhancement
IC-1 UR	0.391	Right	LWD placement

Table 2-2. Remaining Phase 1 Sites - Activity Areas

Activity Area	Size (acres)[a]	River Right/Left	Primary Use
IC-2 UR	1.230	Right	LWD placement
U-2 UR	0.396	Right	Stockpile location
R-3 UR	0.263	Right	Recontouring/Fill in Pool
R-1 UR	1.439	Right	Side channel enhancement
R-2 UR	1.140	Right	Recontouring
IC-3 UR	0.364	Left	Course sediment addition
U-1 UR	1.293	Right	Stockpile area
U-4 UR	0.606	Left	Stockpile location
U-3 UR	0.810	Left	Stockpile location
IC-4 UR	0.364	Left	Course sediment addition
C-1 UR	0.354	Left	Access road - existing
C-2 UR	0.021	Left	Access road - new
C-3 UR	0.011	Left	Access road - new
C-4 UR	0.206	Right	Access road - existing
C-5 UR	0.399	Right	Access road - existing
C-14 UR	0.017	Right	Access road - new
C-6 UR	0.347	Right	Access road - existing
C-7 UR	0.033	Right	Access road - new
C-8 UR	0.115	Right	Access road - new
C-15 UR	0.101	Right	Access road - new
C-9 UR	0.152	Right	Staging area
C-10 UR	0.521	Right	Staging area
C-13 UR	0.032	Left	Access road - new
C-11 UR	0.190	Right	Staging area
C-12 UR	0.178	Left	Access road - existing
C-17 UR	0.220	Right	Access road - existing
X-1 UR	0.019	Left	Crossing
C-16 UR	1.169	Left	Staging area
Lowden Ranch Site (211.77 Acres within the Site Boundary)			
R-4 LR	4.558	Left	Constructed inundation surface
IC-1 LR	0.257	Right	Course sediment addition
IC-5 LR	0.559	Left	Course sediment addition

Table 2-2. Remaining Phase 1 Sites - Activity Areas

Activity Area	Size (acres)[a]	River Right/Left	Primary Use
IC-4 LR	0.946	Left	Course sediment addition
R-2 LR	8.034	Right	Constructed inundation surface and vegetation removal
IC-2 LR	0.206	Right	Course sediment addition
IC-3 LR	0.329	Right	Course sediment addition
IC-6 LR	0.526	Right	Course sediment addition
U-1 LR	3.566	Right	Course sediment stockpile
U-2 LR	5.990	Right	Stockpile location
U-3 LR	1.086	Right	Course sediment stockpile
R-3 LR	13.812	Right	Vegetation removal and constructed wetland
R-1 LR	5.591	Right	Side channel and constructed wetland
U-4 LR	56.946	Right	Revegetation area
C-1 LR	3.221	Right	Staging area, gravel processing
C-2 LR	0.718	Right	Access road - new
C-3 LR	0.185	Left	Access road - existing
C-4 LR	0.155	Right	Access road - new
X-1 LR	0.032	Left	Crossing
C-6 LR	0.482	Right	Access road - existing
C-5 LR	0.489	Right	Access road - existing
X-2 LR	0.019	Right	Crossing
C-7 LR	3.150	Left	Staging area, gravel stock piling
C-8 LR	0.403	Right	Access road - existing
Trinity House Gulch Site (43.69 Acres within the Site Boundary)			
U-3 THG	0.974	Left	Stockpile location
IC-2 THG	0.337	Left	Course sediment addition
IC-1 THG	0.374	Right	Course sediment addition
IC-3 THG	0.123	Left	Existing gulch
R-1 THG	1.316	Left	Side channel
R-2 THG	3.503	Left	Constructed inundation surface
R-3 THG	1.253	Left	Constructed inundation surface
U-2 THG	1.789	Left	Stockpile location

Table 2-2. Remaining Phase 1 Sites - Activity Areas

Activity Area	Size (acres)[a]	River Right/Left	Primary Use
C-1 THG	0.274	Right	Access road - existing
C-2 THG	0.230	Left	Access road - new
X-1 TH	0.044	Left	Crossing
C-4 THG	0.034	Left	Access road - new
C-5 THG	0.025	Left	Access road - new
C-7 THG	0.155	Left	Access road - new
X-2 THG	0.015	Left	Crossing
U-1 THG	3.732	Left	Stockpile location
C-6 THG	1.002	Left	Staging area/access road - new
Steel Bridge Day Use Site (22.47 Acres within the Site Boundary)			
IC-1 SB	0.242	Right	Course sediment addition
U-1 SB	0.282	Right	Stockpile location
R-2 SB	1.800	Right	Constructed inundation surface
IC-2 SB	0.334	Right	Course sediment addition
IC-3 SB	0.146	Right	Course sediment addition
R-1 SB	0.868	Right	Constructed inundation surface
C-1 SB	0.246	Right	Access road - new
C-2 SB	0.431	Right	Staging area
C-3 SB	0.236	Right	Staging area
C-4 SB	0.811	Right	Access road - existing
C-5 SB	0.812	Right	Staging area
Reading Creek Site (135.87 Acres within the Site Boundary)			
U-4 RC	2.152	Left	Stockpile location
U-3 RC	5.136	Right	Stockpile location
U-2 RC	0.657	Right	Stockpile location
U-1 RC	1.281	Left	Stockpile location
IC1-RC	0.241	Left	Course sediment addition
IC2-RC	0.324	Left	Course sediment addition
IC3-RC	0.300	Right	Course sediment addition
IC4-RC	0.328	Right	Course sediment addition
IC5-RC	0.340	Right	Course sediment addition
R1-RC	2.571	Left	Constructed inundation surface

Table 2-2. Remaining Phase 1 Sites - Activity Areas

Activity Area	Size (acres)[a]	River Right/Left	Primary Use
R4-RC	4.323	Right	Constructed inundation surface
R2-RC	3.692	Right	High flow scour channel
R3-RC	0.273	Right	Constructed inundation surface
R5-RC	4.579	Left	Constructed inundation surface
C-1 RC	1.111	Right	Access road - existing
C-2 RC	0.031	Right	Access road - new
C-3 RC	0.137	Right	Access road - new
C-4 RC	0.400	Left	Access road - existing
C-5 RC	0.033	Left	Access road - new
X-1 RC	0.033	Right	Crossing
C-6 RC	0.786	Left	Staging area
C-7 RC	0.255	Right	Staging area
C-8 RC	0.342	Right	Staging area
C-9 RC	0.397	Left	Staging area
C-10 RC	0.416	Right	Staging area, Gravel processing
C-11 RC	0.102	Right	Access road - new
C-12 RC	0.853	Right	Access road - existing
C-13 RC	1.110	Right	Access road - existing
C-14 RC	0.431	Left	Access road - existing
C-15 RC	0.077	Left	Access road - new

[a] Area calculated from project GIS

2.4.2 Phase 2 Sites

Activities proposed for these sites are similar to those proposed for the Remaining Phase 1 sites; because designs are conceptual for the Phase 2 sites, however, this document provides a programmatic description of the activities that may be conducted. The location and conceptual actions for each of the Phase 2 sites are described below. The Phase 2 sites are labeled using an alpha code consistent with those used for the Remaining Phase 1 sites. The locations of the Phase 2 sites are shown on Figure 1-2.

Lower Rush Creek (LRC)

Located between RM 107.0 and 107.9, this site is bounded upstream by the Phase 1 Lewiston-Dark Gulch site. The upstream portion of the LRC site is responding rapidly under post-ROD flows and, for the most part, appears to be functional with respect to both fluvial processes and habitat. Conceptually, the objective is to enhance connectivity by improving the quality and quantity of side-channel habitat within

this segment. A constructed side-channel in the vicinity of the new Salt Flat Bridge could be enhanced, and there are opportunities to increase the alluvial features (bars) near the bridge abutments.

Tom Lang Gulch (TLG)

Located between RM 103.1 and 103.9, this site extends from a community boat launch on upstream river left to part way through the Poker Bar residential development on lower river right. Conceptually, the objective is to remove encroaching riparian vegetation, stabilize ongoing bank erosion throughout the segment, and enhance the alluvial nature of the site with sediment management activities.

Poker Bar (PB)

Located between RM 101.7 and 102.9, this site extends from the upstream tip of an island associated with the bridges spanning the split channel at Poker Bar, through the Poker Bar area, to a mid-channel island. The mid-channel island is located downstream of the outlet of a potential side channel on the right bank. Conceptually, the objective is to increase rearing habitat for native juvenile salmonids by enhancing the function of the low-flow side-channel.

China Gulch (CG)

Located between RM 101.0 and 101.6, this site includes the left bank side of a sharp left bend in the river at the downstream end of the Poker Bar residential area. The site is functioning fairly well and includes some alcoves and bars. Conceptually, the objective is to remove riparian berms and enhance the alluvial nature of the site using sediment management activities.

Limekiln Gulch (LKG)

Located between RM 99.6 and 100.4, this site was selected because it is potentially the upstream-most point of feasible access between Steel Bridge Road and Lower Poker Bar Road. Conceptually, the objective is to remove riparian berms, construct alcoves, and enhance the performance of the existing constructed side channels.

McIntyre Gulch (MG)

Located between RM 97.2 and 98.0, this site is just downstream of the Steel Bridge Day Use Area along Steel Bridge Road and extends upstream and downstream of the Bigger's Road Bridge. Conceptually, the objective is to remove riparian berms and enhance the alluvial nature of the site using sediment management activities.

Douglas City (DCY)

Located between RM 93.5 and 94.0, this site extends from the SR 299 bridge at Douglas City for approximately 0.5 mile downstream. This reach lacks complexity and is confined on the left bank, with a floodplain on the right bank. Conceptually, the objective is to enhance the alluvial nature of the site by creating point bars and expanding the floodplain feature to increase channel sinuosity and complexity.

Site Boundary (103.421 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:3,600

300 0 300

Feet

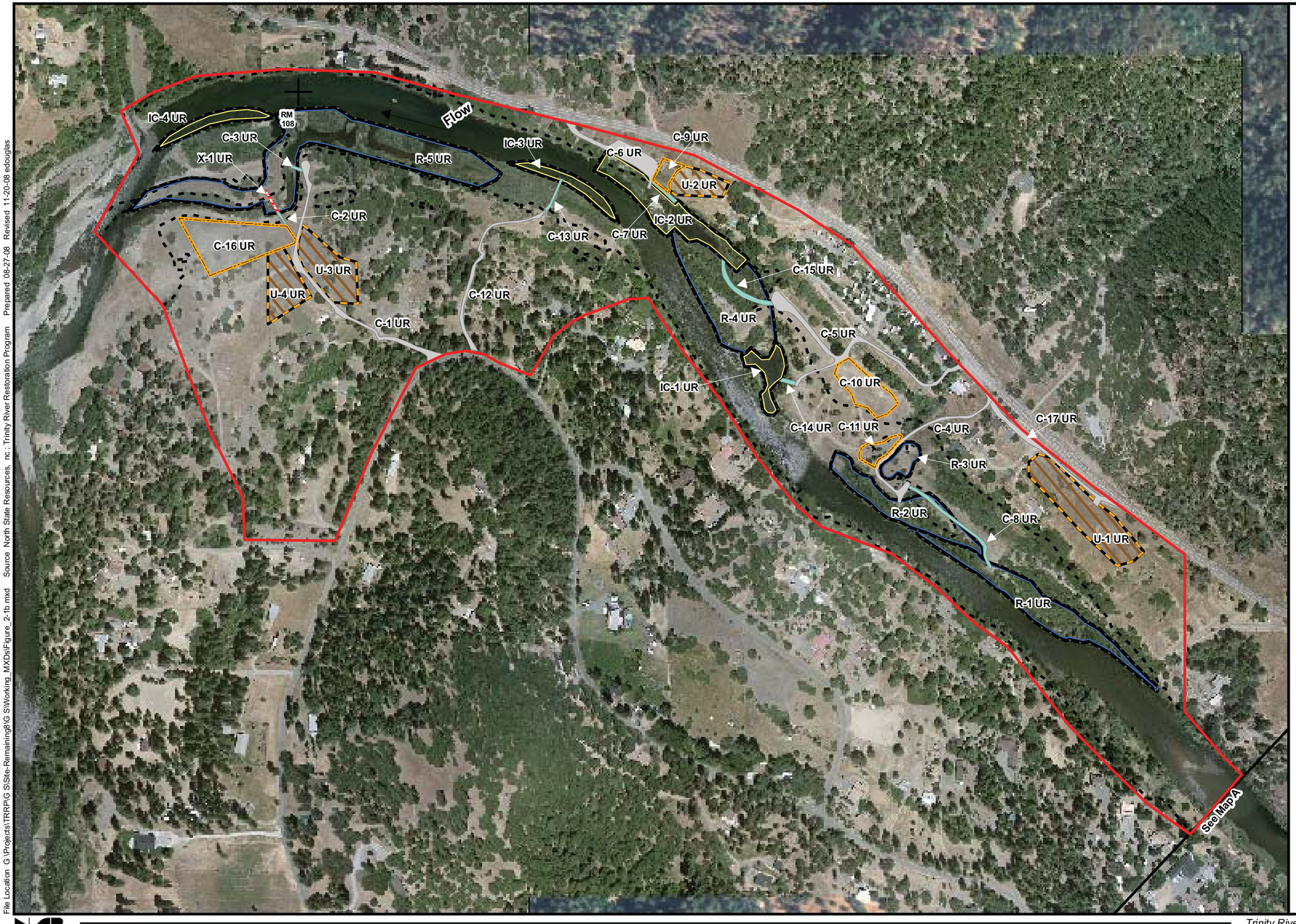
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-1a.mxd Source North State Resources, nc ; Trinity River Restoration Program Prepared 08-27-08 Revised 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-1a
Sawmill - Proposed Project



Site Boundary (92.274 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:4,200

350 0 350
Feet

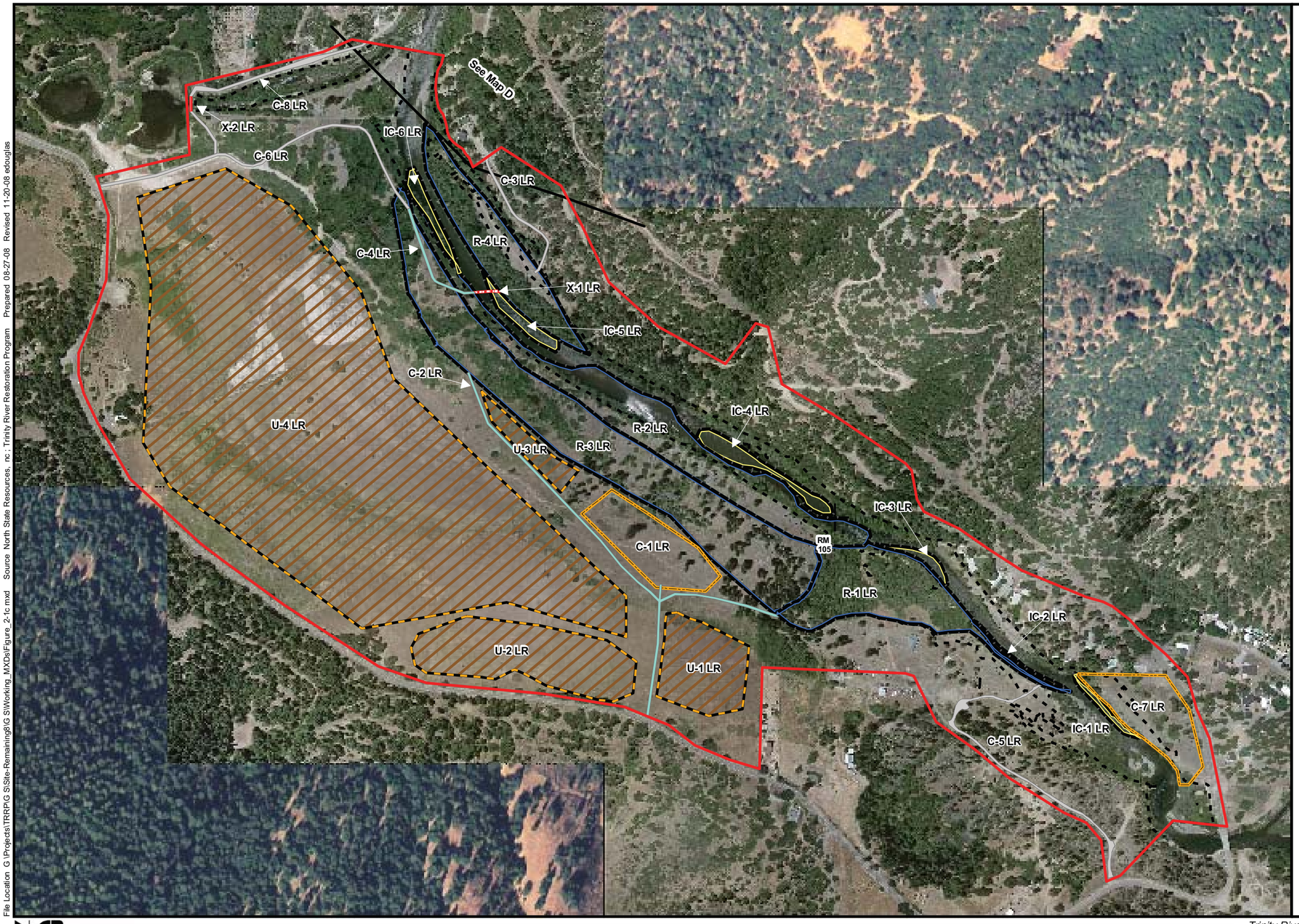
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-1b.mxd Source North State Resources, inc.; Trinity River Restoration Program Prepared 08-27-08 Revised 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-1b
Upper Rush Creek - Proposed Project



Site Boundary (211.769 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:5,400

450 0 450
Feet

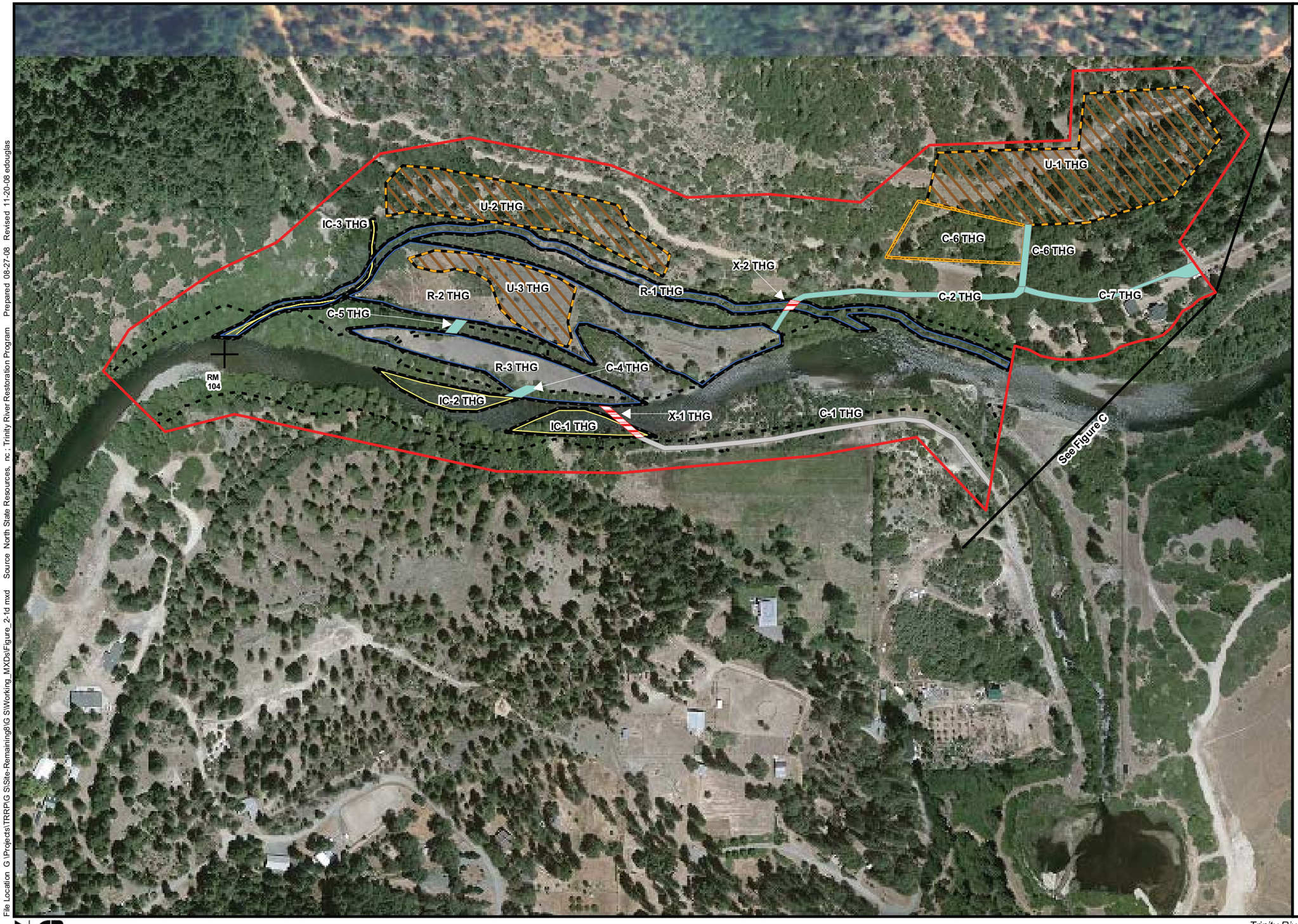
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-1c.mxd Source North State Resources, Inc.; Trinity River Restoration Program Prepared 08-27-08 Revised 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-1c
Lowden Ranch - Proposed Project



Site Boundary (43.695 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-1d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 08-27-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-1d
Trinity House Gulch - Proposed Project

Site Boundary (22.475 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:2,400

200 0 200
Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-1e.mxd Source North State Resources, Inc.; Trinity River Restoration Program Prepared 08-27-08 Revised 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-1e
Steel Bridge Day Use - Proposed Project

Site Boundary (135.871 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRPG S\Site-Remaining8\G S\Working_MXDs\Figure_2-1f.mxd Source North State Resources, Inc.; Trinity River Restoration Program Prepared 08-27-08 Revised 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-1f
Reading Creek - Proposed Project

Steiner Flat Feather Edge (SFF)

Located between RM 91.8 and 92.2, this site includes the old Steiner Flat feathered edge restoration site and extends downstream 1,800 feet. The site is functioning fairly well but includes significant tailings on the floodplain and some small riparian berms. Conceptually, the objective is to remove and process the tailings, lower the floodplain, remove berms, and enhance complexity using LWD or boulders.

Steiner Flat Campground (SFC)

Located between RM 91.4 and 91.8, this site includes all of a confined, sharp (almost 180-degree) river bend. There are extensive bedrock outcrops throughout the site. Conceptually, the objective is to reduce riparian encroachment and enhance existing floodplain and side-channel features.

Lower Steiner Flat (LSF)

Located between RM 91.2 and 90.2, this site includes two wide, sweeping right bends of the river, with a small inflection area between. Extensive bedrock at the site limits the alluvial potential. Conceptually, the objective is to reduce riparian encroachment and enhance existing floodplain features.

Lorenz Gulch (LZG)

Located between RM 89.4 and 90.1, this site extends along a high terrace of what appear to be flattened tailings on the left bank, ending where a broad floodplain begins on the left bank at Steiner Flat. Conceptually, the objective is to reduce riparian encroachment and enhance existing floodplain features.

Dutch Creek (DCK)

Located between RM 85.1 and 86.6, this site begins where Dutch Creek enters the Trinity River (across from Johnson Point) and extends to Evan's Bar. There are berms on the right and left banks, especially the upstream left and middle right banks. Conceptually, the objective is to reduce riparian encroachment and enhance existing floodplain features.

Evan's Bar (EB)

Located between RM 84.4 and 85.1, this site is located in the vicinity (upstream and downstream) of the current CDFG fish-counting weir near Junction City, and includes the old Bell Gulch Rehabilitation Site. There are berms on both banks and a high, flattened tailings terrace on the left bank. The reach is relatively linear and simple. Conceptually, the objective is to reduce riparian encroachment, enhance existing floodplain and side-channel features, and establish alternating point bars.

Soldier Creek (SCK)

Located between RM 83.6 and 84.2, this site is just upstream of Chapman Ranch. There is a berm on the left bank, and a steep slope confines the right bank. Conceptually, the objective is to reduce riparian encroachment and enhance existing floodplain features.

Chapman Ranch (CR)

Located between RM 82.9 and 83.6, this site is a relatively straight and simple reach about 4,000 feet long that is showing signs of meander development. The channel is naturally confined within terraces, with significant tailings along the banks and on the terrace. The natural terrace and floodplain locations and elevations at the site are unclear; what appears to be the pre-dam channel location and terrace locations in recent aerial photos may represent artifacts of very extensive dredging operations that altered the site well before dam construction. Conceptually, the objective is to reduce riparian encroachment, enhance existing floodplain and side-channel features, and establish alternating point bars.

Deep Gulch (DG)

Located between RM 82.4 and 82.9, this site is just downstream of the UCR site. A steep hillslope adjacent to the left bank confines this site while the right bank is bordered by various alluvial features. Conceptually, the objective is to reduce riparian encroachment, enhance existing floodplain and side-channel features, and establish alternating point bars.

Sheridan Creek (SHC)

Located between RM 81.6 and 82.4, this site is located upstream of Sheridan Creek and includes the old Deep Gulch feathered-edge project on the left bank and the old Sheridan Creek feathered edge work area on the downstream right bank. The site also includes the old constructed Svensson side-channel that has almost completely filled in with sand and silt since construction. This reach is relatively straight and has a plane bed channel. Conceptually, the objective is to reduce riparian encroachment, enhance the existing floodplain, and augment alternating point bars.

Oregon Gulch (OG)

Located between RM 80.9 and 81.6, this site is located upstream and downstream from a sharp left bend in the river near the location where Oregon Gulch enters the Trinity River on the right bank. The site is evolving, with multiple channels present at the bend. The upper right bank of the site is bounded and confined by massive, high tailings piles. Conceptually, the objective is to remove the berm, develop point bars, construct a side-channel, and reclaim dredge tailing deposits.

Sky Ranch (SR)

Located between RM 80.3 and 80.9, this site is located near the junction of SR 299 and Sky Ranch Road. The site is mostly bounded by a naturally high terrace/valley wall on the left bank. The right bank includes riparian berms and is bounded by a massive terrace of flattened tailings. A large pile of LWD has been deposited near the channel on the upstream right bank, and there are several low-flow side channels. Conceptually, the objective is to reduce riparian encroachment, develop point bars, enhance existing side-channels, and reclaim dredge tailing deposits.

Upper Junction City (UJC)

Located between RM 79.8 and 80.5, this site extends upstream 0.5 mile from the Dutch Creek Road Bridge in Junction City. There are extensive tailings within the site boundaries, including high piles

confining the river between RM 79.9 and 80.5. Conceptually, the objectives are to reduce riparian encroachment and lower the alluvial surfaces in order to increase the area inundated at flows below the 1.5-year recurrence interval. Additionally, this site provides opportunities to reclaim dredge tailing deposits.

Lower Junction City (LJC)

Located between RM 79.3 and 79.8, this site extends downstream 0.5 mile from the Dutch Creek Road Bridge in Junction City through the "Junction City Hole," a large scour hole induced by a bedrock outcrop that provides significant adult salmonid holding habitat. There is a high berm on part of the right bank at this site. Conceptually, the objectives are to reduce riparian encroachment and lower the alluvial surfaces in order to increase the area inundated at flows below the 1.5-year recurrence interval. Additionally, this site provides opportunities to reclaim dredge tailing deposits.

Upper Conner Creek (UCC)

Located between RM 77.4 and 78.3, this site is immediately upstream of the Conner Creek project constructed in 2006. Conceptually, the objective is to remove the berm at the site, develop point bars, enhance existing side channels, and reclaim dredge tailing deposits.

Wheel Gulch (WGH)

Located between RM 75.8 and 76.4, this site is just upstream of the Valdor Gulch project constructed in 2006. An existing side channel connects with the river at RM 75.9 and is evident on historical photos. Some portions of the channel have been affected by sedimentation, but it still provides some function during higher flows. This site also encompasses a sediment retention basin constructed by Caltrans between SR 299 and the Trinity River. Conceptually, the objective is to increase the connectivity between Wheel Gulch and the floodplain of the Trinity River, enhance the side channel, remove berms, and enhance the existing floodplain. Reclamation of dredge tailings could also occur at this site.

2.5 Description of Alternatives

CEQA Guidelines Section 15126.6(a) states that the EIR shall describe a range of reasonable alternatives to the proposed project that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen significant effects in comparison to the proposed project. In addition, CEQA requires the discussion of a "no project" alternative. Section 15126.6(c) states that among the factors which may be taken into account when addressing the feasibility of alternatives are 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.

A number of factors drove the selection of potentially feasible alternatives, which will ultimately lead to a preferred alternative. Section 2.7 provides a brief description of alternatives considered but eliminated from further evaluation.

The following criteria were applied to evaluate the ability of the Proposed Project (NEPA Proposed Action) to meet the objectives outlined in section 2.2. Pursuant to NEPA, the purpose and need (presented in Chapter 6) 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 that have documented long-term successful performance under similar circumstances were considered (e.g., Hocker Flat, Canyon Creek, and Indian Creek rehabilitation projects).

- 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 TRD flow releases. Aquatic habitat, jurisdictional wetlands, accessibility, and consistency with land use planning were considered in the type and location of proposed activities.

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

An interdisciplinary team, including representatives from the TMC, initially evaluated a number of alternatives using the criteria outlined above. This resulted in identifying three alternatives: the No-Project Alternative (NEPA No-Action), the Proposed Project, and Alternative 1 for analysis in the document. Alternatives were formulated from public input, engineering feasibility, scientific information, and professional judgment, in a manner consistent with NEPA and CEQA. A summary of the fully analyzed alternatives is presented in the following sections. The anticipated impacts, including those required for CEQA and NEPA, are analyzed in subsequent chapters of this document.

The initial screening process considered alternatives that met the requirements discussed in section 2.2 and section 6.2 of this document. These considerations included flow regimes (seasonal and inter-annual), the potential for resource impacts, and engineering limitations. The preliminary list of alternatives incorporated input provided during meetings with various landowners, interested agencies and tribes, and culminated with input received during the NEPA/CEQA scoping process.

This section describes the No-Project Alternative, the Proposed Project, and Alternative 1. The Proposed Project most efficiently meets the project objectives (section 2.2) and purpose and need (section 6.2) established by the respective CEQA and NEPA lead agencies. A large number of private parcels fall within the boundaries established for the sites described in this document. Alternative 1 was developed in response to input provided by stakeholders, including landowners along the river corridor, during the

scoping process. Alternative 1 is considered feasible and represents an approach that could reduce temporary impacts to some resources such as wetland and riparian habitat, noise, air quality, and traffic/transportation, particularly where sites are near residential and/or recreational areas. To varying degrees, Alternative 1 also reduces construction and sediment management activities in the proximity of private landowners. The alternatives assessed in this document represent a reasonable range that will provide for meaningful public participation and informed decision-making.

Conditions existing at the time the NOP was published 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.

2.5.1 No-Project Alternative

The No-Project Alternative represents ongoing activities and operations of the TRRP and other entities involved in restoring the Trinity River. Consistent with CEQA Guidelines, Section 15126.6, subdivision (e)(2), existing conditions are defined as conditions 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). The No-Project Alternative represents conditions under a scenario where no additional TRRP activities would occur at Phase 1 or Phase 2 mechanical channel rehabilitation sites. This alternative would also preclude implementation of sediment management activities downstream of the Sawmill long-term high-flow gravel augmentation site. The No-Project Alternative encompasses TRRP activities authorized previously. 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 the Director of Reclamation's Mid-Pacific Region and the Director of the USFWS, Region Eight; 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 the TCRCD.

In addition, the following ROD components are authorized by lead agencies (e.g., USACE, Regional Water Board, CDFG, Trinity County) at certain locations and for a limited time duration (through 2012). These authorized activities include:

- coarse sediment augmentation at activity areas within the Lewiston-Dark Gulch rehabilitation site; and

- channel rehabilitation project refinements (e.g., planting) that may take place at all recently completed TRRP channel rehabilitation sites (Hocker Flat, Canyon Creek, Indian Creek, and Lewiston–Dark Gulch).

2.5.2 Proposed Project

The Proposed Project includes specific activities proposed at 158 activity areas within the boundaries of the Remaining Phase 1 sites: SM, URC, LR, THG, SB, and RC. The activities proposed for the Phase 2 sites are similar to those proposed for the Remaining Phase 1 sites; however, because only broad restoration concepts have been developed for the Phase 2 sites, the Proposed Project provides a programmatic description of the Phase 2 site activities that respond to the conceptual objectives for these sites.

The Proposed Project includes activities similar to those implemented at previous channel rehabilitation sites. These activities include reducing riparian encroachment at select locations, physical alteration of other types of alluvial features (e.g., floodplains, mid-channel bars, and side channels), and removal of riparian vegetation at strategic locations to create fish habitat and promote the alluvial processes necessary for the restoration and maintenance of alternate bar riverine habitats.

In addition to the activities listed in Table 2-1, the Proposed Project includes activities intended to implement the TRRP's Sediment Management Plan. These sediment management activities would occur primarily upstream of Weaver Creek, but could be included as design elements (e.g., placement of coarse sediment as point bars) within Phase 2 site boundaries as required to increase aquatic habitat complexity (Figure 1-2). Sediment management activities include:

- placement of select sediment at in-channel, riverine, and upland activity areas in conjunction with mechanical channel activities to meet aquatic and terrestrial wildlife habitat objectives;
- long-term injection of select sediment at strategic locations (illustrated on Figure 1-2) upstream of Weaver Creek during high-flow events; and
- ongoing removal and disposal of fine sediment captured at the Hamilton Pond retention facility.

The TRRP has developed a number of programmatic objectives for channel rehabilitation projects. As described previously, these objectives were used by the project design team to identify specific activities that could be applied at the Remaining Phase 1 and Phase 2 sites. For the Remaining Phase 1 sites, each activity area was established to meet a suite of specific objectives in conformance with the aforementioned programmatic objectives. Ultimately, the goal of the activities described in this document is to increase the quantity and enhance the quality of suitable rearing habitat for native anadromous salmonids and other native fish species, while reestablishing geomorphic processes required to enhance alluvial features (alternate point bars) in the Trinity River.

Remaining Phase 1 Sites

The TRRP has identified 15 discrete activities that are incorporated into the Proposed Project. One or more of these activities are proposed for each of the activity areas within the Remaining Phase 1 sites. The discussion of Phase 2 activities is programmatic at this point in the CEQA planning process.

Figures 2-1a through 2-1f illustrate activity areas and construction areas for each of the Remaining Phase 1 sites. The Proposed Project includes a number of in-channel activities at each of the Remaining Phase 1 sites, as well as at least one temporary river crossing at most of these sites. Excavation activities associated with the Remaining Phase 1 sites are expected to yield more than 400,000 cubic yards of alluvial material. Collectively, the sites have the capacity to place (dispose of) nearly 500,000 cubic yards of excavated material. Table 2-3 shows the activity areas, the estimated volume of material that would be excavated from each activity area, the miles of road needed to support project activities, and the types of activities proposed.

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
		Sawmill Site		
IC-1 SM	0.064	400	0.000	H, I
IC-2 SM	0.163	600	0.000	H, I
IC-3 SM	0.413	2,000	0.000	H, I
IC-4 SM	0.819	1,000	0.000	H, I
IC-5 SM	0.216	1,000	0.000	I
IC-6 SM	0.205	700	0.000	I
IC-7 SM	0.219	1,400	0.000	I
IC-8 SM	0.230	1,500	0.000	I
IC-9 SM	0.298	1,400	0.000	I
IC-10 SM	0.347	2,200	0.000	I
IC-11 SM	0.282	1,400	0.000	I
IC Subtotal	**3.256**	**13,600**	**0.000**	
R-1 SM	0.447	2,900	0.000	A, D, K, O
R-2 SM	3.878	26,000	0.000	A, C, D, K, O
R-3 SM	0.053	500	0.000	A, E, D, O
R-4 SM	0.241	5,900	0.000	A, E, H, O
R-5 SM	0.096	300	0.000	A, H
R-6 SM	0.207	700	0.000	A, D, O
R-7 SM	0.123	400	0.000	A, C, E, H
R-8 SM	5.960	82,300	0.000	A, C, D, K, O
R-9 SM	0.173	600	0.000	A, C, E, H
R-10 SM	3.932	36,900	0.000	A, D, J, K, O
R Subtotal	**15.111**	**156,500**	**0.000**	

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
U-1 SM	0.833	20,200	0.000	A, J, K, O
U-2 SM	1.384	33,500	0.000	A, J, K, O
U-3 SM	1.417	60,000	0.000	A, J, K, O
U Subtotal	**3.634**	**113,700**	**0.000**	
C-1 SM	1.709	0	0.000	K, O
C-2 SM	0.487	0	0.000	K, O
C-3 SM	0.163	0	0.000	K, O
C-4 SM	0.665	0	0.000	K, M, O
C-5 SM	0.332	0	0.000	M, O
C-6 SM	0.446	0	0.222	L, O
C-7 SM	0.186	0	0.298	M, O
C-8 SM	0.216	0	0.126	M, O
C-9 SM	0.012	0	0.125	M, O
C-10 SM	0.108	0	0.000	M, O
C-11 SM	0.009	0	0.066	M, O
C-12 SM	0.105	0	0.003	M, O
C-13 SM	5.920	0	0.080	A, J, K, O
C Subtotal	**10.360**	**0**	**0.920**	
X-1 SM	0.041	0	0.005	X
X-2 SM	0.018	0	0.006	X
X-3 SM	0.015	0	0.005	X
X-4 SM	0.006	0	0.005	X
X-5 SM	0.025	0	0.017	X
X-6 SM	0.014	0	0.001	X
X Subtotal	**0.118**	**0**	**0.039**	
SM Total	**32.479**	**283,800**	**0.959**	
		Upper Rush Creek Site		
IC-1 UR	0.391	0	0.000	I, A, G, O
IC-2 UR	1.230	0	0.000	I, A, G, O

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
IC-3 UR	0.364	2,000	0.000	I
IC-4 UR	0.364	2,000	0.000	I
IC Subtotal	**2.348**	**4,000**	**0.000**	
R-1 UR	1.439	1,155	0.000	A, C, E, O
R-2 UR	1.140	2,100	0.000	A, B, D, E, O
R-3 UR	0.263	545	0.000	A, J, O
R-4 UR	2.031	6,500	0.000	A, D, E, O
R-5 UR	3.674	7,700	0.000	A, E, H, K
R Subtotal	**8.548**	**18,000**	**0.000**	
U-1 UR	1.293	7,500	0.000	A, J, O
U-2 UR	0.396	2,500	0.000	A, J, O
U-3 UR	0.810	2,500	0.000	A, J, O
U-4 UR	0.606	1,500	0.000	A, J, O
U Subtotal	**3.105**	**14,000**	**0.000**	
C-1 UR	0.354	0	0.190	L, O
C-2 UR	0.021	0	0.016	M, O
C-3 UR	0.011	0	0.001	M, O
C-4 UR	0.206	0	0.140	L, O
C-5 UR	0.399	0	0.194	L, O
C-6 UR	0.347	0	0.076	A, L, K, O
C-7 UR	0.033	0	0.015	M, O
C-8 UR	0.115	0	0.081	M, O
C-9 UR	0.152	0	0.000	K, O
C-10 UR	0.521	0	0.000	A, K, O
C-11 UR	0.190	0	0.000	A, K, O
C-12 UR	0.178	0	0.135	L, O
C-13 UR	0.032	0	0.022	M, O
C-14 UR	0.017	0	0.005	M, O
C-15 UR	0.101	0	0.050	M, O

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
C-16 UR	1.169	0	0.000	A, J, O
C-17 UR	0.220	0	0.112	L, O
C Subtotal	**4.068**	**0**	**1.037**	
X-1 UR	0.019	0	0.012	X
X Subtotal	**0.019**	**0**	**0.012**	
UR Total	**18.087**	**36,000**	**1.049**	
		Lowden Ranch Site		
IC-1 LR	0.257	3,200	0.000	I
IC-2 LR	0.206	1,700	0.000	I
IC-3 LR	0.329	3,500	0.000	I
IC-4 LR	0.946	10,270	0.000	I
IC-5 LR	0.559	3,500	0.000	I
IC-6 LR	0.526	3,200	0.000	I
IC Subtotal	**2.822**	**25,370**	**0.000**	
R-1 LR	5.591	24,500	0.000	A, B, C, E, K, O
R-2 LR	8.034	52,300	0.000	A, B, E, K, O
R-3 LR	13.812	10,000	0.000	A, C, E, K, O
R-4 LR	4.558	6,500	0.000	A, D, K, G, O
R Subtotal	**31.995**	**93,300**	**0.000**	
U-1 LR	3.566	30,000	0.000	J, O
U-2 LR	5.990	60,000	0.000	A, J, O
U-3 LR	1.086	20,000	0.000	A, J, O
U-4 LR	56.946	0	0.000	A, J, O
U Subtotal	**67.589**	**110,000**	**0.000**	
C-1 LR	3.221	0	0.000	A, K, O
C-2 LR	0.718	0	0.474	M, O
C-3 LR	0.185	0	0.122	L, O
C-4 LR	0.155	0	0.099	L, O
C-5 LR	0.489	0	0.297	L, O
C-6 LR	0.482	0	0.322	L, O

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
C-7 LR	3.150	0	0.000	A, K, O
C-8 LR	0.403	0	0.224	L, O
C Subtotal	**8.802**	**0**	**1.537**	
X-1 LR	0.032	0	0.014	X
X-2 LR	0.019	0	0.013	X
Subtotal X	**0.051**	**0**	**0.027**	
LR Total	**111.260**	**228,670**	**1.565**	
		Trinity House Gulch Site		
IC-1 THG	0.374	1,500	0.000	I
IC-2 THG	0.337	1,600	0.000	I
IC-3 THG	0.123	600	0.000	I, A, B, E, G
IC Subtotal	**0.833**	**3,700**	**0.000**	
R-1 THG	1.316	8,500	0.000	A, E, K, O
R-2 THG	3.503	33,900	0.000	A, B, C, D, E, K, O
R-3 THG	1.253	12,000	0.000	A, B, C, D, E, K, O
Subtotal R (6.073)	**6.073**	**54,400**	**0.000**	**A, E, K, O**
U-1 THG	3.732	34,000	0.000	A, J, K, O
U-2 THG	1.789	10,000	0.000	A, J, O
U-3 THG	0.974	6,700	0.000	A, J, O
Subtotal U	**6.495**	**50,700**	**0.000**	
C-1 THG	0.274	0	0.188	L, O
C-2 THG	0.230	0	0.130	M, O
C-4 THG	0.034	0	0.010	M, O
C-5 THG	0.025	0	0.008	M, O
C-6 THG	1.002	0	0.000	A, K, M, O
C-7 THG	0.155	0	0.083	L, O
Subtotal C	**1.720**	**0**	**0.445**	

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
X-1 THG	0.044	0	0.019	X
X-2 THG	0.015	0	0.005	X
Subtotal X	**0.059**	**0**	**0.025**	
THG Total	**15.180**	**108,800**	**0.470**	
		Steel Bridge Day Use Site		
IC-1 SB	0.242	1,000	0.000	I
IC-2 SB	0.334	1,500	0.000	I
IC-3 SB	0.146	1,000	0.000	I
Subtotal IC	**0.722**	**3,500**	**0.000**	
R-1 SB	0.868	2,000	0.000	A, B, E, O
R-2 SB	1.800	1,000	0.000	A, C, E, K, O
Subtotal R	**2.668**	**3,000**	**0.000**	
U-1 SB	0.282	1,500	0.000	A, K, O
Subtotal U	**0.282**	**1,500**	**0.000**	
C-1 SB	0.246	0	0.149	A, M, O
C-2 SB	0.431	0	0.000	A, K, O
C-3 SB	0.236	0	0.000	A, K, O
C-4 SB	0.811	0	0.339	L, O
C-5 SB	0.812	0	0.000	A, J, K, O
Subtotal C	**2.535**	**N/A**	**0.487**	
SM Total	**6.208**	**8,000**	**0.487**	
		Reading Creek Site		
IC1-RC	0.241	1,600	0.000	I
IC2-RC	0.324	2,100	0.000	I
IC3-RC	0.300	1,600	0.000	I
IC4-RC	0.328	2,100	0.000	I
IC5-RC	0.340	2,200	0.000	I
Subtotal IC	**1.533**	**9,600**	**0.000**	
R1-RC	2.571	13,600	0.000	A, C, D, O
R2-RC	3.692	13,900	0.000	A, C, D, K, O
R3-RC	0.273	2,200	0.000	A, B, E, K, O

Table 2-3. Summary of Proposed Project – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
R4-RC	4.323	44,400	0.000	A, C, D, K, O
R5-RC	4.579	35,100	0.000	A, C, D, O
Subtotal R	**15.439**	**109,200**	**0.000**	
U-1 RC	1.281	15,600	0.000	A, J, K, O
U-2 RC	0.657	7,500	0.000	A, J, K, O
U-3 RC	5.136	64,400	0.000	A, J, K, O
U-4 RC	2.152	43,400	0.000	A, J, K, O
Subtotal U	**9.226**	**130,900**	**0.000**	
C-1 RC	1.111	0	0.642	L, O
C-2 RC	0.031	0	0.019	M, O
C-3 RC	0.137	0	0.088	M, O
C-4 RC	0.400	0	0.261	L, O
C-5 RC	0.033	0	0.014	M, O
C-6 RC	0.786	0	0.000	A, K, O
C-7 RC	0.255	0	0.000	A, K, O
C-8 RC	0.342	0	0.000	A, K, O
C-9 RC	0.397	0	0.000	A, K, O
C-10 RC	0.416	0	0.000	A, K, O
C-11 RC	0.102	0	0.066	M, O
C-12 RC	0.853	0	0.274	L, O
C-13 RC	1.110	0	0.461	L, O
C-14 RC	0.431	0	0.246	L, O
C-15 RC	0.077	0	0.034	A, M, O
Subtotal C	**6.481**	**N/A**	**2.105**	
X-1 RC	0.033	0	0.014	X
Subtotal X	**0.033**	**N/A**	**0.014**	
RC Total	**32.712**	**249,700**	**2.118**	

[a]Area calculated from project GIS
[b]Provided by TRRP

Riverine activities on both sides of the Trinity River would use adjacent upland and staging areas within the boundaries of the sites for disposing of and/or stockpiling excavated or processed materials.

Activities A through I 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., grade control removal, 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. A full discussion of the "healthy river" attributes is provided in section 4.3 of this document.

Activities E, F, and G are intended to create off-channel habitat that would provide refuge for salmonids and other aquatic wildlife during inundation. 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 will be used to develop seasonal, off-channel riparian habitat available for western pond turtles and other riparian-dependent species. These features are proposed at the LR and RC sites (e.g., R-1 LR, R-3 LR, and U-3 RC). Activity K includes the processing and storage of coarse sediment at several of the Remaining Phase 1 sites (e.g., SM, LR). Five of the sites would require temporary stream crossings, including mainstem crossings at the LR, TRG, and RC sites. No temporary crossings would be required at the SB site. As stated previously, the type and actual location of the crossings could be adjusted based on site-specific conditions during the final design.

Monitoring is a required element of the Proposed Project and responds to the TRRP program management objectives, as well as the elements of the MMRP required pursuant to CEQA.

Design Elements

With some exceptions, the design elements discussed below are common to the Proposed Project and Alternative 1. The description of Alternative 1 includes a discussion of the specific design elements that differ from those for the Proposed Project.

Attachment 1 following the appendices in Volume IV 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 4.4. 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 any action alternative 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 alternatives. 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 action alternatives requires comparing estimated seasonal base flows and estimated return-period flows. USACE's Hydraulic Engineering Center River Analysis System (HEC-RAS) hydraulic model will be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table 2-4 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 alternatives meet the flood constraints described above.

Table 2-4. Estimated Mainstem Trinity River Flow Conditions Used for Alternative Designs

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 DWR and provided to the TRRP as part of the administrative record. This model was calibrated to match measured water-surface elevations (WSEs) in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the project sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the action alternatives. 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 2-4 as the "best available information" per FEMA requirements. The FEMA Q100 "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (U.S. Army Corps of Engineers 1976) used by FEMA to develop the current flood insurance rate maps (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 action alternatives.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter portray the design topography concepts. The final designs will ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

Roadway Approaches

The Remaining Phase 1 sites are accessible by vehicles from roads, parking areas, and private driveways. Primary roadways for each of the Remaining Phase 1 sites are described below. The SM site is accessed using Old Lewiston Road, Cemetery Road, Goose Ranch Road, and various private roads and driveways. Upper Rush Creek Road, Goose Ranch Road, and various private roads and driveways provide access to the Upper Rush Creek site. The LR and THG sites are accessed by Old Lewiston Road, Browns Mountain Road, and various private roads and driveways. The SB site is accessed using Steel Bridge Road. The RC site is accessed using SR-3, Steiner Flat Road, Douglas City Campground Road, and various private roads and driveways. Public roads that access these sites are managed by the BLM, Caltrans, or Trinity County. In addition to Trinity County, the BLM, DWR, and CDFG maintain river access points within the boundaries of these sites.

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, with up to 36 trucks per day hauling materials offsite, generally between August 1 and October 15. Depending on funding and timing of implementation, these trucks would be used for approximately 5 seasons of construction work. 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, DWR, and CDFG, 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, DWR, and CDFG; 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, particularly in the area surrounding the UR and SB sites to ensure that service would not be disrupted. Additional information on utilities is provided in section 4.15 and section 7.15.

Construction Criteria and Methods

Construction Process Overview

The following provides a general overview of the construction process for the action alternatives. A list of equipment that may be used is provided in section 4.14, Noise.

- 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 M) would be used to access the activity areas. New access roads (activity N) and haul routes 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 will 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 will 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, including removal of grade control features and introduction of coarse sediment, 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. High-flow coarse sediment augmentation would occur during high flows at various rehabilitation sites described previously. Coarse sediment would be introduced at these high flow sites by pushing gravel into the river with heavy equipment or by using a conveyor system to carry the gravel to mid-channel locations (see Figure 2.3j at the end of the chapter). Long-term annual coarse sediment introduction will also replenish material transported downstream from activity areas within the Lewiston-Dark Gulch sites, using either a conveyor or shoreline placement method.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures will be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps will 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 will remove materials used to isolate these side channels after they have been constructed.

- Final grading would occur as necessary for all activity areas.

- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.

- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects will be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

- Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.

- In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.

- In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish

passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation will 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 recreation access to BLM, DWR, CDFG, and private recreation facilities within the boundaries of the Remaining Phase 1 sites will be provided in coordination with agencies and landowners. Once construction activities are complete, Reclamation, in consultation with these agencies and landowners, would ensure that these temporary access facilities are rehabilitated consistent with any land use agreements. Temporary access facilities may be closed to the public after the project is completed to prevent damage to private property and public resources.

- 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 and Alternative 1 are shown on Figures 2-1a through 2-1f and 2-2a through 2-2f, respectively, and listed in Tables 2-3 and 2-6. 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 will 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 will 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 will also be required to provide recycling bins for on-site waste materials.

Contract documents will also specify that the contractor will be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes will be in conformance with criteria established by NMFS and CDFG 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 will 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 shall implement water pollution control measures that conform to applicable and appropriate permits. Reclamation will 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 shall be implemented by Reclamation are listed below:

- Every reasonable precaution will be exercised and BMPs will 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 will be cleaned of dirt and grease prior to any in-channel activities. All construction equipment will be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits will be onsite at all times and, where feasible, berms or other containment methods will 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 shall 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 shall 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 shall develop an agency-approved Storm Water Pollution Prevention Plan (SWPPP) to effectively control water pollution during construction of the project. The SWPPP shall 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 shall 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 shall not be allowed to enter, or be placed where they will later enter, a live stream, soil, or groundwater.

Tentative Schedule

Construction associated with either of the action alternatives cannot begin until the environmental process is completed. In addition, the following must have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; hazardous materials site assessments; acquisition of rights-of-way; acquisition of permits; and design approvals from local, state, and federal agencies.

The total construction time for the project (completion of Remaining Phase 1 sites) is anticipated to be 3 to 5 years, with approximately 140 days of construction annually between July 15, 2009, and December 31, 2013. However, the schedule depends on funding and the availability of coarse sediment for in-river placement. Initial in-channel gravel additions would be completed during the summer work season (July 15 to September 15). Prior to, or in conjunction with high spring flows (May), coarse sediment augmentation would occur at the sites illustrated on Figure 1-2.

To minimize impacts to breeding bird habitat, vegetation removal activities would also occur in the early spring before nesting. 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. Excavation and other grading activities would typically occur between July 15 and December 1 and prior to the onset of the wet season, as site conditions permit. Processing of coarse sediment where stockpiles are large (e.g., SM C-7 and C-13 areas) may extend beyond typical work windows, and processing is expected to continue until the quantity of gravel is depleted (>5 years). Any revegetation (planting/seeding) would take place in the wet season (fall/winter) following construction. It is expected that annual spring additions of coarse sediment will continue indefinitely during peak annual releases from Lewiston Dam.

Phase 2 Sites

As described in previous sections of this document, the Proposed Project for Phase 2 sites is conceptual. The TRRP has developed preliminary objectives that generally correspond to the specific activities described in section 2.5 of this document. Table 2-5 provides a list of the activities that are proposed for each Phase 2 site. While the specific timing, location, and extent of these activities have not been fully defined, the nature of these activities is similar to those included in previous projects implemented by the TRRP. Work at Phase 2 sites will require development of additional NEPA/CEQA documents. While NEPA may require additional EAs, this Master EIR will provide the basis for tiering additional CEQA documents. The TRRP anticipates that activities at several Phase 2 sites could be initiated as early as 2010, subject to completion of the environmental compliance process. The timing and extent of work activities at selected Phase 2 sites would be similar to the schedule described for Remaining Phase 1 sites.

In keeping with the conceptual nature of the Phase 2 portion of the Proposed Project, the specific site boundaries shown on Figure 1-2 are subject to change based on the goals and objectives described in section 2.2. Site-specific information (e.g., biological, physical, and social information) would also influence the planning and design efforts at Phase 2 sites. In general, the design elements and construction criteria and methods applied in the planning, design, and implementation of Phase 2 sites will be similar to those described for the Remaining Phase 1 sites in the preceding section of this

Table 2-5. Conceptual Phase 2 Sites – Proposed Project Rehabilitation Activities

Label	Rehabilitation Activity	Lower Rush Creek	Tom Lang Gulch	Poker Bar	China Gulch	Limekiln Gulch	McIntyre Gulch	Douglas City	Steiner Flat Feathered Edge	Steiner Flat Campground	Lower Steiner Flat	Lorenz Gulch	Dutch Creek	Evan's Bar	Soldier Creek	Chapman Ranch	Deep Gulch	Sheridan Creek	Oregon Gulch	Sky Ranch	Upper Junction City	Lower Junction City	Upper Conner Creek	Wheel Gulch
A	Recontouring and vegetation removal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B	Constructed inundation surface (450 cfs)	X	X	X					X			X	X	X	X	X	X	X	X	X	X	X	X	X
C	Constructed inundation surface (1,000–4,500 cfs)	X	X	X					X			X	X	X	X	X	X	X	X	X	X	X	X	X
D	Constructed inundation surface (6,000–8,000 cfs)	X	X	X					X			X	X	X	X	X	X	X	X	X	X	X	X	X
E	Low-flow side channel (300 cfs)	X		X					X			X			X				X	X				X
F	Medium-flow side channel (1,000 cfs)	X		X					X			X			X									X
G	Alcove (450 cfs; 6,000 cfs)			X					X			X			X									X
H	Grade control removal	X																						
I	Coarse sediment addition	X																						
J	Placement of excavated materials	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
K	Staging areas (includes gravel processing/storage)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L	Roads, existing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M	Roads, new	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
N	Temporary crossings (Trinity River, tributaries)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
O	Revegetation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

document. The information contained in this section is used to describe the timing, kind, size, intensity, and location of the activities associated with Phase 2 sites consistent with the CEQA Guidelines (Section 15176 (a) and (c). The site-specific planning process will be initiated in the spring of 2009 and is expected to be completed for all Phase 2 sites by 2015. Implementation of activities at Phase 2 sites could occur as early as 2010.

2.5.3 Alternative 1

Alternative 1 is similar to the Proposed Project in many respects, particularly for the Remaining Phase 1 sites. The conceptual nature of the Phase 2 sites inhibits the lead agencies' ability to distinguish Alternative 1 from the Proposed Project at the site level. In general terms, Alternative 1 responds to impacts to the biological and, to a greater degree, the human environment. The overall reduction in the size, intensity, and magnitude of rehabilitation activities, particularly those in close proximity to residential or recreational developments, is expected to reduce the significant impacts to various resources, especially to the human environment (e.g., traffic, noise near residential areas, etc.). However, Alternative 1 is not expected to expand Trinity River aquatic habitat complexity and quantity or to enhance natural river processes to the same extent as the Proposed Project. Consequently, benefits to fish and wildlife populations would be reduced compared to the Proposed Project.

Similar to the Proposed Project, the TRRP has identified 15 discrete activities that are incorporated into Alternative 1. One or more of these activities are proposed for each of the activity areas associated with the Remaining Phase 1 sites. At the planning level, activities associated with Phase 2 are conceptual. The following section provides a description of Alternative 1 for the Remaining Phase 1 and Phase 2 sites.

Remaining Phase 1 Sites

Alternative 1 includes specific activities proposed at 122 activity areas within the boundaries of the Remaining Phase 1 sites: SM, UR, LR, THG, SB, and RC. This is a reduction of 36 activity areas spread across five of the sites. Under Alternative 1, activities proposed at the SM site are identical to the Proposed Project. Alternative 1 excludes all activities on the left bank of the Trinity River at the UR site and at the lower end of the RC site, primarily due to access and other logistical considerations.

Figures 2-2a through 2-2f show the activities for the Remaining Phase 1 sites included in Alternative 1. In addition to a net reduction in activity areas at five of the Remaining Phase 1 sites, this alternative modifies the type and magnitude of activities. Alternative 1 excludes seven in-channel and three riverine activity areas and reduces the number of temporary crossings by three compared to the Proposed Project. Under this alternative, excavation activities associated with the Remaining Phase 1 sites are expected to yield more than 350,000 cubic yards of alluvial material. These sites collectively provide the capacity to place almost 365,000 yards of material in the event this space is necessary during implementation. Alternative 1 would also reduce the roads necessary to access activity areas by about 2 miles. Table 2-6 provides a comprehensive description of the activity/treatment areas, the estimated volume of alluvial

material that would be excavated at each activity area, the miles of road needed to support project activities, and the type of activities proposed under Alternative 1.

Similar to the Proposed Project, riverine activities on both sides of the Trinity River would use adjacent upland and staging areas to dispose of and/or stockpile excavated or processed materials within the boundaries of the sites. These sites include public and private lands within a narrow corridor parallel to the river.

In addition to the activities listed in Table 2-6, Alternative 1 includes activities intended to implement the TRRP's Sediment Management Plan. These sediment management activities would occur primarily upstream of Weaver Creek but could be included as design elements (e.g., placement of coarse sediment as point bars) within Phase 2 site boundaries as required to increase aquatic habitat complexity (Figure 1-2). Sediment management activities include:

- placement of select sediment at in-channel, riverine, and upland activity areas in conjunction with mechanical channel rehabilitation activities to meet aquatic and terrestrial wildlife habitat objectives;
- long-term injection of select sediment at strategic locations upstream of Weaver Creek during high-flow events; and
- ongoing removal and disposal of fine sediment captured at the Hamilton Pond retention facility.

Design Elements

The following Alternative 1 design elements reflect changes from the Proposed Project.

Roadway Approaches

The UR site would be accessed using Rush Creek Road and various private roads and driveways on the right side of the Trinity River. The RC site would be accessed using SR 3, Steiner Flat Road, and various private roads and driveways. Public roads that access these sites are managed by the BLM, Caltrans, or Trinity County. In addition to Trinity County, BLM and CDFG maintain river access points within the project boundaries of these sites.

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, with up to 36 trucks per day hauling materials offsite, generally between August 1 and October 15. Hauling of coarse sediment for placement at long-term high-flow placement areas in Lewiston will take place annually for approximately 2 weeks between November and May. Depending on funding and the timing of implementation, these trucks would be used for approximately 5 seasons of construction work. Placement of coarse sediment is planned to continue indefinitely. Traffic control measures would be applied in accordance with Trinity County and Caltrans requirements.

Site Boundary (103.421 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:3,600

300 0 300

Feet

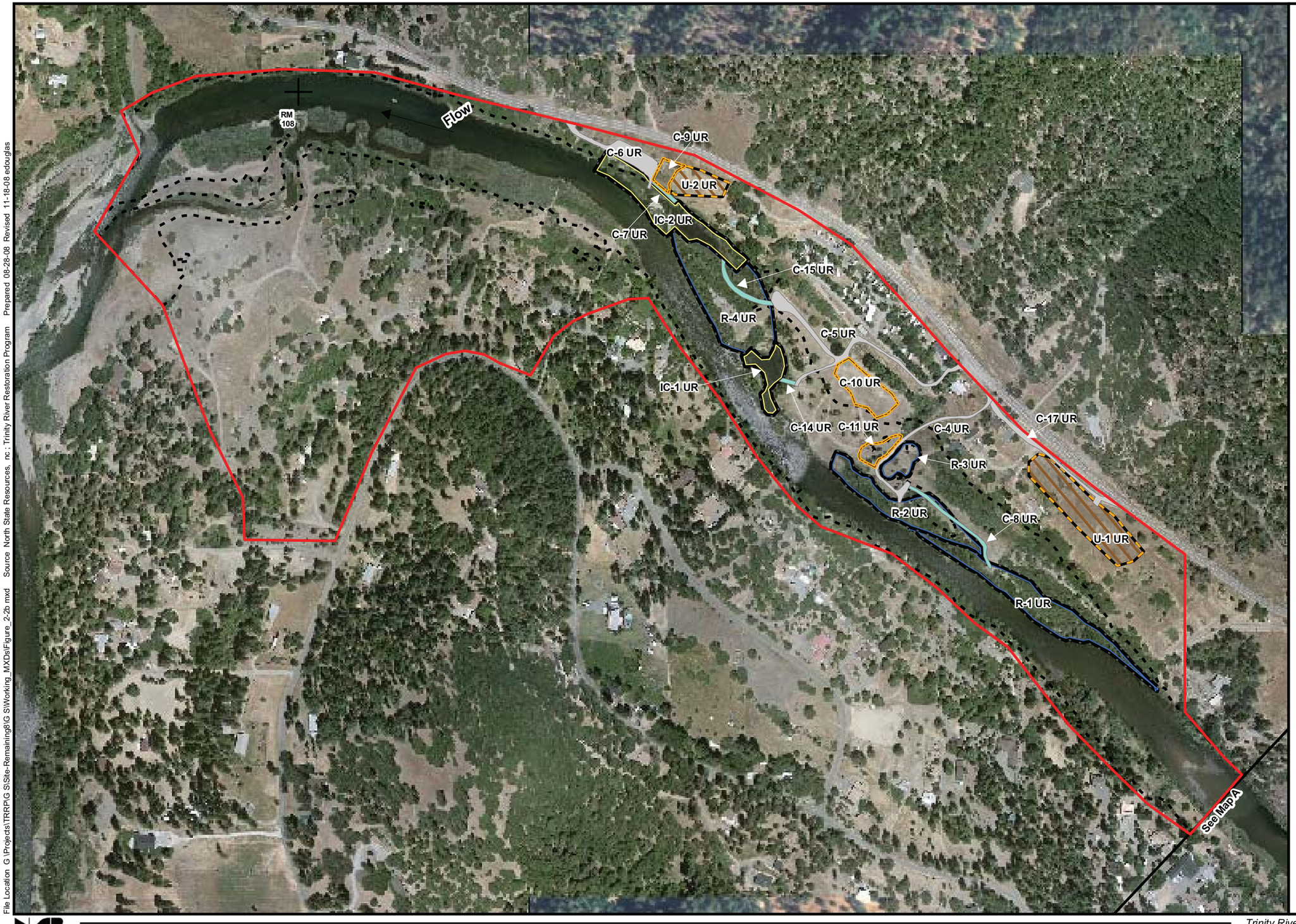
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-2a.mxd Source North State Resources, inc.; Trinity River Restoration Program Prepared 08-28-08 Revised 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-2a
Sawmill - Alternative 1



Site Boundary (92.274 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland

Ordinary High Water Mark (OHWM) - 6000 cfs

River Mile (RM)

Matchline

N

1:4,200

350 0 350

Feet

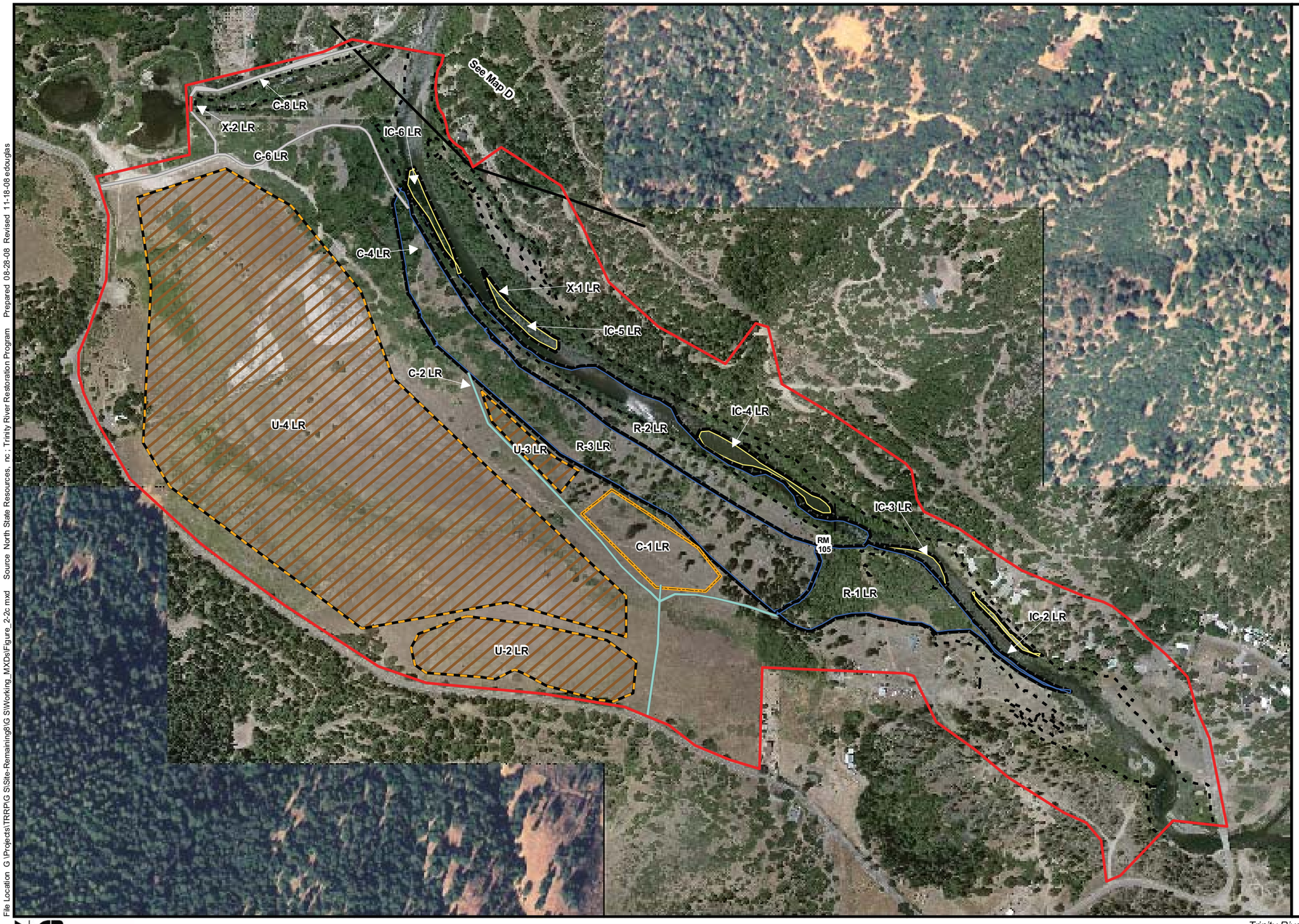
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-2b.mxd Source North State Resources, inc.; Trinity River Restoration Program Prepared 08-28-08 Revised 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-2b
Upper Rush Creek - Alternative 1



Site Boundary (211.769 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Crossing
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland
- Ordinary High Water Mark (OHWM) - 6000 cfs
- River Mile (RM)
- Matchline

N

1:5,400

450 0 450
Feet

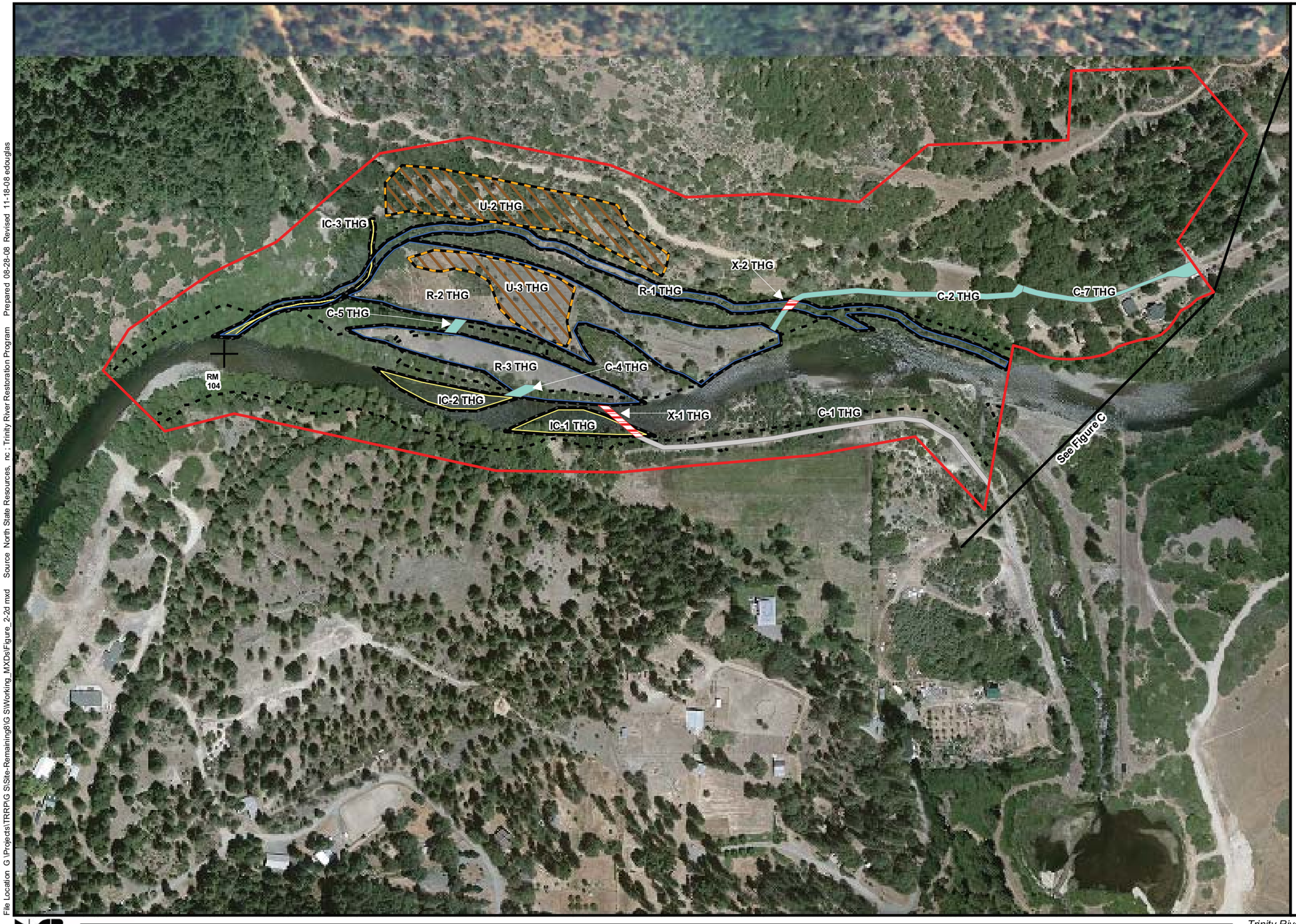
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_2-2c.mxd Source North State Resources, inc.; Trinity River Restoration Program Prepared 08-28-08 Revised 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-2c
Lowden Ranch - Alternative 1



Site Boundary (43.695 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Activity Areas

Area

In Channel

Riverine

Upland

Ordinary High Water Mark (OHWM) - 6000 cfs

River Mile (RM)

Matchline

N

1:3,000

250 0 250

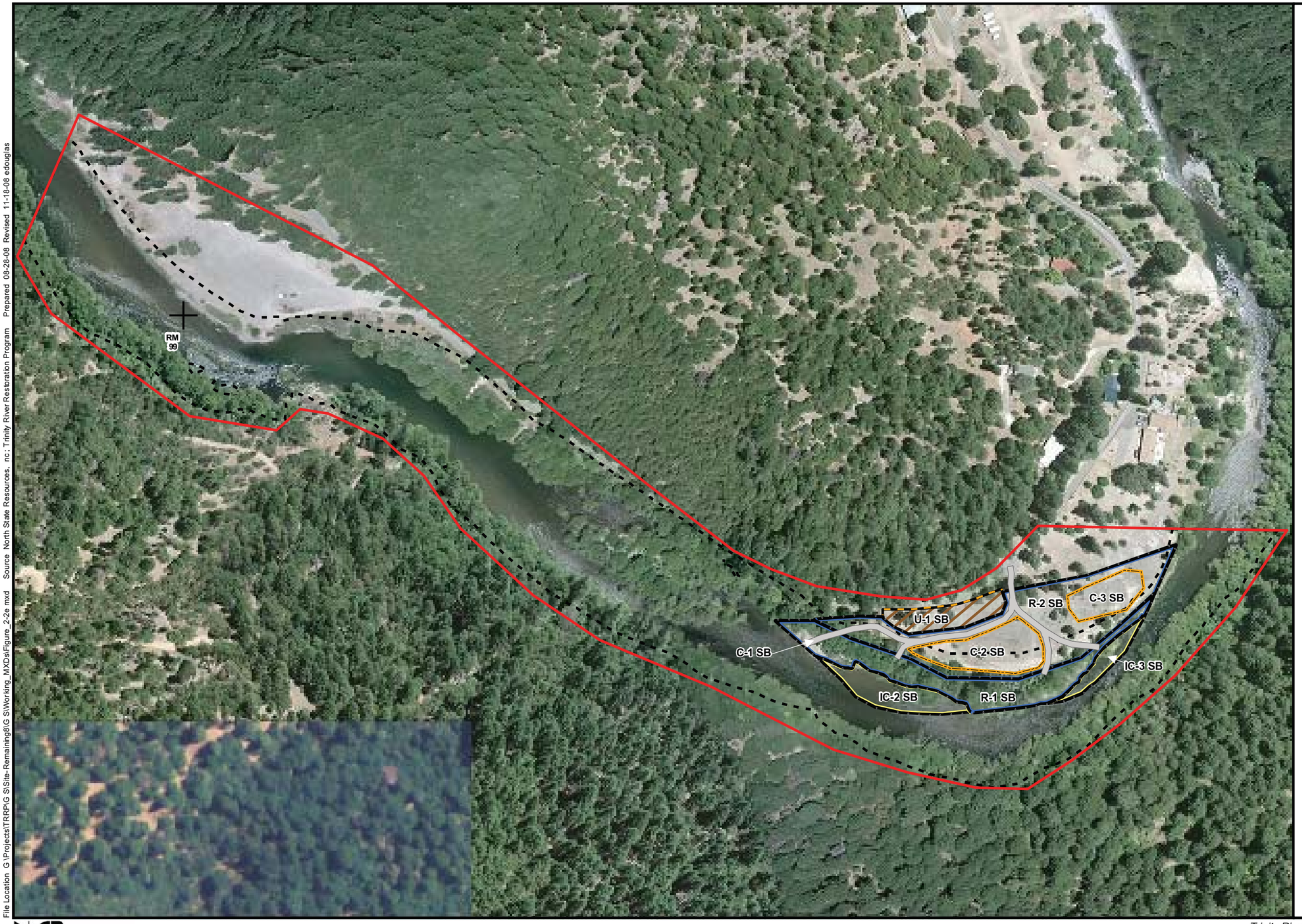
Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-2d
Trinity House Gulch - Alternative 1



Site Boundary (22.475 acres)

Construction Areas

Name

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Ordinary High Water Mark (OHWM) - 6000 cfs

River Mile (RM)

Matchline

N

1:2,400

200 0 200

Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location G:\Projects\TRRP\G S\Site-Remaining8\G S\Working_MXDs\Figure_2-2e.mxd Source North State Resources, nc; Trinity River Restoration Program Prepared 08-28-08 Revised 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-2e
Steel Bridge Day Use - Alternative 1

Site Boundary (135.871 acres)

Construction Areas

Name

- Access Road - Existing
- Access Road - New
- Staging Area

Activity Areas

Area

- In Channel
- Riverine
- Upland

Ordinary High Water Mark (OHWM) - 6000 cfs

River Mile (RM)

Matchline

N

1:4,200

350 0 350

Feet

File Location: G:\Projects\TRRP\G S\Site-Remaining8\G S\Working_MXDs\Figure_2-2f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 08-28-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 2-2f
Reading Creek - Alternative 1

Table 2-6. Summary of Alternative 1 – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
		Sawmill Site		
IC-1 SM	0.064	400	0.000	H, I
IC-2 SM	0.163	600	0.000	H, I
IC-3 SM	0.413	2,000	0.000	H, I
IC-4 SM	0.819	1,000	0.000	H, I
IC-5 SM	0.216	1,000	0.000	I
IC-6 SM	0.205	700	0.000	I
IC-7 SM	0.219	1,400	0.000	I
IC-8 SM	0.230	1,500	0.000	I
IC-9 SM	0.298	1,400	0.000	I
IC-10 SM	0.347	2,200	0.000	I
IC-11 SM	0.282	1,400	0.000	I
IC Subtotal	**3.256**	**13,600**	**0.000**	
R-1 SM	0.447	2,900	0.000	A, D, K, O
R-2 SM	3.878	26,000	0.000	A, C, D, K, O
R-3 SM	0.053	500	0.000	A, E, D, O
R-4 SM	0.241	5,900	0.000	A, E, H, O
R-5 SM	0.096	300	0.000	A, H
R-6 SM	0.207	700	0.000	A, D, O
R-7 SM	0.123	400	0.000	A, C, E, H
R-8 SM	5.960	82,300	0.000	A, C, D, K, O
R-9 SM	0.173	600	0.000	A, C, E, H
R-10 SM	3.932	36,900	0.000	A, D, J, K, O
R Subtotal	**15.111**	**156,500**	**0.000**	
U-1 SM	0.833	20,200	0.000	A, J, K, O
U-2 SM	1.384	33,500	0.000	A, J, K, O
U-3 SM	1.417	60,000	0.000	A, J, K, O
U Subtotal	**3.634**	**113,700**	**0.000**	
C-1 SM	1.709	0	0.000	K, O
C-2 SM	0.487	0	0.000	K, O
C-3 SM	0.163	0	0.000	K, O

Table 2-6. Summary of Alternative 1 – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
C-4 SM	0.665	0	0.000	K, M, O
C-5 SM	0.332	0	0.000	M, O
C-6 SM	0.446	0	0.222	L, O
C-7 SM	0.186	0	0.298	K, M, O
C-8 SM	0.216	0	0.126	M, O
C-9 SM	0.012	0	0.125	M, O
C-10 SM	0.108	0	0.000	M, O
C-11 SM	0.009	0	0.066	M, O
C-12 SM	0.105	0	0.003	M, O
C-13 SM	5.920	0	0.080	A, J, K, O
C Subtotal	**10.360**	**0**	**0.920**	
X-1 SM	0.041	0	0.005	X
X-2 SM	0.018	0	0.006	X
X-3 SM	0.015	0	0.005	X
X-4 SM	0.006	0	0.005	X
X-5 SM	0.025	0	0.017	X
X-6 SM	0.014	0	0.001	X
X Subtotal	**0.118**	**0**	**0.039**	
SM Total	**32.479**	**283,800**	**0.959**	
		Upper Rush Creek Site		
IC-1 UR	0.391	0	0.000	I, A, G, O
IC-2 UR	1.230	0	0.000	I, A, G, O
IC Subtotal	**1.621**	**0**	**0.000**	
R-1 UR	1.439	1,155	0.000	A, C, E, O
R-2 UR	1.140	2,100	0.000	A, B, D, E, O
R-3 UR	0.263	545	0.000	A, J, O
R-4 UR	2.031	6,500	0.000	A, D, E, O
R Subtotal	**4.873**	**10,300**	**0.000**	
U-1 UR	1.293	7,500	0.000	A, J, O
U-2 UR	0.396	2,500	0.000	A, J, O
U Subtotal	**1.689**	**10,000**	**0.000**	

Table 2-6. Summary of Alternative 1 – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
C-4 UR	0.206	0	0.140	L, O
C-5 UR	0.399	0	0.194	L, O
C-6 UR	0.347	0	0.076	A, L, K, O
C-7 UR	0.033	0	0.015	M, O
C-8 UR	0.115	0	0.081	M, O
C-9 UR	0.152	0	0.000	K, O
C-10 UR	0.521	0	0.000	A, K, O
C-11 UR	0.190	0	0.000	A, K, O
C-14 UR	0.017	0	0.005	M, O
C-15 UR	0.101	0	0.050	M, O
C-17 UR	0.220	0	0.112	L, O
C Subtotal	**2.303**	**N/A**	**0.679**	
UR Total	**10.486**	**20,300**	**0.679**	
		Lowden Ranch Site		
IC-1 LR	0.257	3,200	0.000	I
IC-3 LR	0.329	3,500	0.000	I
IC-4 LR	0.946	10,270	0.000	I
IC-5 LR	0.559	3,500	0.000	I
IC-6 LR	0.526	3,200	0.000	I
IC Subtotal	**2.617**	**23,670**	**0.000**	
R-1 LR	5.591	24,500	0.000	A, B, C, E, K, O
R-2 LR	8.034	52,300	0.000	A, B, E, K, O
R-3 LR	13.812	10,000	0.000	A, C, E, K, O
R Subtotal	**27.436**	**86,800**	**0.000**	
U-2 LR	5.990	60,000	0.000	A, J, O
U-3 LR	1.086	20,000	0.000	A, J, O
U-4 LR	56.946	0	0.000	A, J, O
U Subtotal	**64.023**	**80,000**	**0.000**	
C-1 LR	3.221	0	0.000	A, K, O
C-2 LR	0.718	0	0.474	M, O
C-6 LR	0.482	0	0.322	L, O

Table 2-6. Summary of Alternative 1 – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
C-8 LR	0.403	0	0.224	L, O
C Subtotal	**4.824**	**0**	**1.020**	
X-2 LR	0.019	0	0.013	X
Subtotal X	**0.019**	**0**	**0.013**	
LR Total	**98.918**	**190,470**	**1.033**	
		Trinity House Gulch Site		
IC-1 THG	0.374	1,500	0.000	I
IC-2 THG	0.337	1,600	0.000	I
IC-3 THG	0.123	600	0.000	I, A, B, E, G
IC Subtotal	**0.833**	**3,700**	**0.000**	
R-1 THG	1.316	8,500	0.000	A, E, K, O
R-2 THG	3.503	1,000	0.000	A, B, C, D, E, K, O
R-3 THG	1.253	12,000	0.000	A, B, C, D, E, K, O
Subtotal R	**6.073**	**21,500**	**0.000**	**A, E, K, O**
U-2 THG	1.789	10,000	0.000	A, J, O
U-3 THG	0.974	6,700	0.000	A, J, O
Subtotal U	**2.764**	**16,700**	**0.000**	
C-1 THG	0.274	0	0.188	L, O
C-2 THG	0.230	0	0.130	M, O
C-4 THG	0.034	0	0.010	M, O
C-5 THG	0.025	0	0.008	M, O
C-7 THG	0.155	0	0.083	L, O
Subtotal C	**0.718**	**N/A**	**0.419**	
X-1 THG	0.044	0	0.019	X
X-2 THG	0.015	0	0.005	X
Subtotal X	**0.059**	**N/A**	**0.025**	
THG Total	**10.447**	**41,900**	**0.443**	
		Steel Bridge Day Use Site		
IC-2 SB	0.334	1,500	0.000	I
IC-3 SB	0.146	1,000	0.000	I

Table 2-6. Summary of Alternative 1 – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
Subtotal IC	**0.480**	**2,500**	**0.000**	
R-1 SB	0.868	2,000	0.000	A, B, E, O
R-2 SB	1.800	1,000	0.000	A, C, E, K, O
Subtotal R	**2.668**	**3,000**	**0.000**	
U-1 SB	0.282	1,500	0.000	A, K, O
Subtotal U	**0.282**	**1,500**	**0.000**	
C-1 SB	0.246	0	0.149	A, M, O
C-2 SB	0.431	0	0.000	A, K, O
C-3 SB	0.236	0	0.000	A, K, O
Subtotal C	**0.912**	**N/A**	**0.149**	
SB Total	**4.343**	**7,000**	**0.149**	
		Reading Creek Site		
IC1-RC	0.241	1,600	0.000	I
IC2-RC	0.324	2,100	0.000	I
IC3-RC	0.300	1,600	0.000	I
IC4-RC	0.328	2,100	0.000	I
IC5-RC	0.340	2,200	0.000	I
Subtotal IC	**1.533**	**9,600**	**0.000**	
R1-RC	2.571	13,600	0.000	A, C, D, O
R2-RC	3.692	13,900	0.000	A, C, D, K, O
R3-RC	0.273	2,200	0.000	A, B, E, K, O
R4-RC	4.323	44,400	0.000	A, C, D, K, O
Subtotal R	**10.860**	**74,100**	**0.000**	
U-1 RC	1.281	15,600	0.000	A, J, K, O
U-2 RC	0.657	7,500	0.000	A, J, K, O
U-3 RC	5.136	64,400	0.000	A, J, K, O
Subtotal U	**7.074**	**87,500**	**0.000**	
C-1 RC	1.111	0	0.642	L, O
C-3 RC	0.137	0	0.088	M, O
C-4 RC	0.400	0	0.261	L, O

Table 2-6. Summary of Alternative 1 – Remaining Phase 1 Sites

Activity Area	Activity/ Treatment Area (acres)[a]	Volume (cubic yards)[b]	Miles of Road[a]	Activity
C-7 RC	0.255	0	0.000	A, K, O
C-10 RC	0.416	0	0.000	A, K, O
C-11 RC	0.102	0	0.066	M, O
C-14 RC	0.431	0	0.246	L, O
C-15 RC	0.077	0	0.034	A, M, O
Subtotal C	**2.928**	**N/A**	**1.337**	
RC Total	**22.395**	**171,200**	**1.337**	

[a]Area calculated from project GIS [b]Provided by TRRP

Construction Criteria and Methods

Construction Process Overview

The following section describes differences in the Alternative 1 construction processes compared to the Proposed Project.

Staging Areas

Staging areas and storage facilities for Alternative 1 are shown on Figures 2-2a-f and listed in Table 2-6. These areas would be used throughout the duration of the project activities. Some short-term staging, equipment storage, and parking are anticipated in the activity areas as the project is implemented.

Tentative Schedule

Construction associated with either of the action alternatives cannot begin until the environmental compliance process is completed. In addition, the following must have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; acquisition of rights-of-way; acquisition of permits; and design approvals from local, state, and federal agencies.

The total construction time for the Remaining Phase 1 sites included in Alternative 1 is anticipated to be 2 to 3 years, with approximately 140 days of construction annually between July 15, 2009, and December 31, 2011. However, the schedule depends on funding and the availability of coarse sediment for in-river placement. Initial in-channel gravel additions would be completed during the summer work season (July 15 to September 15) over the courses of 2 to 3 years. Prior to, or in conjunction with, high spring flows, coarse sediment augmentation would occur at the sites illustrated on Figure 1-2.

To minimize impacts to breeding bird habitat, vegetation removal activities would also occur in the early spring. 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. Excavation and other grading activities would typically occur between July 15 and December 1 and prior to the onset of the wet season,

as site conditions permit. Processing of coarse sediment where stockpiles are large (e.g., SM C-7 and C-13 areas) may extend beyond typical work windows, and processing is expected to continue until the quantity of gravel is depleted (>5 years). Any revegetation (planting/seeding) would take place in the wet season (fall/winter) following construction. It is expected that annual spring additions of coarse sediment will continue indefinitely during peak annual releases from Lewiston Dam.

Phase 2 Sites

As described in previous sections of this document, Alternative 1 for the Phase 2 sites is conceptual in nature. The TRRP has developed preliminary objectives that generally correspond to the specific activities listed in Table 2-1. Table 2-7 provides a list of the conceptual activities that are proposed for each Phase 2 site. Although the specific location and extent of these activities are preliminary at this point in the planning process, the nature of these activities is similar to previous projects implemented by the TRRP over the past 4 years.

In keeping with the conceptual nature of Phase 2 of the Proposed Project, the specific site boundaries, as shown on Figure 1-2, are subject to change based on the objectives described in section 2.2. Site-specific information (e.g., biological, physical, and social information) would also influence the planning and design efforts at Phase 2 sites. In general, the design elements and construction criteria and methods applied in the planning, design, and implementation of Phase 2 sites will be similar to those described for the Remaining Phase 1 sites. The information contained in this section is used to describe the kind, size, intensity, and location of the activities associated with Phase 2 sites consistent with the CEQA Guidelines (Section 15176 (a) and (c).

2.6 Representative Construction Activities

To illustrate the type and extent of rehabilitation activities described in the previous section, a series of illustrations was prepared to represent the activities included in the action alternatives (Figures 2-3a-j). These figures are included at the end of this chapter.

2.7 Alternatives Considered but Eliminated from Further Evaluation

2.7.1 Dispose of Material Below 100-Year Base Flood Elevation

To minimize material haul distance and cost, placing excavated material below the 100-year base flood elevation was considered. This option would involve moving excavated material a short distance and depositing it in an adjacent flat area within the floodplain. After investigation, it was determined that placing large amounts of material in the floodplain associated with the Remaining Phase 1 sites could result in undesirable changes to FEMA flood elevations both within and outside of the project boundaries.

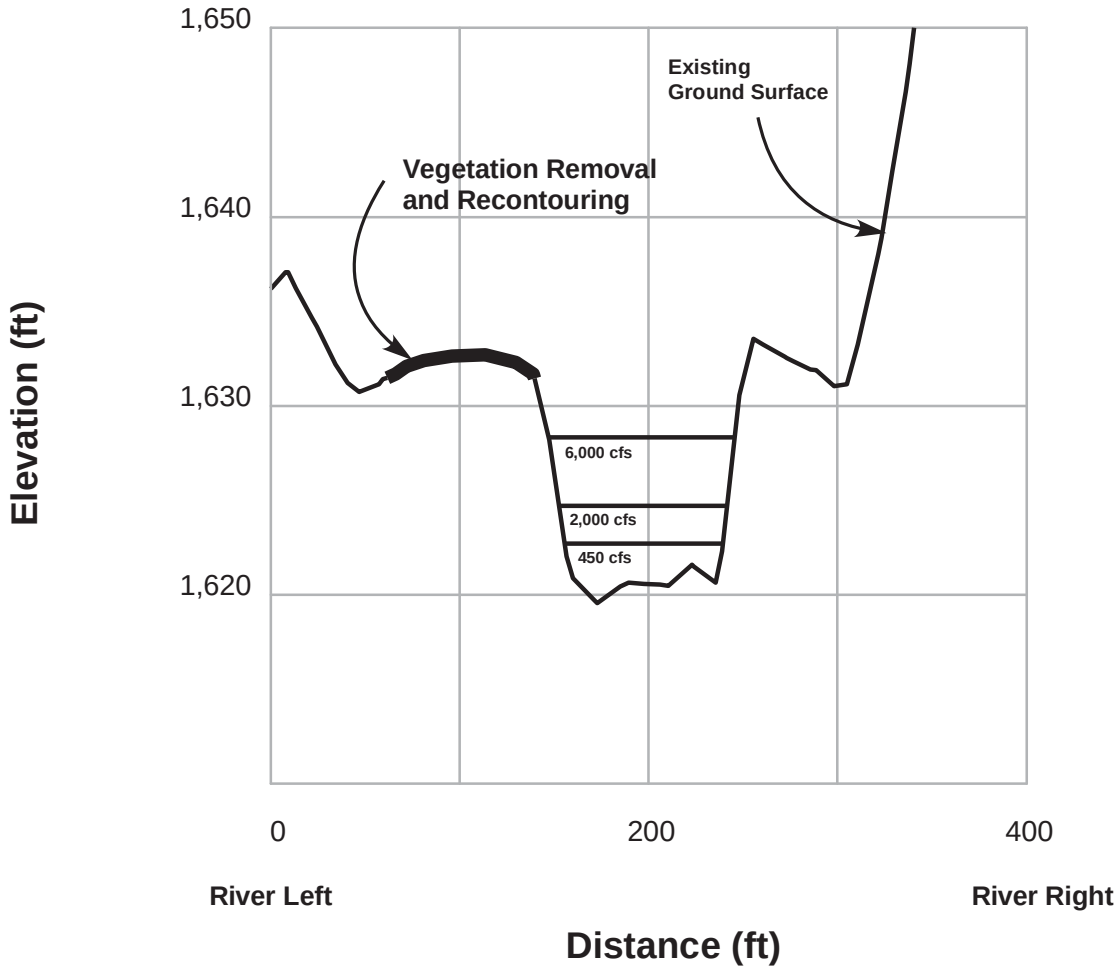
Table 2-7. Conceptual Phase 2 Sites – Alternative 1 Rehabilitation Activities

Label	Rehabilitation Activity	Lower Rush Creek	Tom Lang Gulch	Poker Bar	China Gulch	Limekiln Gulch	McIntyre Gulch	Douglas City	Steiner Flat Feathered Edge	Steiner Flat Campground	Lower Steiner Flat	Lorenz Gulch	Dutch Creek	Evan's Bar	Soldier Creek	Chapman Ranch	Deep Gulch	Sheridan Creek	Oregon Gulch	Sky Ranch	Upper Junction City	Lower Junction City	Upper Conner Creek	Wheel Gulch
A	Recontouring and vegetation removal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B	Constructed inundated surface (450 cfs)																							
C	Constructed inundated surface (1,000–4,500 cfs)																							
D	Constructed inundated surface (6,000–8,000 cfs)																							
E	Low-flow side channel (300 cfs)	X		X					X			X			X				X	X				X
F	Medium-flow side channel (1,000 cfs)	X		X					X			X			X									X
G	Alcove (450 cfs, 6,000 cfs)			X					X			X			X									X
H	Grade control removal	X																						
I	Coarse sediment addition	X																						
J	Placement of excavated materials	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
K	Staging areas (includes gravel processing/storage)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L	Roads, existing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M	Roads, new	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
N	Temporary crossings (Trinity River)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
O	Revegetation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

2.7.2 Increase Removal of Riparian Vegetation

In addition to influencing the alluvial processes that have been reestablished (to varying degrees) post-ROD, the distribution and density of riparian vegetation adjacent to the Trinity River below the TRD inhibits views of the river from a number of locations, including residences, businesses, and recreational river access points. As the Proposed Project was developed, the lead agencies considered an alternative that would substantially increase removal of riparian vegetation, particularly at the Remaining Phase 1 sites, to enhance the aesthetic values for local residents and visitors to the Trinity River. Based on input from agencies and local landowners, the lead agencies considered the request to remove more riparian vegetation, but determined that the level of vegetation removal required to enhance aesthetic values could result in significant adverse environmental impacts and is beyond that required to meet the fundamental objectives of the TRRP as previously described in this chapter.

Cross Section

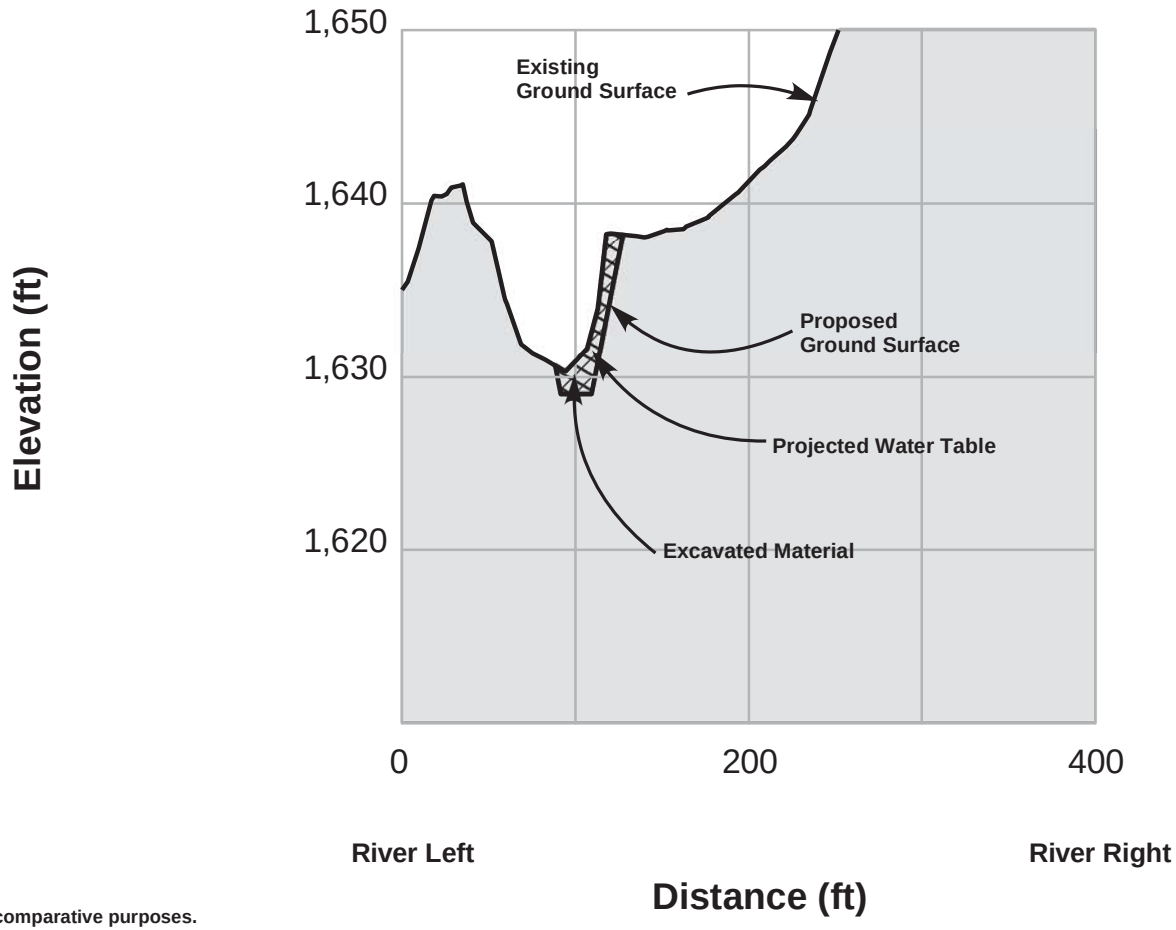


Note:
1) Not to scale. Shown for comparative purposes

Figure 2-3a
Typical Vegetation Removal and Recontouring

File Location: Projects\TRRP\GIS\Site-Master8\GIS\Working_MXDs\Figure_2_3b_RipEnhancement_XS.mxd Source: North State Resources, Inc.; USBR; DWR Prepared: 10-12-08 Revised: 11-20-08 edouglas

Cross Section

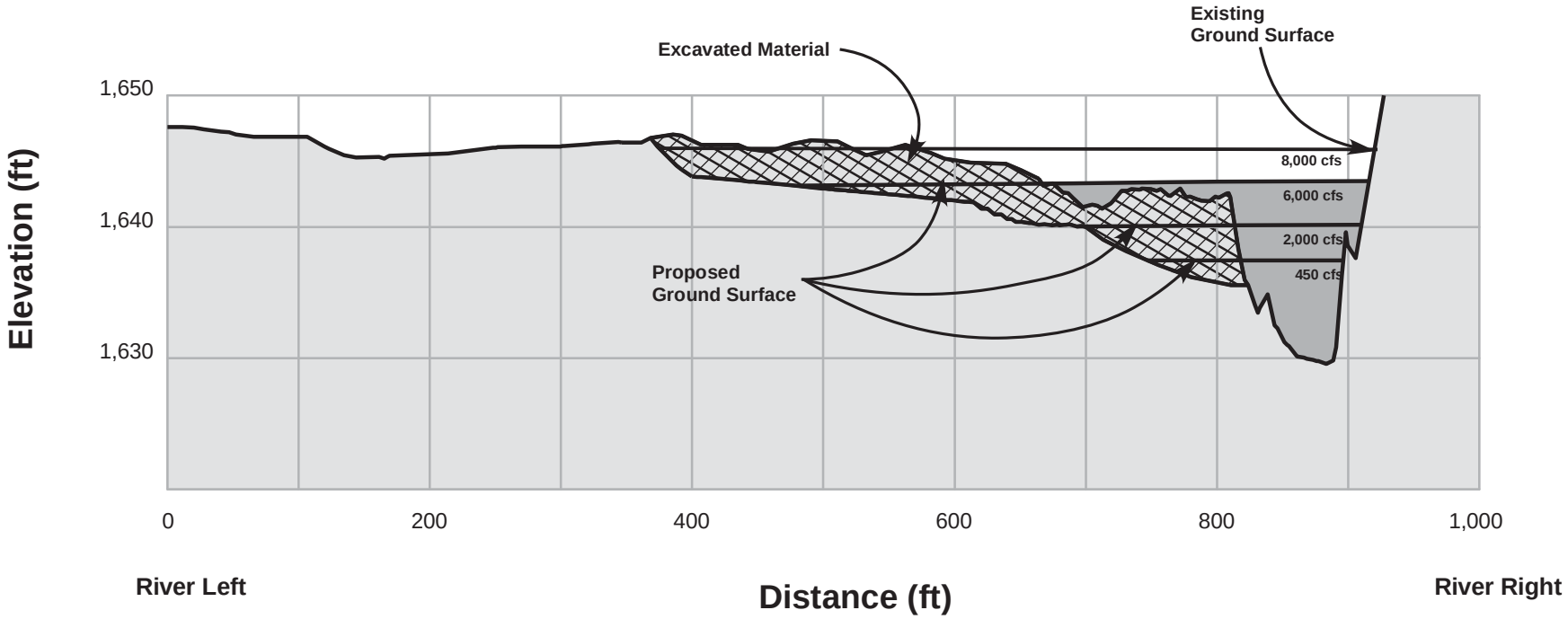


Note:
1) Not to scale. Shown for comparative purposes.

2) As planned at various locations to mitigate impacted riparian areas which are not adjacent to the river.

Figure 2-3b
Typical Riparian Enhancement

Cross Section

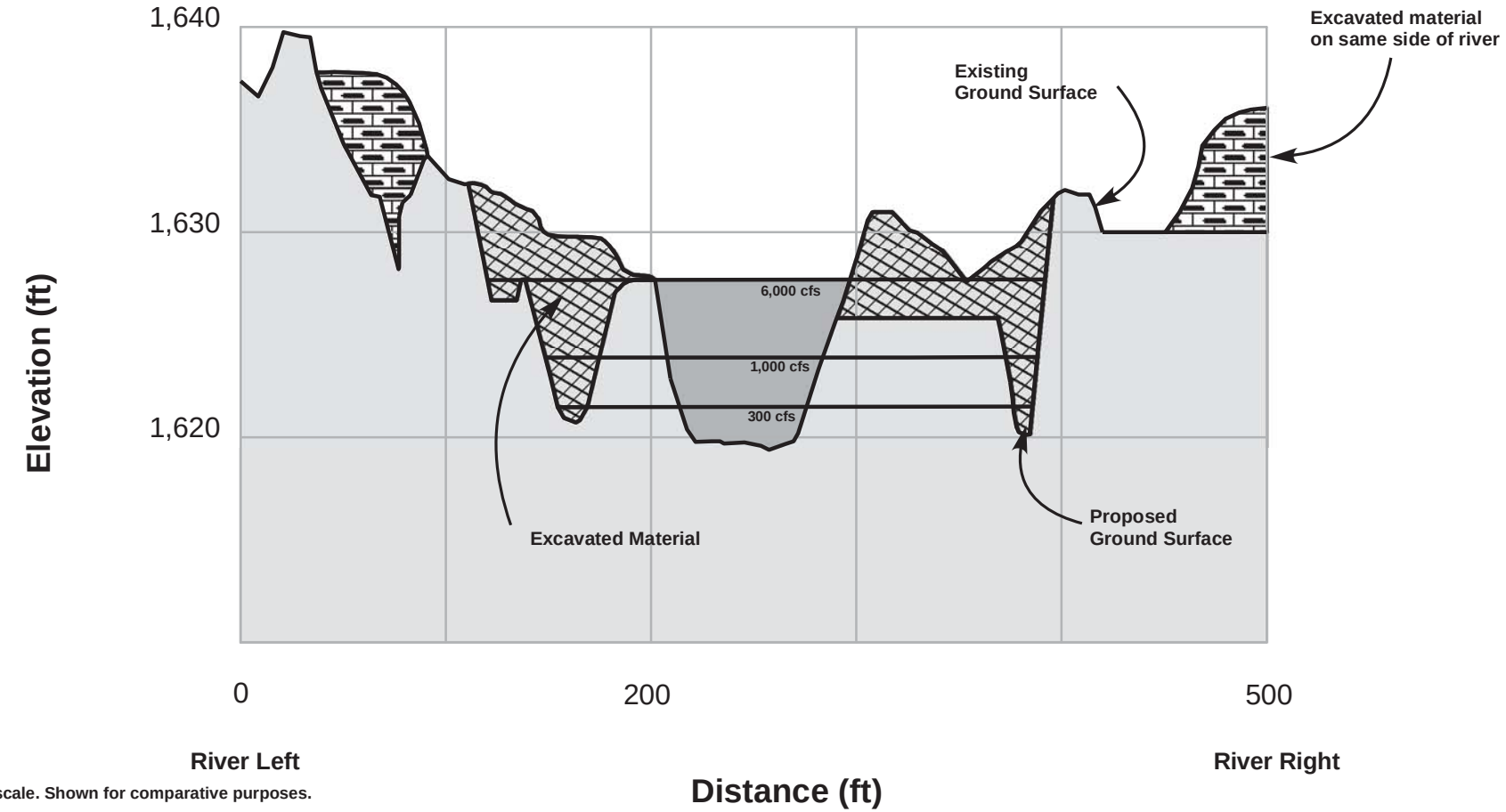


Note:
1) Not to scale. Shown for comparative purposes.

2) Floodplain will be constructed approximately 1 foot below water surface elevation at selected flow (8,000; 6,000; 2,000; or 450 cfs), sloped downriver.

Figure 2-3c
Typical Constructed Floodplain

Cross Section



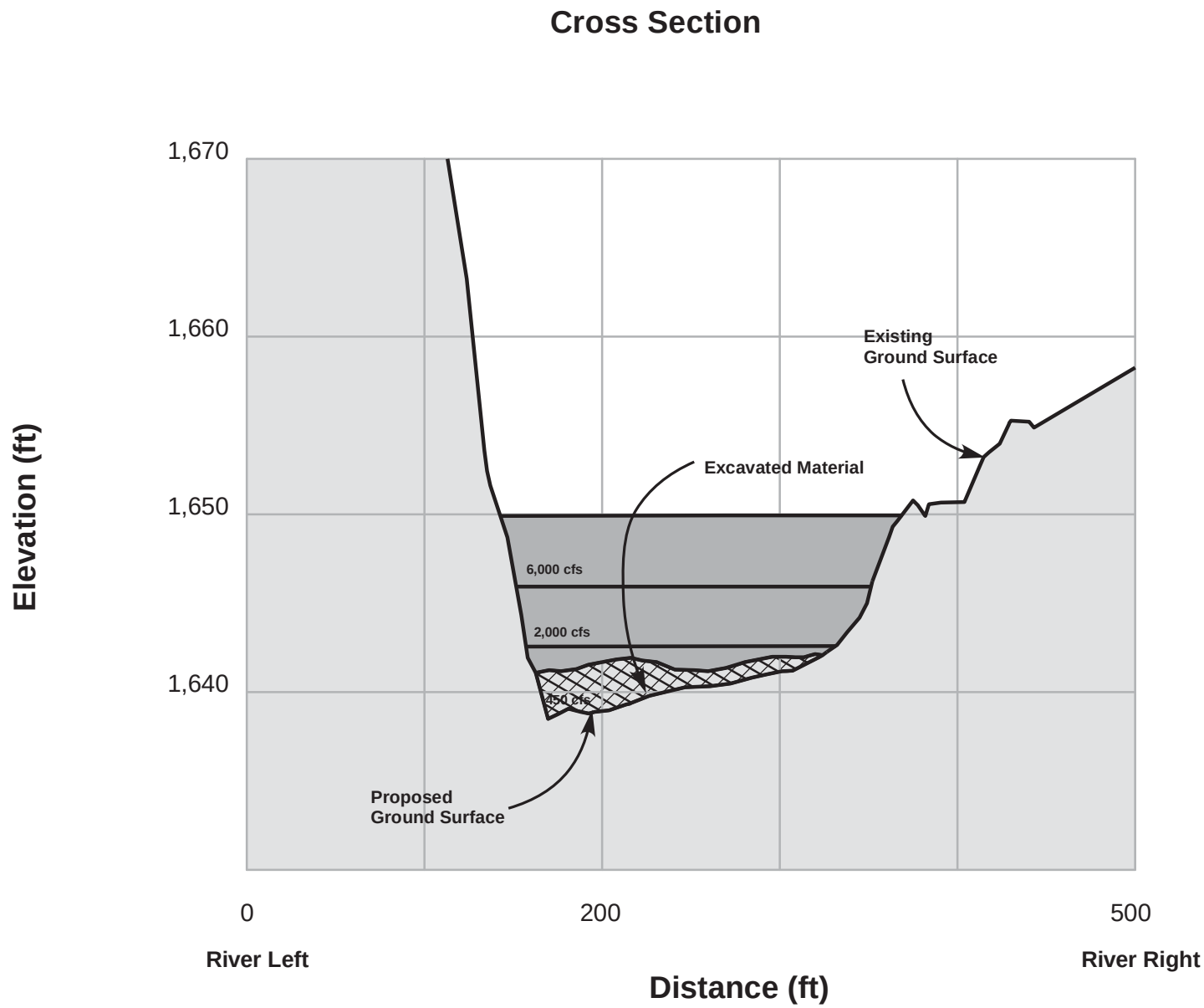
Notes:
1) Not to scale. Shown for comparative purposes.

2) Medium flow side channel designed to flow approximately 1 foot deep at 1,000 cfs.

3) Low flow side channel designed to flow approximately 1 foot deep at 300 cfs.

Figure 2-3d
Typical Medium and Low Flow Side Channels

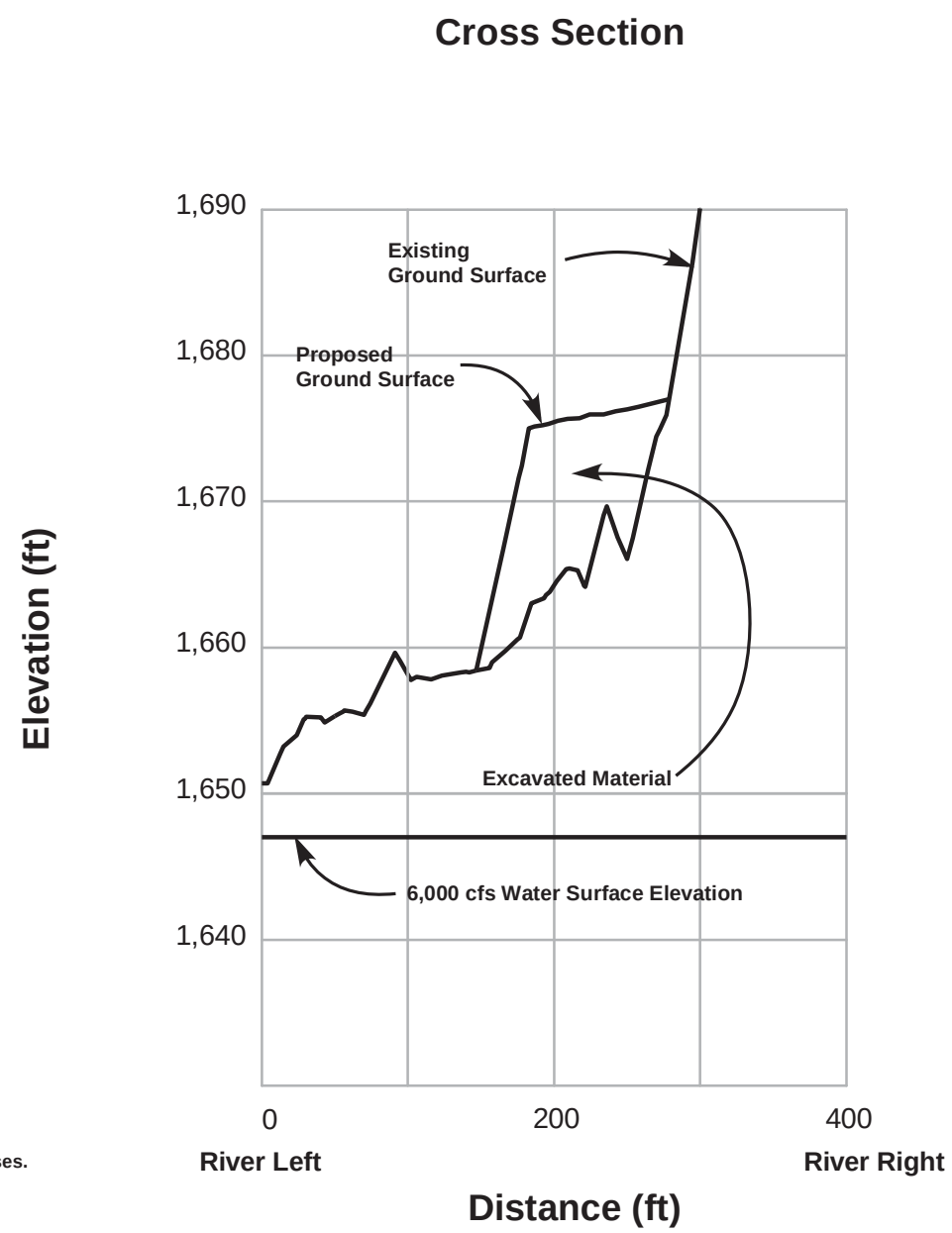
File Location: Projects\TRRP\GIS\Site-Master8\GIS\Working_MXDs\Figure_2 3e_GradeControl_XS mxd Source: North State Resources, Inc.; USBR; DWR Prepared: 10-12-08 Revised: 11-20-08 edouglas



Notes:
1) Not to scale. Shown for comparative purposes.

2) Remove Natural & constructed Grade Control Structures.

Figure 2-3e
Typical Grade Control Removal



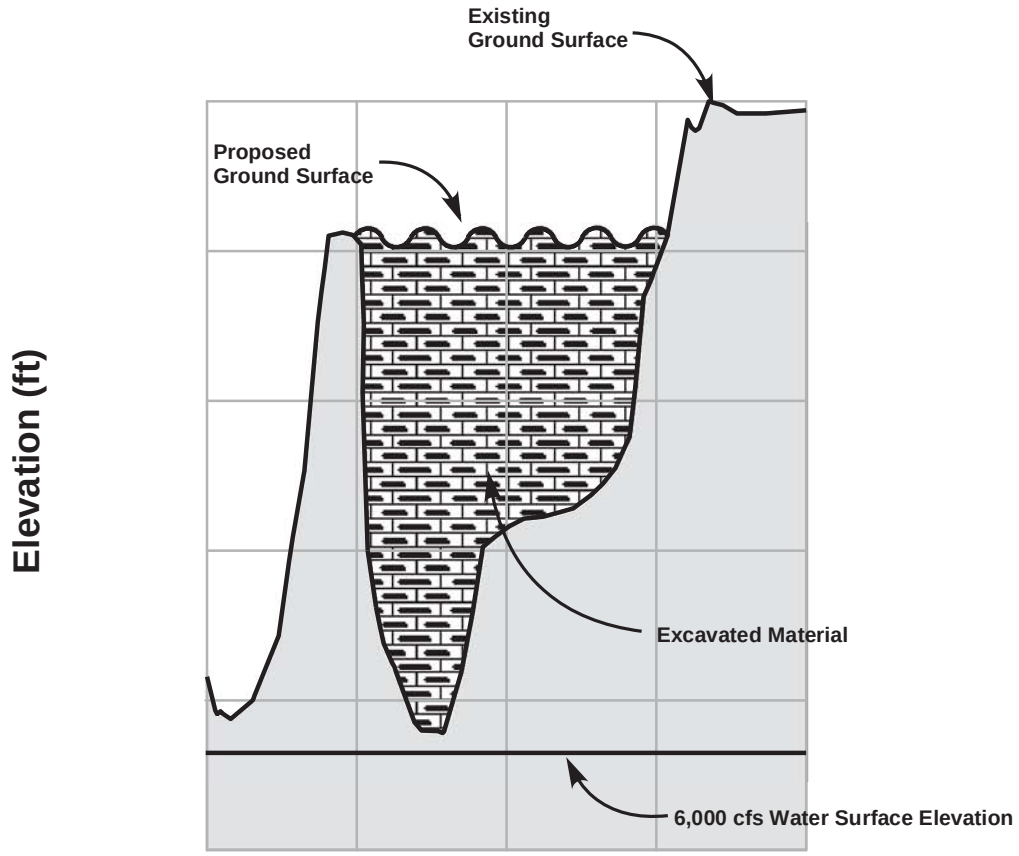
Notes:
1) Not to scale. Shown for comparative purposes.

2) Slope constructed to drain toward river.

3) Material placed above base flood elevation where feasible.

Figure 2-3f
Typical Backslope Disposal

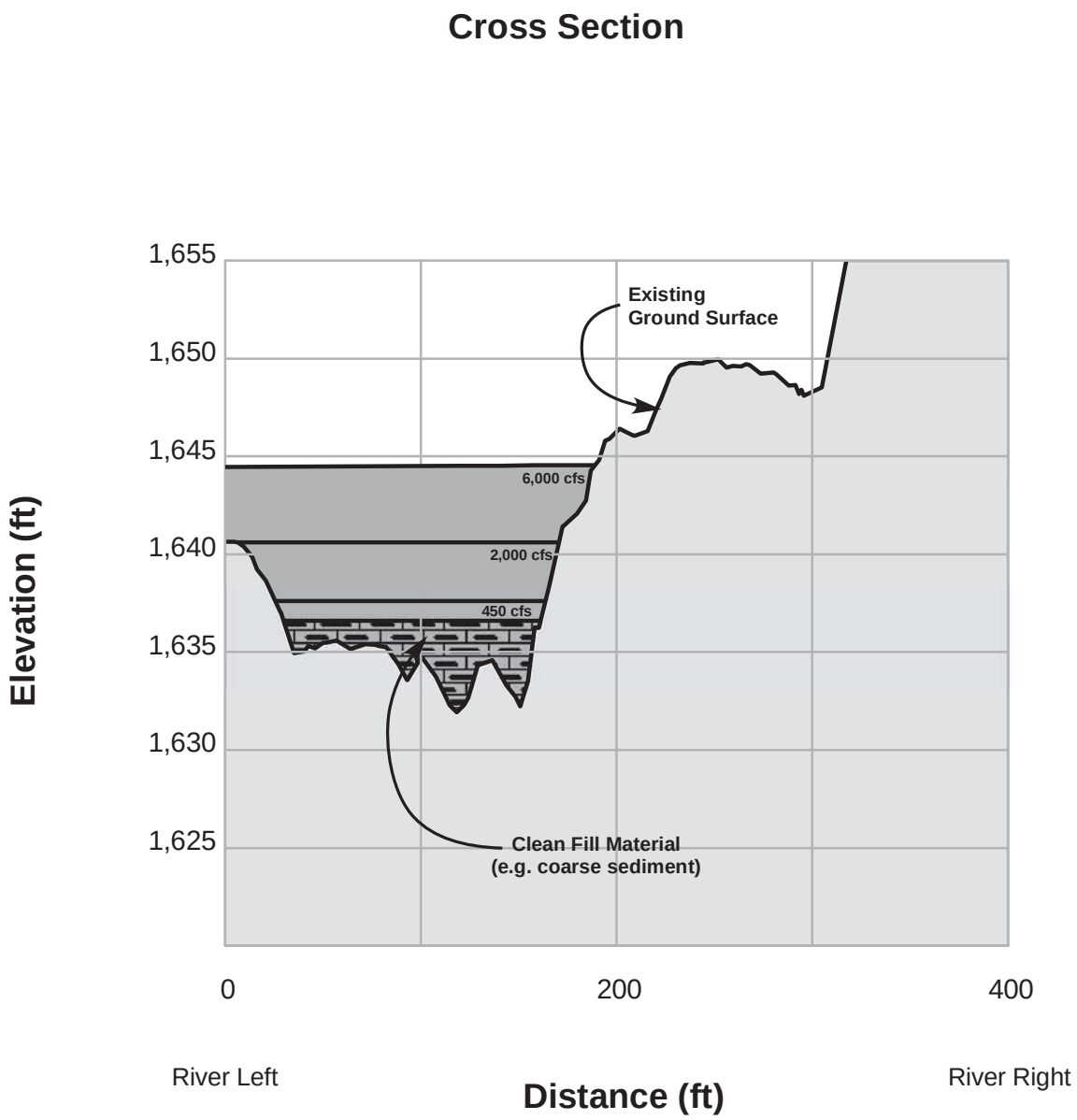
Cross Section



Note:
1) Not to scale. Shown for comparative purposes

2) Material placed above base flood elevation where feasible.

Figure 2-3g
Typical Infill Disposal



Note:
1) Not to scale. Shown for comparative purposes

Figure 2-3h
Typical Trinity River Crossing

Cross Section

Note:
1) Not to scale. Shown for comparative purposes.

2) Ramps and abutment material will be native alluvium (estimated 500 cu yds)

Figure 2-3i
Typical Bridge

River Mile 109.0

River Mile 111.2

Trinity River High-Flow Gravel Injection Projects
Lewiston, California May 2008

R:\Projects\10102 Mech Ch Rehab Trinity River 2007-2012\Master-8\Graphics* ai sgc

Figure 2.3j
Typical Gravel Injection Conveyor System

CHAPTER 3

Regulatory Framework

Chapter 3
Regulatory Framework

3.1 Permits and Approvals

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 lead, cooperating, and responsible agencies will use this document for their permitting and approval processes. As necessary, additional discussion of these requirements is provided in Chapter 4 for each resource and topic evaluated in this document. Implementation of either of the action alternatives, as described in Chapter 2, would generally require compliance with the following federal, state, and local permit and approval processes.

3.1.1 Federal

U.S. Army Corps of Engineers

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act (CWA) authorizes the U.S. Army Corps of Engineers (USACE) to issue permits for the discharge of dredged or fill materials into waters of the United States, including wetlands (33 USC 1344). The USACE is authorized to issue either individual or general permits under Section 404. Under its general permit authorization, the USACE has issued a number of permits on a nationwide basis. As long as the activity has complied with the conditions set forth in the applicable nationwide permit, there is no need for a project proponent to apply for an individual permit from the USACE. For several of these nationwide permits, the USACE requires the project proponent to submit a pre-construction notification requesting confirmation of project compliance with conditions of the nationwide permit.

Based on previous permits issued to the TRRP for other channel rehabilitation projects, it appears that the Proposed Project (or portions thereof) may be permitted under Nationwide Permit Number 27 (Wetland and Riparian Restoration and Creation Activities). To comply with the Section 404 policy that there be no net loss of wetlands, discharge into wetlands must be avoided and minimized to the extent practicable. For unavoidable impacts, compensatory mitigation could be required to replace the loss of wetland functions in the watershed.

Reclamation recently submitted a wetland delineation report pursuant to Section 404 of the CWA for the Remaining Phase 1 sites. A copy of this report is on file at the TRRP office in Weaverville.

The River and Harbors Act

The placement of structures in, under, or over "navigable waters of the United States" is also regulated by the USACE under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 401 et seq.). Projects are

permitted under either individual or general (i.e., nationwide) permits. The specific applicability of the permit types is determined by the USACE on a case-by-case basis.

National Marine Fisheries Service and U.S. Fish and Wildlife Service

Federal Endangered Species Act

Federally listed species are protected under the mandates of the Endangered Species Act (ESA) of 1973. Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species (plant or animal), or result in the destruction or adverse modification of designated critical habitat for these species (i.e. "take"). Either the NMFS or USFWS, depending on the species, may authorize "take" that is incidental to an otherwise lawful activity.

"Take" of listed species, defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or [the] attempt to engage in any such conduct," is prohibited. Such acts may include significant habitat modification or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering.

The Trinity River provides habitat for the Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) coho salmon (O*ncorhynchus kisutch*), which is federally listed under the ESA. The designation of "critical habitat" applies to federal agencies, and prohibits federal agencies from funding, authorizing, or carrying out actions that would destroy or adversely modify "critical habitat." No critical habitat is present in the Proposed Project sites. Under the ESA, NMFS is responsible for the consultation and permitting efforts related to this species.

The northern spotted owl (*Strix occidentalis*) is federally listed as threatened, and the TRRP in conjunction with the USFS' Redwood Science Laboratory has conducted habitat assessments and site-specific protocol-level surveys for this species. The northern spotted owl was not detected during these surveys. As the responsible agency and a member of the TMC, the USFWS has concurred with the TRRP that formal consultation under Section 7 of the ESA is not required for this species with respect to proposed TRRP activities.

Sections 7 and 10(a) of the ESA provide a method for permitting an action that may result in "incidental take" of a federally listed species. "Incidental take" refers to "take" of a listed species that is incidental to, but not the primary purpose of, an otherwise lawful activity. Incidental take is permitted under Section 7 of the ESA for projects on federal land or involving a federal action, and under Section 10(a) for a state or private action.

Several project activities could result in an incidental take of a species that is protected under the ESA. Therefore, non-flow measures, including the mechanical channel rehabilitation projects and sediment management activities prescribed in the ROD, were considered in the October 2000 NMFS Biological Opinion issued in response to the Trinity River Mainstem Fishery Restoration FEIS. NMFS identified the mechanical channel rehabilitation projects described in the ROD as reasonable and prudent measures. As

required by the NMFS Biological Opinion, the following conditions have been incorporated into the Proposed Project:

4a Reclamation shall meet with NMFS annually in March to coordinate during the advanced development and scheduling of habitat rehabilitation projects, including mainstem channel rehabilitation projects, sediment augmentation, and maintenance dredging to remove fine sediment from the Hamilton Ponds.

4b The USFWS and/or Reclamation shall provide for review of individual mainstem channel rehabilitation projects via the technical team ("designated team of scientists," "technical modeling and analysis team") (U.S. Fish and Wildlife Service et al. 2000) or equivalent group. The USFWS and/or Reclamation shall provide a written recommendation to NMFS concerning whether the projects are similar to those described in the Trinity River Mainstem Fishery Restoration FEIS/EIR (U.S. Fish and Wildlife Service et al. 2000) and should be covered by this incidental take statement. If the review process results in a determination that these projects and their impacts to aquatic habitat differ substantially from those described in the Trinity River Mainstem Fishery Restoration EIS/EIR (U.S. Fish and Wildlife Service et al. 2000), the technical team shall advise NMFS that additional consultation under Section 7 of the ESA is appropriate.

Reinitiating Section 7 consultation under the ESA between Reclamation and NMFS and/or between Reclamation and USFWS may be necessary if the conditions under which the Biological Opinions prepared by NMFS and USFWS change significantly. No federally listed species other than fish are expected to occur at any of the Remaining Phase 1 or Phase 2 sites.

As the TRRP has reviewed their mainstem channel rehabilitation projects and has provided NMFS their annual recommendation that planned activities are not substantively different than those described in the Trinity River FEIS, several amendments to the original October 2000 Biological Opinion have been made by NMFS. These amendments have increased TRRP construction flexibility while conforming to the original Biological Opinion's effects analyses so that no increased impacts to listed coho salmon, beyond those previously analyzed, will occur. To increase the TRRP's cost effectiveness and flexibility for implementation, it is expected that reinitiation of consultation between Reclamation and NMFS may be necessary in the future. As new restoration strategies are evaluated (e.g., working in the river channel outside of the present July 15 through September 15 work window) for impacts to coho salmon and a new Biological Opinion is written, the 2000 Biological Opinion would remain in effect and channel rehabilitation projects would continue under this coverage.

Magnuson-Stevens Fishery Conservation and Management Act

In addition to the protection salmon species receive under the ESA, they are protected under the mandates of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended in 1996. The MSA established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for

those species regulated under a federal fisheries management plan (FMP). EFH refers to those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity (67 FR 2343).

In its role as the project proponent, Reclamation, a federal agency, will need to consider the impact of the Proposed Project on EFH for coho and Chinook salmon (*Oncorhynchus tshawytscha*) in the Trinity River pursuant to the Pacific Coast Salmon FMP. An EFH consultation between Reclamation and NMFS may be necessary if adverse effects to salmon or their habitat are identified.

Federal Wild and Scenic Rivers Act

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 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. The Trinity River is designated specifically for its outstandingly remarkable anadromous fishery value. Additionally, all recreational and free-flowing characteristics are to be protected under Section 7 of the federal WSRA.

The BLM generally takes responsibility for conducting Section 7 Wild and Scenic River determinations for the 40-mile reach of the Trinity River below Lewiston Dam because of an interagency agreement between the National Park Service, BLM, and USFS. However, the USFS typically completes its own Section 7 determination for activities occurring on USFS lands in the Wild and Scenic corridor, and works cooperatively with BLM on Section 7 determinations where agency management jurisdictions overlap.

A Section 7 determination that follows the Evaluation Procedure presented in the Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council, Wild and Scenic Rivers Act: Section 7 is included as Appendix B.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code (USC) 470 *et seq*.), is the primary federal legislation requiring the federal government to consider the effects of its actions on historic properties. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how federal agencies address these effects. Historic properties are defined as those cultural resources listed, or eligible for listing, on the National Register of Historic Places (NRHP). The criteria for National Register eligibility are outlined in 36 CFR Part 60.

Reclamation has formally consulted with the Office of Historic Preservation (OHP) and the Advisory Council on Historic Preservation (ACHP). This consultation is documented in the Programmatic Agreement (PA) between the USFWS, Reclamation, BLM, HVT, the California State Historic Preservation Office (SHPO), and the ACHP regarding implementation of the Trinity River Fishery Restoration Program (Appendix D). In addition, letters requesting information regarding possible Native American concerns along the project reach were sent to tribal contacts recommended by the Native

American Heritage Commission, and field investigations were conducted by Reclamation staff in accordance with the PA.

Secretarial Order No. 3175

Secretarial Order No. 3175 states that the DOI, "when engaged in the planning of any proposed project or action, will ensure that any anticipated effects on Indian Trust resources are explicitly addressed in the planning, decision, and operational documents that are prepared for the project." This mandate was reaffirmed in a Presidential directive declaring the sovereign rights of Indian tribes and the government-to-government status of relations between the United States and recognized tribes. Accordingly, this document provides a detailed assessment of potential effects on Indian Trust resources and, consequently, on Indian tribes. Consistent with DOI policy, the analysis addresses only those tribes of the Klamath/Trinity Region that are officially recognized by the United States (Pevar 1992): the Hoopa Valley, Karuk, Klamath, and Yurok. Local unrecognized tribes include the Nor-Rel-Muk Nation and the Tsnungwe Tribe. Reclamation will ensure that these unrecognized tribes are also notified of these projects.

The Tribal Trust discussion (section 7.17) focuses principally on the Hoopa Valley and Yurok tribes, because, of the recognized Indian tribes of the Klamath/Trinity Region, these two tribes would be most directly affected by the Proposed Project. It is acknowledged, however, that the impacts are pertinent to the Karuk and Klamath people, as they share a common regional heritage with the Hoopa Valley and Yurok tribes.

U.S. Forest Service – Shasta-Trinity National Forest

Shasta-Trinity Land and Resource Management Plan

The STNF is guided by various laws, regulations, and policies that provide the framework for all levels of planning. These include Regional Guides, the Land and Resource Management Plan (LRMP), and site-specific planning documents, such as this document.

The STNF LRMP provides guidance for managing National Forest System lands in the STNF. The development of a Forest LRMP occurs within the framework of regional and national USFS planning. The LRMP includes Forest goals; Forest objectives, including Forest-wide prescription assignment by acres, outputs, and activities; and Forest Standards and Guidelines. Forest goals state the management philosophy of the LRMP, and the Forest objectives describe the purpose of the management prescriptions. The Forest-wide management prescriptions apply a management theme to specific types of land (e.g., wilderness, roaded high-density recreation). Finally, Forest Standards and Guidelines provide basic direction for implementation of management activities Forest-wide. LRMP direction specific to the Proposed Project is described in Chapter 4 of this document.

Consistent with the requirements of the LRMP, the STNF will issue a special-use permit to Reclamation for rehabilitation activities that occur on STNF lands.

Northwest Forest Plan

The STNF LRMP was amended by the 1994 Record of Decision for the Northwest Forest Plan (Final Supplemental Environmental Impact Statement for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl). As a party to the Northwest Forest Plan, the USFS is required to ensure that projects are consistent with the Aquatic Conservation Strategy (ACS).

In essence, this LRMP requires that projects authorized by the STNF be designed and implemented in a manner that maintains the existing conditions or implements actions to restore biological and physical processes within their natural range of variability.

Appendix A provides the information necessary to document project consistency with ACS objectives.

Bureau of Land Management

Northwest Forest Plan

BLM's Resource Management Plan (RMP), which is its plan for managing federal lands in Trinity County, was amended by the 1994 Record of Decision for the Northwest Forest Plan (Final Supplemental Environmental Impact Statement for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl). This amendment required preparation of the Mainstem Trinity River Watershed Analysis prior to initiating BLM activities. As a party to the Northwest Forest Plan, BLM, like the USFS, is also required to ensure that projects are consistent with the ACS. Appendix A provides the information necessary to document consistency with ACS objectives.

BLM will issue a special-use permit to Reclamation for rehabilitation activities that occur on BLM lands.

3.1.2 State of California

Regional Water Quality Control Board

Water Quality Certification/Waste Discharge Requirements

The State Water Board and the nine Regional Water Quality Control Boards have primary responsibility for the protection and enhancement of water quality in California. The Regional Water Boards adopt and implement water quality control plans (Basin Plans), which recognize the unique characteristics of each region with regard to natural water quality; past, present, and reasonably foreseeable beneficial uses; and water quality problems. The North Coast Basin Plan is designed to preserve and enhance water quality and protect beneficial uses of all regional waters. Specifically, the Basin Plan (i) designates beneficial uses for surface and ground waters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect beneficial uses, and (iii) defines implementation programs that include specific prohibitions, action plans, and policies to achieve the water quality objectives.

Under the California Porter-Cologne Water Quality Act, "discharges of waste" require the issuance of waste discharge requirements (WDR) unless otherwise waived. WDRs apply to "State waters" where

USACE does not retain jurisdiction. These "State waters" include "isolated" wetlands without a commerce connection or significant nexus to navigable waters of the United States.

WDRs prescribe requirements, such as limitations on temperature, toxicity, or pollutant levels, as to the nature of any discharge (Wat. Code, section 13260, subd. (a)). WDRs may also specify conditions where no discharge will be permitted, (*Id.*, section 13241), and may include monitoring and reporting requirements (See *id.* section 13267, Cal. Code Regs., tit. 23, section 2230). WDRs implement the Basin Plan, taking into consideration the beneficial uses to be protected, water quality objectives reasonably required for that purpose, other waste discharges, and the need to prevent nuisance (Wat. Code, section 13263, subd. (a).).

Impacts to isolated wetlands require mitigation at a ratio determined on a case-by-case basis. At a minimum, 1 acre of similar or "in-kind" wetland will be replaced for every acre of wetlands impacted by the project such that there will always be no net loss of wetlands throughout the state. The WDR application must be supported by a current delineation of jurisdictional waters. Authorization of a WDR permit by the Regional Water Board is contingent upon approval of a mitigation plan that demonstrates the project will not result in a net loss of wetlands.

Under section 401 of the federal CWA (33 USC sections 1251-1387), every applicant for a federal license or permit that may result in a discharge into navigable waters must provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the CWA, including water quality standards and implementation plans promulgated pursuant to section 303 (33 USC section 1313). CWA section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the CWA and with any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project.

Since implementation of either the Proposed Project or Alternative 1 would have the potential to affect water quality in the Trinity River, Reclamation will prepare and submit to the Regional Water Board an application for CWA section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill) to accompany its pre-construction notification sent to the USACE for CWA section 404 coverage. The Regional Water Board intends to develop and issue a general water quality certification for TRRP class of activities that contains enrollment procedures for individual TRRP projects (Cal. Code Regs., tit. 23, section 3861.) The section 401 certification is likely to impose water quality limitations and project conditions. Once a general water quality certification is issued and individual projects enrolled, discharges from the individual projects will also be regulated under State Water Resources Control Board Order No. 2003 - 0017 - DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of the general water quality certification.

Total Maximum Daily Load

The Trinity River Total Maximum Daily Load (TMDL) for sediment was established in 2001 by the United States Environmental Protection Agency (EPA) in accordance with section 303(d) of the CWA, because the State of California determined that the water quality standards for the Trinity River are exceeded due to excessive sediment. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to anadromous salmonid fish habitat, which the TRRP was designed to correct. In the Trinity River TMDL, the EPA specifies the following: implement the 2000 ROD, including flow regime; mainstem/watershed restoration; and adaptive management in its implementation recommendations. The Regional Water Board considers its proposed permitting action on TRRP measures to be early TMDL implementation of the Trinity TMDL.

NPDES Permit

Point source discharges of pollutants to surface waters require a National Pollutant Discharge Elimination System (NPDES) permit under section 402 of the CWA. An NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) will also be required. The General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges and to describe and ensure the implementation of Best Management Practices (BMPs) to reduce or eliminate sediment and other pollutants in storm water as well as non-storm water discharges.

California Department of Fish and Game

Streambed Alteration Agreement

As the Project Proponent, Reclamation may be required to obtain a Streambed Alteration Agreement from the CDFG pursuant to California Fish and Game Code Section 1602. Consistent with the input provided by CDFG for the TRRP's Hocker Flat and Canyon Creek Suite of projects, if the TRRP projects are deemed to be entirely federally funded, a Streambed Alteration Agreement is not required. If state funding is used for a TRRP project (e.g., Indian Creek) then Reclamation is required to obtain a Streambed Alteration Agreement.

California Endangered Species Act

Under the California Endangered Species Act (CESA), CDFG is responsible for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). State listed species are fully protected under the mandates of CESA. Pursuant to the requirements of CESA, any local or state agency reviewing a proposed project in its jurisdiction must determine whether any species that is state listed as endangered or threatened may be present in the project study area and determine whether the proposed project will have a potentially significant impact on any of these species.

On August 30, 2002, the California State Fish and Game Commission (Commission) determined that coho salmon in California warranted protection as a threatened species north of Punta Gorda (including the Trinity River) and as an endangered species south of Punta Gorda under CESA. The Commission directed CDFG to develop a coho salmon recovery strategy plan within one year. The CDFG completed a

plan on January 26, 2004, and the SONCC ESU coho salmon was officially state listed as threatened on August 5, 2004.

The CDFG also maintains a list of "candidate species" and lists of "species of special concern," which are species that the CDFG formally notices as being under review for addition to the list of endangered or threatened species and species "watch lists," respectively. The CDFG encourages informal consultation on any proposed project that may affect a candidate species. California law (Fish and Game Code, Section 5515) identifies 10 "fully protected fish" that cannot lawfully be "taken," even with an Incidental Take Permit. None of these species is present in the Trinity River or its tributaries. California statutes also accord "fully protected" status to a number of specifically identified birds, mammals, reptiles, amphibians, and fish (California Fish and Game Code, Sections 3505, 3511, 4700, 5050, and 5515). "Fully protected" species potentially occurring in the project area include the golden eagle (*Aquila chrysaetos*) and ring-tailed cat (*Bassariscus astutus*).

Similar to the federal ESA, project-related "take" of CESA protected species incidental to otherwise lawful management activities may be authorized under Section 2081 of the Fish and Game Code of California. Reclamation, as the Project Proponent, will likely be required to obtain a CESA incidental take authorization under Fish and Game Code Section 2081(b) for one or more of the Remaining Phase 1 or Phase 2 sites. As with the Streambed Alteration Agreement, the CDFG has determined that it has the authority to issue a CESA incidental take authorization on this project based on the activities that occur on lands managed by the state. Under CESA, and upon concurrence from NMFS that its Biological Opinion and an incidental take statement for "take" of listed SONCC ESU coho salmon are adequate (pursuant to the federal ESA), Reclamation may request a CESA Consistency Determination from the Director of the CDFG, pursuant to Section 2080.1 of the California Fish and Game Code. Within 30 days after receipt of the Consistency Determination request, the Director of the CDFG shall determine whether the federal incidental take statement is consistent with CESA. If it is determined to be consistent with CESA, no further authorization or approval is necessary under CESA. If the Director of the CDFG determines that the federal incidental take statement is not consistent, then Reclamation will be required to obtain a take permit pursuant to California Fish and Game Code Section 2081(b).

Compliance with this section of the code also requires that the impacts of the project on coho salmon be minimized and fully mitigated. To facilitate CDFG's CESA compliance process, Appendix H has been included in this document. This appendix provides a full discussion of the mitigation measures specific to coho salmon.

California Department of Transportation

The California Department of Transportation (Caltrans) requires issuance of an encroachment permit for trucks and other project-related traffic to use SR 299 and SR 3 under certain circumstances. If rehabilitation activities are proposed in a Caltrans Right-of-Way (ROW), an encroachment permit may be required. Additionally, if project-related traffic could affect the visibility, traffic patterns, or the flow of traffic on SR 299 or SR 3 in a negative manner, an encroachment permit would be required.

Office of Historic Preservation

California Public Resources Code sections 21083.2 and 21084.1 require public agencies to consider the effects of their actions on historical resources and unique archaeological resources. Historical resources are defined as any cultural resource listed on, or determined eligible for listing on, the California Register of Historical Resources (CRHR) (California Public Resources Code Section 21084.1 and California Environmental Quality Act (CEQA) Guidelines Section 15064.5, subds. (a) and (b)). The CRHR includes cultural resources listed, or formally determined eligible for listing, on the NRHP as well as some California State Landmarks and Points of Historical Interest. A unique archaeological resource is defined as an artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it meets the criteria for listing on the CRHR and the NRHP pursuant to California Public Resources Code, Section 21083.2, Subd. [g].

The public agency has a responsibility to assess whether the actions of a project will cause a substantial adverse change in the significance of a historic resource or unique archaeological resource pursuant to California Public Resources Code Section 21084.1. If a project will adversely affect historic resources or unique archaeological resources, the agencies will resolve those affects in consultation with the Office of Historic Preservation. Additionally, California Public Resources Code Section 5024 requires consultation with the OHP when a project may affect historical resources located on state-owned land.

As noted above, CEQA also requires lead agencies to consider whether projects will affect "unique archaeological resources." California Public Resources Code Section 21083.2, subdivision [g], states that "'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,

2. has a special and particular quality such as being the oldest of its type or the best available example of its type, or

3. is directly associated with a scientifically recognized important prehistoric or historic event or person" (California Public Resources Code, Section 21083.2, subd. [g]).

3.1.3 Local

Trinity County

Zoning Ordinance

The Trinity County Floodplain Management Ordinance (Section 29.4 of the County Zoning Ordinance) requires a Floodplain Development Permit for projects that would alter the Trinity River floodplain on private lands within the jurisdiction of Trinity County. This permit requires that a registered professional engineer or architect certify that construction or replacement of bridges, roadways, and bank slope protection devices will not adversely affect the flood-carrying capacity of any altered portion of the

watercourse, and will not cumulatively raise the 100-year floodplain elevations by more than 1 foot in the project area. The ordinance also requires notification of adjacent communities, CDFG, USACE, the Regional Water Board, and DWR prior to any alteration or relocation of a watercourse, and the submission of evidence of such notification to the Federal Insurance Administration and FEMA.

The hauling of loads that exceed weight, height, or width limits on Trinity County roads (such as hauling heavy equipment or oversized bridge components) requires an encroachment permit from the Trinity County Department of Transportation. Work that will modify or encroach on County roads, including efforts associated with the rehabilitation activities, may require a Trinity County encroachment permit.

Water Quality Control Ordinance

The Trinity County Water Quality Control Ordinance establishes the requirement to ensure the water quality of watersheds and water supply areas in Trinity County. It dictates that "no use, application, discharge, disposal of any polluting substance or any other controllable water quality activities may be initiated, undertaken, or maintained by any person if said use or activity results in a detectable discharge of polluting substances into waters of the state located in or flowing through the county" (Ordinance #1072, County Code Section 8.60.010-8.6-020).

Hoopa Water Quality Plan

The Hoopa Valley Tribe's Water Quality Control Plan was approved by the EPA over a period of several years. Most recently in 2008, the EPA approved amendments to the Plan addressing nutrients, temperatures, and related criteria in both the Trinity River and Klamath River where they cross through the Hoopa Valley Reservation. Designated uses for the Trinity River include ceremonial and cultural use, as well as fish habitat. Criteria such as nutrients and temperature are key to the Tribe's efforts to maintain and restore natural populations of salmon and steelhead.

3.2 Other Requirements

The following section provides an overview of the principal environmental statutes, not described above, that establish the regulatory setting that will be used to assess the impacts of rehabilitation activities at Remaining Phase 1 and Phase 2 sites.

3.2.1 U.S. Environmental Protection Agency

California Toxics Rule

Under Section 303(c)(2)(B) of the CWA, states must adopt numeric criteria for the priority toxic pollutants listed under Section 307(a) if those pollutants could be reasonably expected to interfere with the designated uses of state waters. The California Toxics Rule (CTR) (40 CFR 131, 2000) establishes a human health criteria for mercury in the water column of 0.050 parts per billion (ppb) of total recoverable mercury for drinking water supplies and aquatic organisms and 0.051 ppb for waters that are not drinking water supplies. These criteria are derived from a calculated reference dose, based on concentrations of mercury below which extra risk for neurological damage should not occur. The federal criteria are legally

applicable to inland surface waters, enclosed bays, and estuaries in the State of California. The state is also under the jurisdiction of the National Toxics Rule promulgated in 1992 for certain waters and pollutants.

Federal Clean Air Act

The 1977 federal Clean Air Act (CAA) requires the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect the public from exposure to airborne pollutants that are known to be hazardous to human health. The EPA is responsible for setting federal air quality standards, which are monitored and enforced through local air quality districts. The CAA mandates the identification of areas not meeting ambient air quality standards and requires the preparation of air quality plans to attain the standards.

3.2.2 U.S. Fish and Wildlife Service

Bald and Golden Eagle Protection Act

This law, originally passed in 1940, provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 USC 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 USC 688(c); 50 CFR 22.3). A violation of this act can result in a fine, imprisonment, or both.

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). A diverse assemblage of bird species use habitat associated with the Trinity River corridor, and most of these species are protected under the MBTA.

3.2.3 Federal Noxious Weed Act

Although the Plant Protection Act superseded and repealed most of the Federal Noxious Weed Act of 1974, Section 15 of this act remains intact and requires federal land management agencies to develop and establish a management program for control of undesirable plants that are classified under state or federal law as undesirable, noxious, harmful, or poisonous on federal lands under the agency's jurisdiction (7 USC 2814 (a)). The act also requires federal agencies to coordinate with state and local agencies in the management of undesirable plants. The TRRP has included measures to control the spread of noxious weeds within the boundaries established for the Remaining Phase 1 and Phase 2 sites.

3.2.4 Executive Orders

Executive Order 11990 (Wetlands)

Executive Order 11990 is an overall wetlands policy for all agencies managing federal lands, sponsoring federal projects, or providing federal funds to state or local projects. The order requires federal agencies to follow "avoidance-mitigation-preservation" procedures and provide the opportunity for public input before proposing new construction in wetlands and requires federal agencies to avoid impacts on wetlands where practicable. Section 4.7 of this document includes procedures developed by the TRRP to mitigate for impacts on wetlands.

Federal Executive Order 11988 (Floodplain Management)

Executive Order 11988 requires federal agencies to prepare floodplain assessments for proposed actions located within or affecting floodplains. If an agency proposes to conduct an action in a floodplain, it must consider alternatives to avoid adverse effects to, and incompatible development of, the floodplain.

If the only practicable alternative involves siting of structures in a floodplain, the agency must minimize potential harm to or within the floodplain and explain why the action is proposed in the floodplain. As discussed in section 4.4, Water Resources, any implemented project will not be allowed to increase the Base Flood elevation (100-year flood).

Executive Order 12373 for State, Area-Wide, and Local Plan and Program Consistency

Agencies must consider the consistency of a proposed action with approved state and local plans and laws. In accordance with Executive Order 12372, this document has been prepared with input from the cooperating, responsible, and trustee agencies. Additionally, Trinity County policies that would affect, or be affected by, any of the alternatives are discussed below and in section 4.2, Land Use. During the public review period, the document will be circulated to the appropriate state and local entities to satisfy review and consultation requirements.

Federal Executive Order 12898 (Environmental Justice)

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies are required to provide opportunities for input in the NEPA process by affected communities and to evaluate significant and adverse effects of proposed federal actions on minority and low-income communities during the preparation of NEPA documents. The NEPA scoping process can be used to solicit information on the concerns of minority and low-income populations. If a proposed federal action will not result in significant adverse impacts on minority and low-income populations, the environmental document must describe how Executive Order 12898 was addressed during the NEPA process. Upon issuance of this draft, the public review process will include a statement from Reclamation that it is soliciting input from the public regarding potential adverse impacts of the Proposed Project on minority and low-income populations.

Executive Order 13007 for Indian Sacred Sites on Federal Land

Executive Order 13007 provides that each federal agency with statutory or administrative responsibility for management of federal lands shall, to the extent practicable and as permitted by law, accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and shall avoid adversely affecting the physical integrity of such sacred sites. The potential for any such sites to occur within the boundary established for the project is discussed in Section 4.10. The preliminary findings indicate the Proposed Project will not have an adverse effect on Indian Sacred Sites on federal land.

Federal Executive Order 13112 (Invasive Species)

Executive Order 13112 requires federal agencies to use relevant programs and authorities to:

- prevent the introduction of invasive species;
- detect and control populations in a cost-effective and environmentally sound manner;
- provide for restoration of native species;
- promote public education on invasive species; and
- not authorize, fund, or carry out actions to cause or promote the spread or introduction of invasive species.

Preventive measures incorporating these requirements will be considered during the environmental and restoration phases of the project.

Federal Executive Order 13443 (Hunting Heritage and Wildlife Conservation)

Executive Order 13443 requires federal agencies with relevant programs and authorities related to public land management, outdoor recreation, and wildlife management to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitats. Specifically, federal agencies shall, consistent with agency missions:

- evaluate and/or implement agency actions that expand and enhance hunting opportunities for the public;
- consider the economic and recreational values of hunting in agency actions, as appropriate;
- manage wildlife and habitat on public lands in a manner that expands and enhances hunting opportunities;
- work collaboratively with state governments to manage and conserve game species consistent with state authorities;
- establish short and long term goals, in cooperation with state and tribal governments, to foster healthy and productive populations of game species;
- ensure that agency plans and actions consider programs and recommendations for comprehensive planning efforts for big game and upland game birds; and

- seek the advice of state and tribal fish and wildlife agencies with respect to the foregoing federal activities.

3.2.5 California Department of Fish and Game

California Native Plant Protection Act

The Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered, as defined by the CDFG. Project impacts to these species are not considered significant unless the species are known to have a high potential to occur in the area of disturbance associated with construction of the project.

Birds of Prey

Under Section 3503.5 of the California Fish and Game Code, it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by this code or any regulation adopted pursuant thereto.

Migratory Birds

The State Fish and Game Code Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. Under Fish and Game Code Section 3513, the CDFG may consider impacts similar to those described above under the MBTA as a significant impact.

3.2.6 California Wild and Scenic Rivers Act

Patterned after the federal WSRA, the California WSRA was enacted in 1972 to preserve those rivers within the state designated as having extraordinary scenic, recreation, fishery, or wildlife values. Under this act, the Klamath River and its tributaries, including the mainstem Trinity River, are subject to similar criteria and definitions of purpose defined by the federal WSRA. However, while the federal WSRA applies to public lands located within approximately 0.25 mile on either side of a river's channel and requires development and implementation of a river protection management plan, the state WSRA provides protection only to the first line of permanent riparian vegetation and does not require development of a management plan.

Under the California WSRA, the Trinity River is designated as "recreational" from 100 yards below Lewiston Dam to the confluence with Cedar Flat Creek (California Department of Transportation 2007). This designated segment extends well below the reach influenced by the TRD. The California Public Resources Code (5093.53[b]) defines "scenic rivers" as being "those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads." "Recreational rivers" are defined in the California

Public Resources Code (5093.53[c]) as being "those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

Public Resources Code section 5093.61 provides: "All departments and agencies of the state shall exercise their powers granted under any provision of law in a manner that protects the free-flowing state of each component of the system and the extraordinary values for which each component was included in the system." Any state agency permitting a TRRP measure must include a finding that the project will not adversely affect the values for which the river was listed. Consultation with the Resources Agency is required only for the construction of a dam, reservoir, diversion, or other water impoundment facility. (Public Resources Code, section 5093.56.) Even though the TRRP does not contemplate impoundment facilities, the Regional Water Board intends to contact the Resources Agency before including any findings in its project approval.

3.2.7 California Air Resources Board

The California Clean Air Act (CCAA) establishes regulations to protect the public from exposure to airborne pollutants that are known to be hazardous to human health. The California Environmental Protection Agency Air Resources Board is responsible for setting state air quality standards, which are monitored and enforced through local air quality districts. The CCAA mandates the identification of areas not meeting ambient air quality standards and require the preparation of air quality plans to attain the standards.

The North Coast Unified Air Quality Management District (NCUAQMD) establishes policies, regulations, and permit procedures for Humboldt, Del Norte, and Trinity counties.

3.2.8 Hazardous Waste and Hazardous Materials

Several federal and state laws govern hazardous materials and hazardous waste. Under the CalEPA, the Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California as required by the federal Resource Conservation and Recovery Act (RCRA). The law imposes a "cradle to grave" regulatory system for handling hazardous wastes in a manner that protects human health and the environment.

Several federal and state laws govern the consumption of potentially hazardous or toxic materials. In the project area, fish could contain toxic levels of methylmercury. Human health water quality criteria are numeric values for pollutant concentrations in ambient waters and edible tissues that the EPA established to protect human health. Because consumption of contaminated fish tissue is the primary route of human exposure to methylmercury, the EPA expresses this water quality criterion as a fish tissue value (0.3 milligram methylmercury/kilogram fish (ppm) wet weight). The Food and Drug Administration (FDA) is also responsible for establishing safe consumption levels of food products and issues consumption advisories. In 2003, the FDA revised its fish consumption advisory to equal the EPA standard. The California Office of Environmental Health Hazard Assessment (OEHHA) is the state agency responsible

for issuing state health advisories associated with the consumption of materials that could be hazardous to human health.

3.2.9 Trinity County General Plan

The Trinity County General Plan (Trinity County 2003) contains goals, objectives, and policies designed to guide the future physical development of the county based on current conditions. The General Plan, which applies to the entire county, includes community plans for Lewiston (Trinity County 1986), Douglas City (Trinity County 1987a), and Junction City (Trinity County 1987b). Trinity County General Plan goals, objectives, and policies are discussed in section 4.2, Land Use, as applicable.

3.3 Lead and Participating Agencies

As stated previously, Part 2 of this document incorporates the Master EIR by reference in its entirety. As an integrated, multi-purpose document, it is responsive to the efforts of the lead, responsible, and cooperating agencies to ensure that it address the 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.

The Regional Water Board is the CEQA lead agency for the Master EIR and the EIR portion of this EA/EIR; Reclamation is the NEPA lead agency for the EA portion of the EA/EIR. The cooperating agencies involved with the preparation of this document are BLM, STNF, HVT, YT, and the TCRCD. The primary responsible and trustee agencies are USACE, USFWS, NMFS, DWR, CDFG, the Regional Water Board, Caltrans, and Trinity County.

3.4 Project Scoping

Section 1.7 of this document provides a summary of the public scoping process that has been completed to date. While no new significant issues emerged during the scoping process, it did affirm that the issues addressed programmatically in the Master EIR and more specifically in the EA/EIR are germane to the Proposed Project. An outcome of the scoping process was expansion of the role of the HVT and YT as cooperating agencies under NEPA.

3.4.1 List of Agencies and Organizations Contacted

Since November 2007, the TRRP has hosted a number of meetings that ultimately resulted in the development of the Proposed Project and Alternative 1 as described in Chapter 2. In addition to in-house design provided by TRRP staff, the HVT and YT are represented on the interagency design team for the Remaining Phase 1 sites.

During the fall, 2007, an initial project-planning meeting was held at the TRRP office in Weaverville, California, to discuss the nature of the Proposed Project with technical staff representing the TMC.

The Regional Water Board, as the CEQA lead agency, submitted a Notice of Preparation (NOP) to the State of California, Governor's Office of Planning and Research, State Clearinghouse for the Proposed Project on March 26, 2008. Upon receipt of the NOP, the State Clearinghouse assigned the number SCH# 2008032110 for tracking purposes.

Following is a list of agencies and organizations that were consulted during the preparation of this document:

- California Air Resources Board
- California Department of Fish and Game
- California Department of Transportation
- California Division of Mines and Geology
- California Highway Patrol
- California Native American Heritage Commission
- California State Lands Commission
- California Resources Agency
- California Water Quality Control Board, North Coast Region
- National Marine Fisheries Service (Arcata)
- Trinity County Building and Development Services, Environmental Health Division
- Trinity County General Services Department
- Trinity County Transportation Department
- Trinity County Sheriff's Office
- U.S. Army Corps of Engineers (San Francisco District – Eureka Field Office)
- U.S. Department of Agriculture, Forest Service (Shasta-Trinity National Forest)
- U.S. Department of Transportation, U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Department of Interior, Fish and Wildlife Service (Arcata Field Office)
- U.S. Department of Interior, Bureau of Land Management

CHAPTER 4

Environmental Setting and Environmental Impacts–Remaining Phase 1 and Phase 2 Sites

SECTION 4.1

Introduction to the Analysis

Chapter 4

Environmental Setting and Environmental Impacts– Remaining Phase 1 and Phase 2 Sites

4.1 Introduction to the Analysis

As discussed in Chapter 1, this part of this document is a Master EIR (CEQA Guidelines Section 15175 et seq.), which, among other purposes, is intended to form the basis for later decision making. Accordingly, the impact assessment in this part is conducted at a programmatic level. Site-specific CEQA/NEPA analyses will be required in the future to evaluate and document individual rehabilitation projects proposed for implementation. Those project-level analyses may involve more detailed descriptions of specific resources that could be affected by the activities described in Chapter 2. The project-level impact analysis for the Remaining Phase 1 sites is provided in Part 2 of this document.

This chapter presents an analysis of the potential environmental impacts associated with implementing the proposed activities at the Remaining Phase 1 and Phase 2 sites. The analyses are presented by environmental resource area. Chapter 3, Regulatory Setting, provides the context with respect to federal, state, and local acts, regulations, and policies. As described further below, the analysis for each resource area includes discussions of the existing environmental setting, applicable significance criteria, potential environmental impacts, and mitigation measures. The following resource areas are addressed in this chapter:

- land use
- geology, fluvial geomorphology, minerals, and soils
- water resources
- water quality
- fishery resources
- vegetation, wildlife, and wetlands
- recreation
- socioeconomics, population, and housing
- cultural resources
- air quality
- aesthetics
- hazards and hazardous materials
- noise
- public services and utilities
- transportation/traffic circulation

This chapter focuses on those resources identified pursuant to CEQA. Two additional issue areas specific to NEPA, Tribal Trust and Environmental Justice, are analyzed in Chapter 7 of this document.

4.1.1 Environmental Setting

The setting sections for each resource area describe the existing regional and local conditions using the most current information available. Under CEQA, the environmental setting is intended to mean the environmental conditions as they exist at the time when the Notice of Preparation was issued. The information in these sections is used as the environmental baseline for analyzing the significance of potential effects of the Proposed Project and the significance of the effects of project alternatives with respect to each specific resource area (CEQA Guidelines, Section 15125 (a)). Consistent with the intended uses of a Master EIR, the descriptions of potentially affected resources in this chapter take a large-scale, region-wide view of existing environmental conditions. To the extent possible, the chapter also provides information useful in characterizing the resources associated with the Remaining Phase 1 and Phase 2 sites.

4.1.2 Environmental Impacts

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. Effects analyzed under CEQA must be related to a physical change.

The impacts of the 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 under the Proposed Project and alternatives. Consistent with the intended functions and uses of a Master EIR, these analyses provide a basis for the tiering of subsequent site-specific analyses, including the assessment of the potential impacts associated with the proposed rehabilitation activities for the Remaining Phase 1 sites as appropriate. Part 2 of this document, specifically Chapter 7, provides an expanded discussion of the resource impacts that could occur at the Remaining Phase 1 sites, beyond the discussion provided in Chapter 4.

The following subsections are also presented in the Environmental Impacts section for each resource area:

Methodology

This subsection identifies the methods used to analyze impacts, as well as the key assumptions used in the analysis process. Sections that incorporate quantitative assessments reference complementary technical appendices, as appropriate. Key assumptions used in qualitative analyses are described for those sections that do not rely on quantitative tools.

Significance Criteria

This subsection presents the criteria and thresholds used to identify potentially significant effects on the environment, in accordance with California Public Resources Code (PRC) Section 21082.2 and CEQA

Guidelines Sections 15064 and 15065. "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 and are therefore not discussed in detail in the document (PRC Section 21100 and CEQA Guidelines Section 15128).

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 (i.e., Land Use, Fishery Resources, etc.). Included in this summary table are the various levels of significance (i.e., no impact, less than significant, significant) for the alternatives associated with the proposed project, including the No-Project Alternative. The tables also indicate what the level of significance would be after mitigation is implemented.

Impacts

At the end of each impact statement heading, the impact significance determination (i.e., no impact, less than significant, significant) is provided for each alternative evaluated. Following the impact statement, a detailed impact analysis is provided. In instances where the effects of one alternative are similar to another alternative, redundant impact analysis is avoided and a simple statement is made to the effect that the impacts of the two alternatives are similar. An example of the impact analysis structure is provided below:

Impact 4.3-2: Construction activities associated with the project could potentially result in increased erosion and short-term sedimentation of the Trinity River. ***No impact for No-Project Alternative; significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative…

Proposed Project

Construction activities associated with the…

Alternative 1

Erosion and short-term sedimentation associated with Alternative 1 are similar to those of the Proposed Project…

Mitigation Measures

Mitigation measures that would reduce significant impacts associated with each of the alternatives to less-than-significant levels are provided after each impact discussion. In those instances where no feasible mitigation can be identified, such impacts are identified as significant and unavoidable. An alphanumeric coding system is used to present each mitigation measure. For example, Mitigation Measure 4.3-2a would correspond to the first mitigation measure for the second impact listed in the discussion of impacts

in Chapter 4.3. Following the mitigation measure(s) is a subheading entitled "Significance After Mitigation" that identifies the level of significance following implementation of the prescribed mitigation measure(s). In those instances where no mitigation measures are proposed because the impact was not significant, a "Not Applicable" statement follows this subheading. An example of the mitigation measures structure is provided below.

> **Mitigation Measures**
>
> ***No-Project Alternative***
>
> Since no significant impact was identified, no mitigation is required.
>
> **Significance after Mitigation**
>
> Not applicable
>
> ***Proposed Project***
>
> **4.3-2a** Reclamation shall clearly identify all ...
>
> ***Alternative 1***
>
> **4.3-2a** Reclamation shall clearly identify all ...
>
> **Significance after Mitigation**
>
> Less than significant…

4.1.3 Mitigation and Monitoring Program

California Public Resources Code section 21081.6(a), subdivision (a), however, requires lead agencies under CEQA to "adopt a reporting and mitigation monitoring program… in order to mitigate or avoid significant effects on the environment."

Throughout this Master EIR, mitigation measures are clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. In addition, Chapter 2 includes a number of design elements and construction criteria that are incorporated into the project description for both action alternatives. Relevant information described in Chapter 2 will also be included as environmental commitments in conjunction with any mitigation measures adopted by the Regional Water Board as conditions of project approval. These conditions of project approval will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The Draft MMRP is included as Appendix E, and the Final MMRP will be included as an appendix to the Final Master EIR. 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 (*CEQA Guidelines*, Section 15097, subd. (d)).

SECTION 4.2

Land Use

4.2 Land Use

This section describes land uses known to occur in the Trinity River basin in proximity to the proposed Remaining Phase 1 and Phase 2 sites along the Trinity River. It also evaluates potential impacts to land uses from implementation of the Proposed Project.

4.2.1 Environmental Setting

Regional Setting

Existing Land Uses

The Trinity River basin comprises the majority of Trinity County and the easternmost portion of Humboldt County. The terrain is predominantly mountainous with numerous lakes and rivers. The basin has little available farming area. Two scenic byways cross Trinity County, SR 299 and SR 3.

The largest town in the region is Weaverville; the next largest towns are Hoopa, Hayfork, and Lewiston. Most of the Hoopa Valley Indian Reservation is located in the basin. Land use in the basin is highly influenced by sizable amounts of public, Tribal, and private forest lands, much of which is used for timber production or other natural resource-related uses. Private land use adjacent to the Trinity River is generally limited to scattered residential and commercial development along SR 299, which is the primary travel corridor through Trinity County, connecting the Central Valley to the east with the coastal communities of Humboldt County.

Figure 4.2-1 illustrates the land ownership patterns in the Trinity River basin. Approximately 75 percent of the land in Trinity County (1,543,066 of the county's 2,052,980 acres) is under federal jurisdiction (Center for Economic Development 2007). The majority of federal lands are managed by the USFS (1,463,870 acres). Other federal land holdings are managed by BLM (78,928 acres) and Reclamation (268 acres).

With a population totaling approximately 15,000, the Trinity River basin is very lightly populated. Residential, commercial, and industrial development tends to be concentrated on relatively flat areas near the Trinity River or its tributaries, as typified by the population centers of Weaverville, Hayfork, Lewiston, Willow Creek, and Hoopa. Collectively, these communities house two-thirds of the basin's population, with the majority residing in Trinity County, which has a population of approximately 14,024 (Center for Economic Development 2007).

The development potential of most of the land in the basin is restricted by topography, limited private land ownership, and Timber Production land use zoning, which applies to most private land and allows only limited residential development. Both Trinity County's General Plan (Trinity County 2003) and the Hoopa Valley Indian Tribe's planning policies steer development toward previously developed areas and discourage development on resource lands.

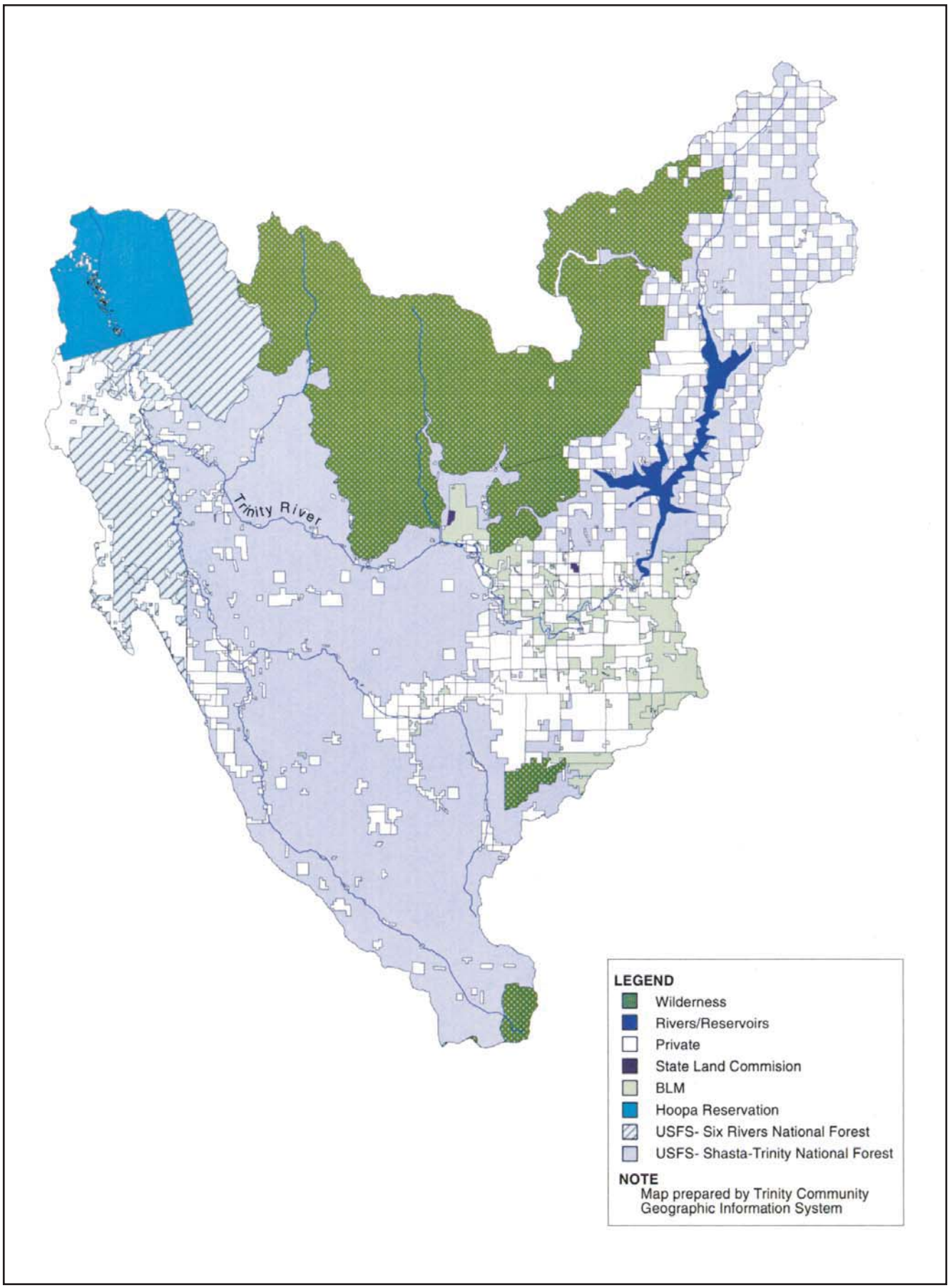


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Figure 4.2-1
Trinity River Basin Land Ownership

Small communities such as Lewiston, Douglas City, and Junction City are situated adjacent to the Trinity River in areas where terrain is relatively gentle. Development in these rural communities is primarily residential, typified by scattered single-family residences and mobile homes. Much of this residential development has encroached on the river's floodplain and the floodplains of some of its tributaries. Some mineral resource development (e.g., gold mining, commercial aggregate) also occurs along the river corridor.

Regional Land Use Planning

BLM's Redding Field Office, the Shasta-Trinity National Forest, Six Rivers National Forest, Reclamation, CDFG, and the California Department of Water Resources (DWR) manage public lands in the Trinity River basin. Public lands in the basin are managed for multiple uses in conformance with specific agency guidance documents. BLM lands are managed in accordance with BLM's Redding Resource Management Plan (RMP), and USFS lands are managed in accordance with the Shasta-Trinity National Forest Land and Resource Management Plan (LRMP) and the Six Rivers National Forest LRMP. These plans discuss the general condition of natural resources in the plan area and prescribe appropriate land use management for lands within the plan jurisdiction (see Section 4.2.2). Figure 4.2-1 illustrates the location of lands managed by these public agencies in the Trinity River basin. The following land use types are applied to STNF and BLM federal lands located in the Proposed Project area.

Trinity and Humboldt counties are responsible for land use planning for private lands in the Trinity River basin. The Land Use Elements of the county general plans discuss general land uses that exist within the counties and define land use types, called general plan land use designations, which are applied to private lands (Table 4.2-1) (Humboldt County 1984; Trinity County 2003). County general plan land use designations in the Proposed Project area are presented below under Local Setting.

The Hoopa Valley Tribe is responsible for land use planning for lands located in the Hoopa Valley Reservation. Like the county general plans, the Hoopa Valley General Plan discusses land uses that exist within the reservation and defines land use types (i.e., land use designations) that apply.

Local Setting

The project area is located in the Trinity River basin near the communities of Lewiston, Douglas City, Junction City, and Helena, California. Lewiston is located 35 miles west of Redding and 15 miles east of Weaverville, California, and has a population of approximately 1,300 people (U.S. Census Bureau 2000). Douglas City, near the junction of SR 3 and SR 299 approximately 6 miles south of Weaverville, has an estimated population of 714. Junction City and Helena are located on SR 299 approximately 9 and 15 miles west of Weaverville, respectively. Junction City has an estimated population of 700, and Helena is sparsely populated. Weaverville is located 45 miles west of Redding on SR 299 adjacent to Weaver Creek, a tributary to the Trinity River. It is the largest community in Trinity County with a population of 3,554 in 2000 (U.S. Census Bureau 2005, 2008).

Residential and recreational development is located along the river, along with some agricultural and commercial development. A number of commercial and public recreational developments are located in close proximity to the Remaining Phase 1 and Phase 2 sites.

Existing Land Uses

Existing land uses in and adjacent to the rehabilitation sites are similar. These lands typically support rural residential, recreation, or resource development, and some commercial development upslope from the river. SR 299 parallels the Trinity River in the general vicinity of Douglas City and Junction City, and provides direct access to a number of Remaining Phase 1 and Phase 2 sites.

Historically, gold mining provided the impetus for exploration and development of the various natural resources in the project's general vicinity. While mineral production continues along the Trinity River and its tributaries, the local economy has shifted away from the mining and forest products industries to a recreation and tourism base. Although many of the lands that are adjacent to and in the general vicinity of the Remaining Phase 1 and Phase 2 sites are privately owned, the river is a public waterway and is commonly used for rafting, kayaking, tubing, and fishing.

Local Land Use Planning

Trinity County General Plan

Lands in the project area are located in Trinity County. The Trinity County General Plan applies to privately owned lands in the project area; these lands fall under several of the county's land use designations. General Plan land use designations in the project area include Community Development, Commercial, Resource Lands, Open Space, Rural Residential and Village. The General Plan definitions for each land use designation are listed in Table 4.2-1.

Table 4.2-1. General Plan Land Use Designations within the Remaining Phase 1 and Phase 2 Project Sites

Designation	Definition
Community Development	Community Development identifies those areas in Trinity County that can best be described as viable communities. Special efforts are to be made to positively encourage new development to locate in Community Development areas.
Commercial	Commercial areas are designated within general communities and are intended to indicate the desirable location of various commercial developments. Commercial developments may include community business district, highway commercial, and recreation commercial.
Resource Lands	Resource Lands are those areas designated for producing a variety of natural resources that occur within Trinity County. Natural resources include timber production, mineral production, and important grazing areas.
Open Space	The Open Spaces designation indicates "natural areas" to be protected for scenic, wildlife habitat, and watershed values. These are generally areas of important natural processes and may include unstable areas, floodplains, and other natural hazard areas.

Table 4.2-1. General Plan Land Use Designations within the Remaining Phase 1 and Phase 2 Project Sites

Designation	Definition
Rural Residential	The Rural Residential designation describes areas of rural residential development. Minimal county services are provided and, in general, are undesirable. This designation also provides for small home businesses and small-scale agriculture, subject to controls to prevent nuisances.
Village	Village designates areas intended to contain a wide variety of land uses to serve the needs of the local community.

Source: Trinity County General Plan (2003)

The Trinity County General Plan includes five community plans that provide additional land-use planning guidance (Figure 4.2-2). The project area lies within three of the community plan areas, the Lewiston, Douglas City, and Junction City community plan areas. Community plans typically identify neighborhoods as a way to describe current conditions and guide future development criteria. The following discussion provides information about the relevant community plans and neighborhoods in the Proposed Project area.

Lewiston Community Plan

The Lewiston Community Plan (Trinity County 1986) covers approximately 16 square miles (10,227 acres) centered around the Trinity River from Lewiston Lake to slightly downstream of Grass Valley Creek. There are approximately 7.9 miles of river frontage in the rural community of Lewiston; private lands account for 39 percent of lands bordering the river.

Neighborhoods that are adjacent to the Trinity River include Rush Creek Road, the Community Core, the Historic District, Goose Ranch Road, Salt Flat, Old Lewiston Road, and Bucktail Subdivision. The variety of land uses along the river in Lewiston include commercial, residential, timber resource, agricultural, and open space. These occur at varying densities, which generally reflect available public services and environmental constraints. There is a trend in Lewiston to subdivide parcels, which has resulted in the creation of smaller lots and increased densities. This has led to a slight increase in residential land uses in the Lewiston Community Plan area.

Douglas City Community Plan

The Douglas City Community Plan (Trinity County 1987a) 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. There are approximately 32.2 miles of river frontage in the rural community of Douglas City; private lands account for 46 percent of the lands bordering the river.

Neighborhoods that are adjacent to the Trinity River include Poker Bar, Steel Bridge Road, Indian Creek, Community Core, and Steiner Flat. Land uses along the river in Douglas City 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.

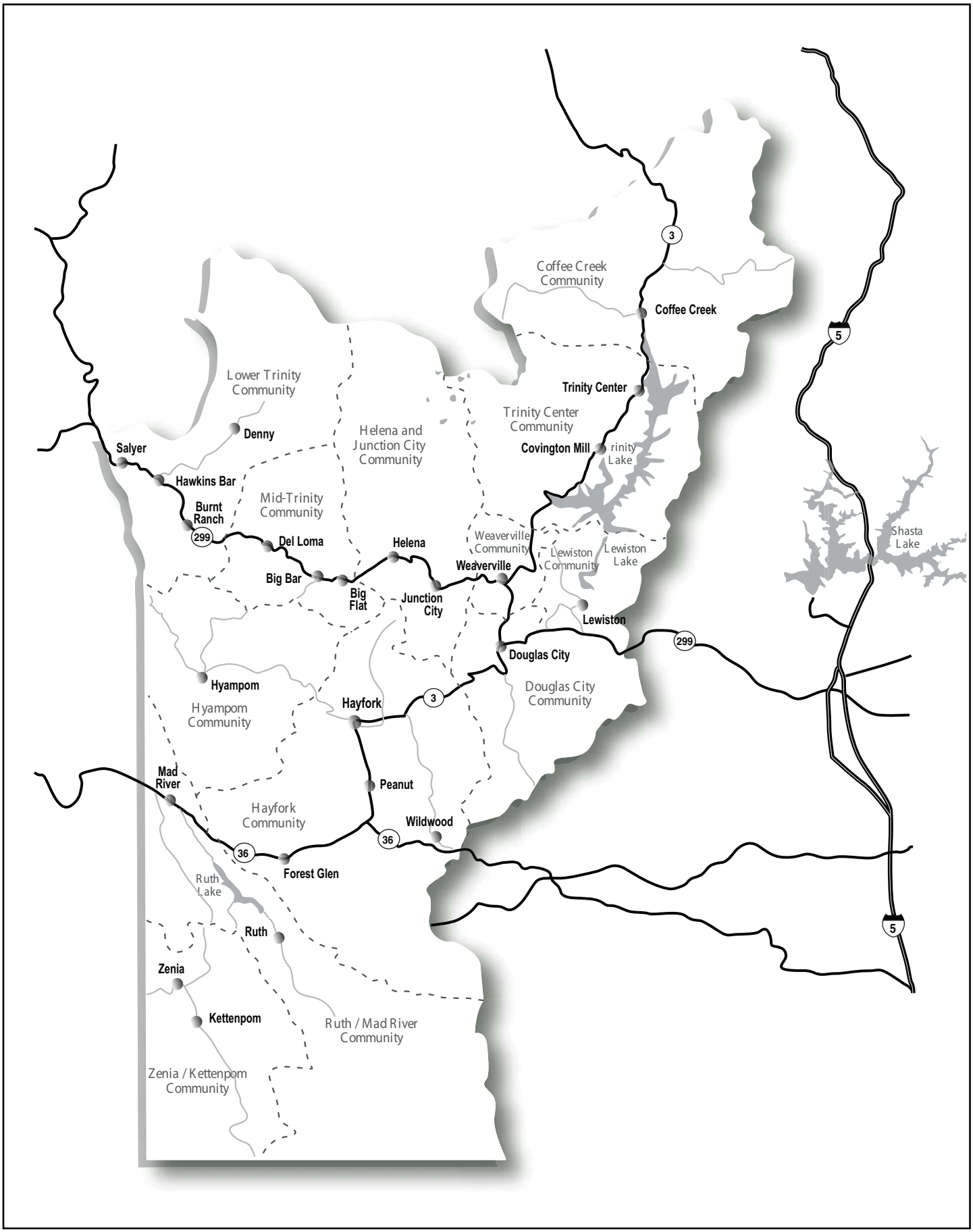

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Figure 4.2-2
Community Planning Area Boundaries

Junction City Community Plan

The Junction City Community Plan (Trinity County 1987b) covers approximately 42 square miles (27,000 acres) centered around the Trinity River from Maxwell Creek to Helena. There are approximately 16.5 miles of river frontage in the rural community of Junction City; private lands account for 36 percent of these lands.

Neighborhoods that are adjacent to the river include Dutch Creek Road, Sky Ranch Road, the Community Core, and Red Hill Road. Land uses along the river in Junction City vary by neighborhood and include resource, agricultural, residential, commercial, village, and open space. These land uses occur at varying densities, which range from 2.5 to 160 acres.

Trinity County Zoning

The Trinity County Zoning Ordinance implements land use goals, objectives, and policies of the General Plan. The Zoning Ordinance establishes land use districts, called zoning districts, to provide specific development requirements and restrictions for land uses in the county. Zoning districts must be consistent with the General Plan land use designations. For example, a parcel that has a Commercial General Plan designation must have some type of commercial zoning district (or a type of zoning district that is deemed compatible with commercial uses). Table 4.2-2 describes land use zoning districts that apply to the project area.

Table 4.2-2. Land Use Zoning Districts for the Rehabilitation Sites

Zones	Description
Agriculture (Ag)	This zoning allows for all agricultural uses; however, some uses require a use permit (e.g., animal feed lots, agricultural processing plants).
Agricultural Forest (AF)	Agricultural Forest districts predate the Timber Production Zone classification, and are intended for the same purpose; land management for the production and harvest of trees or other natural resources.
Timberland Production (TPZ)	Timberland Production is designated on lands suitable for timber production and harvest. This zoning provides property tax benefits by allowing the property value to be based on its use for growing and harvesting timber and compatible uses; it requires preparation of a timber management plan.
Open Space (OS)	The Open Space Zoning District is intended to protect significant or critical wildlife habitat areas or areas that should not be developed due to public health and safety reasons.
Flood Hazard (FH)	Established by the County Floodplain Ordinance (315-698) as an overlay to identify flood hazard areas within Trinity County, the Flood Hazard Zoning District includes areas designated as: (1) Regulatory Floodway or Zone AE on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM); (2) areas identified as Zone A along the Trinity River or Coffee Creek; (3) along streams in accordance with the Trinity County Subdivision Ordinance; or (4) areas identified as 100-year floodplain in a use permit condition or approved flood study.

Table 4.2-2. Land Use Zoning Districts for the Rehabilitation Sites

Zones	Description
Scenic Conservation (SC)	Scenic Conservation is an overlay zone used to identify those areas of unusual scenic qualities that are unique to Trinity County, and to provide the necessary degree of control on the placement of structures, development of roads, and vegetative management within those areas. Areas lying within the 100-year floodplain of the Trinity River are designated as SC.
Commercial (C-1),(C-2),(HC)	Commercial zones are designated in community development areas and are intended to indicate the desirable location of various commercial developments, including retail business, commercial recreational business, general commercial, and heavy commercial activities. A highway commercial designation is intended for highway-frontage, tourist-oriented business development and for more general commercial uses such as wholesale storage, lumber yard, bulk plants, etc., which require more space than is available in retail commercial and general commercial districts.
Rural Residential (RR-1), (RR-2.5), (RR-5)	Rural Residential allows for limited residential development in outlying areas of the county where minimal impacts are desirable and the overall character of the landscape, as well as potential for open space, recreation, or resource production, is to be preserved. These designations have a minimum parcel size of 1, 2.5, and 5 acres respectively.

Source: Trinity County General Plan (2003)

Table 4.2-2 is an excerpt from the General Plan Land Use Element. It provides a cross-reference of zoning districts that are allowed in each General Plan land use designation (as described in Tables 4.2-1 and 4.2-2). The minimum size required for inclusion of a parcel in a zoning district is also provided in Table 4.2-3.

Table 4.2-3. General Plan Land Use Designations and Allowable Zoning Districts for the Project Sites

Land Use Zoning Districts	General Plan Land Use Designations						Land Use Zoning District Min. Parcel Size (acres)
	Community Develop-ment	Commercial	Resource	Open Space	Rural Residential	Village	
Agriculture	x		x	x			10
Agricultural forest	x		x	x			10
Timber production zone			x	x			20 - 40
Open space	x		x	x			Not specified
Flood hazard				x			Not applicable
Scenic conservation				x			10

Table 4.2-3. General Plan Land Use Designations and Allowable Zoning Districts for the Project Sites

Land Use Zoning Districts	General Plan Land Use Designations						Land Use Zoning District Min. Parcel Size (acres)
	Community Development	Commercial	Resource	Open Space	Rural Residential	Village	
C-1 retail commercial		x					0.2
C-2 general commercial	x	x					0.2
Highway commercial	x	x					0.2
Rural residential – 1 (1 home/acre)	x				x		1
Rural residential – 2.5 (1 home/2.5 acres)	x				x		2.5
Rural residential – 5 (1 home/5 acres)	x				x		5
Land use designation minimum parcel size (acres)	0.05	0.2	20	N/A	1	0.05	

Source: Trinity County General Plan (2003)

Land Uses Associated with the Rehabilitation Sites

Rehabilitation Sites in the Lewiston Community Plan Area

Five rehabilitation sites are proposed for the Lewiston Community Plan area. Two sites (SM and UR) would be located between the Rush Creek Road and Goose Ranch Road neighborhoods; one site (LRC) would be located between the Goose Ranch Road and Salt Flat neighborhoods; and two sites (LR and THG) would be located in the Old Lewiston Road neighborhood. The LR site would also abut the Bucktail Subdivision at the site's eastern edge.

Land use designations in these neighborhoods are a mixture of Rural Residential, Resource, and Open Space. In addition, commercial land use is present in the Rush Creek neighborhood, and agricultural land uses are present in the Old Lewiston Road neighborhood (Trinity County 1986). Public and private fishing and river access areas occur within the neighborhoods and throughout the rehabilitation sites.

The locations of the Remaining Phase 1 and Phase 2 sites (within and adjacent to the Trinity River) place a significant portion of the sites in the 100-year floodplain as designated by the Federal Emergency Management Agency (FEMA) (see Figure 4.4-2 in section 4.4, Water Resources). The Remaining Phase 1 and Phase 2 sites are located in Zone X500,[1] Zone X[2], and Zone A[3], as designated by FEMA. In

[1] Zone X500 is an area between the 100- and 500-year flood zone.

addition, all lands located in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones.

Portions of some sites in the Lewiston Community Plan area are located on federal and state lands. These include lands managed by Reclamation, BLM, DWR, and CDFG (Figure 4.2-3).

Rehabilitation Sites in the Douglas City Community Plan Area

Twelve rehabilitation sites are proposed for the Douglas City Community Plan area; two of these are Remaining Phase 1 sites, and 10 are Phase 2 sites. Three sites (TLG, PB and CG) would be located in the Poker Bar neighborhood; three sites (LKG, SB, and MG) would be located in the Steel Bridge Road neighborhood; one site (DCY) would be located in the Community Core neighborhood; one site (RC) would be located immediately adjacent to the Community Core; and four sites (SFF, SFC, LSF and LZG) would be located in the Steiner Flat neighborhood.

The neighborhoods in which these sites are located are primarily riverbank communities with Rural Residential, Village, Open Space, and Resource land use designations. Public and private fishing and river access areas occur within the neighborhoods and throughout the rehabilitation sites.

Significant portions of the Remaining Phase 1 and Phase 2 project sites are located in the 100-year floodplain of the Trinity River, as determined by FEMA. The areas in the 100-year floodplain have been designated as Zone A, Zone X, and Zone X500 Flood Hazard Areas (see Figure 4.4-2 in section 4.4, Water Resources). As noted above, all sites in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones.

Some sites in the Douglas City Community Plan area are located on federal lands. These include lands managed by BLM and STNF (Figure 4.2-3).

Rehabilitation Sites in the Junction City Community Plan Area

There are no Remaining Phase 1 sites within the Junction City Community Plan area. Twelve Phase 2 sites are proposed for the Junction City Community Plan area. Two sites (DCK and EB) would be located at the south end of the Dutch Creek Road neighborhood; six sites (SCK, CR and DG, SHC, OG, and SR) would be located between the Dutch Creek Road and Sky Ranch Road neighborhoods; one site (UJC) would be located between the Community Core and Dutch Creek Road neighborhoods; one site (LJC) would be located between the Community Core and the Red Hill Road neighborhoods; and two sites (UCC and WGH) would be located adjacent to the Red Hill Road neighborhood.

Land use designations in these neighborhoods are typical of the community plan area, primarily Rural Residential, Open Space, and Resource designations, with a small area in the Community Core neighborhood designated as Village. The south end of the Dutch Creek Road and Sky Ranch Road

[2] Zone X is an area inundated by 100-year flooding with average depths of less than one foot, or with drainage areas less than one square mile, or areas protected by levees from a 100-year flood event.

[3] Zone A is an area inundated by 100-year flooding for which no BFE has been determined.

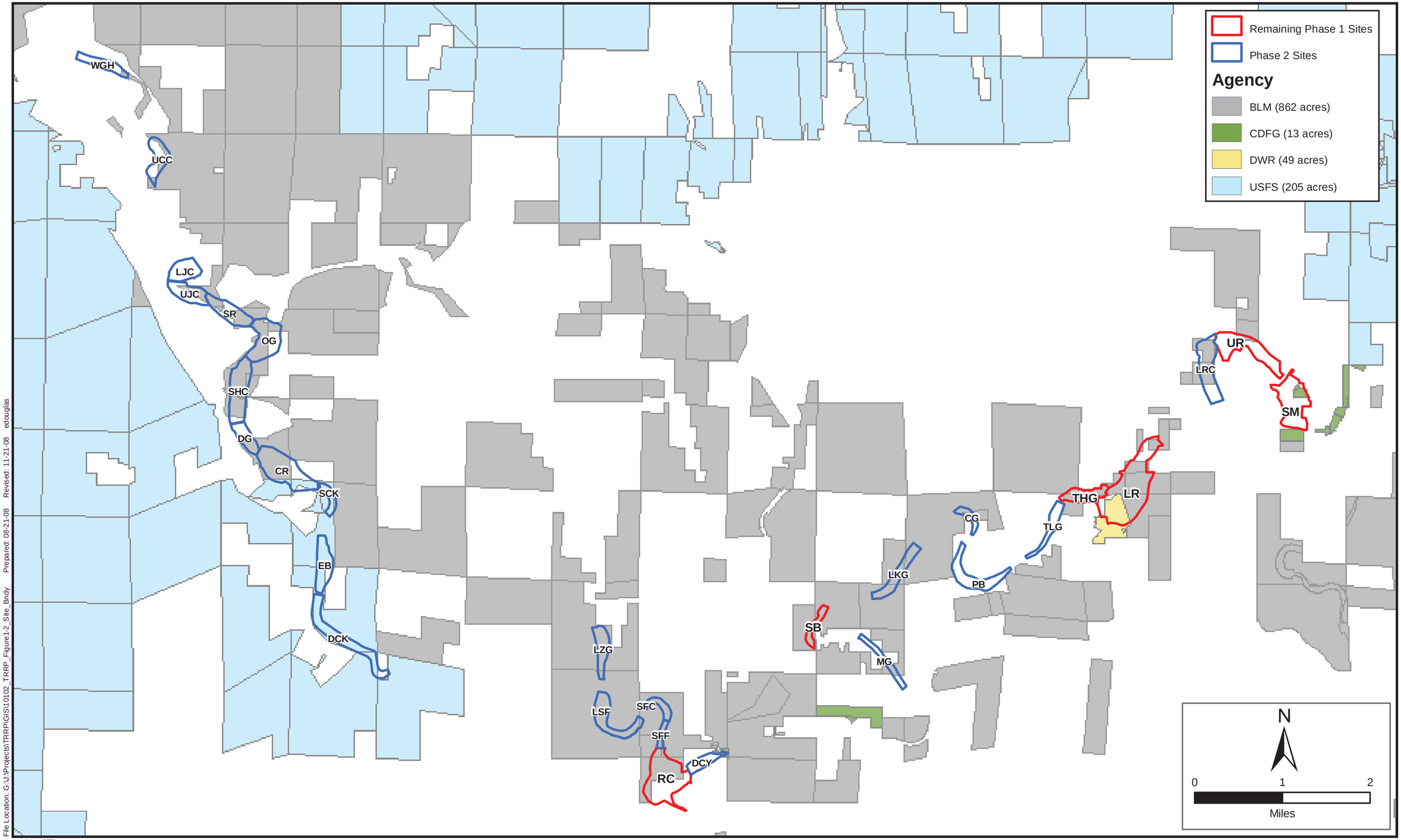

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Figure 4.2-3
TRRP Project Sites – Public Lands – Federal and State Agencies

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neighborhoods are predominantly large Resource parcels between 20 and 40 acres. The north end of these neighborhoods support Rural Residential development with parcels typically ranging from 4 to 15 acres. The majority of parcels in the Red Hill neighborhood fall in the Rural Residential designation. There are several commercial establishments in the Community Core (Trinity County 1987b).

Significant portions of the Phase 2 project sites are located in the 100-year floodplain of the Trinity River as determined by FEMA. The sites in the 100-year floodplain have been designated as Zone A, Zone X, and Zone X500 Flood Hazard Areas. As noted above, all sites in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones.

Portions of some sites in the Junction City Community Plan area are located on federal lands. These include lands managed by BLM and the STNF (Figure 4.2-3).

Proposed Land Uses

In general, parcels within the rehabilitation site boundaries have been subdivided to the fullest extent possible under existing zoning designations; therefore, future rural residential development on the uplands above the river's floodplain would be minimal. Future development is restricted by the proximity of the parcels to the Trinity River; many of these parcels are currently zoned Flood Hazard and Open Space.

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 human exposure to pollutants. The project is not located near a hospital or senior housing. However, portions of the project would be located near elementary schools, adjacent to residential areas, and adjacent to outdoor recreation areas.

Project activities would be located about a half mile from the Lewiston Elementary School, less than a quarter mile from the Douglas City Elementary School, and less than 300 feet from the Junction City Elementary School. Several day use areas along the river would be in or adjacent to rehabilitation sites in Douglas City and Junction City; these sites include SB, DCY, SFF, SFC, LSF, LZG, and the DCK. Campgrounds along the river that would be in or adjacent to rehabilitation sites include the Trinity River Lodge (private), the Douglas City campground, and the Junction City campgrounds. Many residences are located in or adjacent to the project sites in each of the communities. The majority of residences in the Proposed Project area are located upslope and away from the Proposed Project activities; however, some residences are located in close proximity to proposed staging and construction activities.

4.2.2 Relevant Land Use Plans

Federal

Bureau of Land Management Redding Resource Management Plan and Record of Decision (ROD)

BLM's Redding Resource Management Plan (RMP) (U.S. Bureau of Land Management 1993) provides guidance for BLM land use management activities in the project area. Resource Condition Objectives,

Land-Use Allocations, and Management Actions provide specific land use direction. Resource Condition Objectives are the goals established for the decision area and are listed in descending order of priority. Land-Use Allocations prescribe general management categories (e.g., visual resources and recreation opportunity classes), specific limitations to full resource use (e.g., leasable mineral restrictions), or formal designations (e.g., Area of Critical Environmental Concern, wild and scenic river corridor) that are needed to meet the Resource Condition Objectives and/or to comply with federal law. Management actions are implementation measures that ensure that the Resource Condition Objectives are met and that alert the public and BLM to specific follow-up actions associated with specific land-use management alternatives. The following land use and planning directives apply to the Proposed Project.

Resource Condition Objectives

1. Enhance recreation opportunities related to use of the Trinity River, including mineral collection.

2. Maintain scenic quality along the river corridor.

3. Protect and enhance the anadromous fisheries of the Trinity River.

4. Interpret and protect key cultural and natural resources for the public.

5. Maintain the riparian habitat in Class I or Class II [Visual Resource Management] condition.

6. Consolidate and increase, as feasible, public ownership within areas of low intensity or undeveloped land uses that constitute the designated river corridor.

7. Maintain opportunities for the exploration and the production of locatable mineral values outside the protected areas.

8. Provide enhanced access for semi-primitive motorized recreation opportunities and to Native American Indian heritage resources.

9. Maintain the existing scenic quality of BLM-administered lands.

Land Use Allocations

1. Designate [public lands in the management area] as the corridor for this “Recreational” component of the National Wild and Scenic Rivers System.

2. Manage all public lands as Visual Resource Management[4] (VRM) Class II (i.e., retain the existing character of the landscape).

3. Manage all public lands within the corridor as Roaded Natural or Semi-Primitive Motorized.

[4] A two-stage system (inventory and analysis) used by the BLM to minimize the visual impacts of surface-disturbing activities to scenic public lands and to maintain scenic values for the future.

4. Withdraw specific cultural resources from mineral entry. Withdraw anadromous fisheries habitat improvements from mineral entry.

5. Offer mineral material disposals only to enhance riparian vegetation or anadromous fisheries habitat, or when not in conflict with the long-term protection of natural values.

6. Maintain existing Recreation Opportunity Spectrum classes.

7. Mineral material disposals are not allowed within the 100-year floodplain of anadromous fishery streams unless such actions enhance anadromous fisheries habitat.

8. Consolidate and increase public land ownership within the area by acquiring available unimproved lands that adjoin the Trinity River Corridor; protect anadromous fish; provide public access to public lands; protect sensitive species habitat; conserve regionally important cultural resources; provide access to identified Native American heritage resources; or enhance overall efficiency of public land administration.

Management Actions

1. Modify the existing Trinity River Recreation Area Management Plan (U.S. Bureau of Land Management 1983) to reflect the designated corridor of the Trinity River (i.e., a "Recreational" component of the National Wild and Scenic Rivers System).

2. Continue implementation of recreational developments and monitoring prescribed in the existing management plan.

For projects upstream of Helena on the Trinity River, BLM is responsible for ensuring that the scenic values of public lands are considered before allowing uses that may have negative visual impacts. BLM developed a Visual Resource Management system (VRM) to maintain the scenic value of the public lands. Public lands in the Trinity River corridor are managed to meet the following VRM 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 (U.S. Bureau of Land Management 2007).

A Record of Decision (ROD) signed by the Secretaries of Interior and Agriculture in 1994 amended Forest Service and BLM Planning Documents within the range of the Northern Spotted Owl (U.S. Department of Agriculture and U.S. Department of the Interior 1994). A key component of the decision was the implementation of Standards and Guidelines for management of habitat for late-successional species within the range of the northern spotted owl.

In addition to resource objectives and land allocations described in the following paragraphs, BLM's RMP requires compliance with the Aquatic Conservation Strategy (ACS) contained in the ROD. This

strategy contains four components: riparian reserves, key watersheds, watershed analysis, and watershed restoration. The authorization of a project on lands managed under BLM's RMP requires a consistency determination with the RMP and the ACS. The supporting documentation for the ACS consistency determination is provided as Appendix A of this document. The supporting documentation for the RMP consistency determination is provided below.

Table 4.2-4 shows the consistency of the project action(s) with BLM's Redding RMP and ROD (1993).

Table 4.2-4. Consistency of Proposed Action and Alternatives with BLM's Redding Resource Management Plan and the 1993 Record of Decision

Objectives	Assessment of Consistency
1. Enhance recreation opportunities related to use of the Trinity River including mineral collection.	Rehabilitation activities would protect or improve existing recreation opportunities (e.g., fishing and boating access to BLM-managed lands) along the Trinity River.
2. Maintain scenic quality along the river corridor.	Rehabilitation activities would not add any new, visually detracting features to the river corridor.
3. Protect and enhance the anadromous fisheries of the Trinity River.	Rehabilitation activities would protect and enhance the anadromous fisheries of the Trinity River (see Section 4.6, Fishery Resources).
4. Interpret and protect key cultural and natural resources for the public.	Rehabilitation activities would protect existing cultural and natural resources (see Section 4.7, Vegetation, Wildlife, and Wetlands; and Section 4.10, Cultural Resources).
5. Maintain the riparian habitat in Class I or Class II condition.	The overall goal of the Proposed Project is to rehabilitate the Trinity River, including its fisheries. Riparian habitat removed by Phase 2 and Remaining Phase 1 activities would be replaced with a more diverse and historic assemblage of native plants (see Section 4.7 and Appendix B, Wild and Scenic River Act Section 7 Determination).
6. Consolidate and increase, as feasible, public ownership within areas of low intensity or undeveloped land uses that constitute the designated river corridor.	Rehabilitation activities would not require any changes in land ownership. A large portion of the affected lands are under public ownership.
7. Maintain opportunities for the exploration and the production of locatable mineral values outside the protected areas.	Rehabilitation activities would not interfere with long-term mineral exploration or extraction. However during construction, access for mineral exploration and extraction at specific sites may be limited.

Table 4.2-4. Consistency of Proposed Action and Alternatives with BLM's Redding Resource Management Plan and the 1993 Record of Decision

Objectives	Assessment of Consistency
8. Provide enhanced access for semi-primitive motorized recreation opportunities and to Native American Indian heritage resources.	Rehabilitation activities would be confined primarily to the river channel and riverbanks. Although several access roads would be created within the Phase 2 and Remaining Phase 1 sites, most of these roads would be decommissioned once rehabilitation activities are completed to minimize impacts. Rehabilitation activities would protect existing cultural and natural resources (see Section 4.7, Vegetation, Wildlife, and Wetlands; and Section 4.10, Cultural Resources).
9. Maintain the existing scenic quality of BLM-administered lands.	Rehabilitation activities would not add any new, visually detracting features to the river corridor.

Shasta-Trinity National Forest Land and Resource Management Plan

Land use planning direction for the Shasta-Trinity National Forest (STNF) is guided by national legislation, regional forest directives, and forest-specific management directives found in the STNF Land and Resource Management Plan (LRMP). The STNF LRMP is based on three broad management strategies: preservation, biodiversity, and sustainable development for people. Resources are categorized by type (such as air resources, fisheries, lands, etc.) and assigned management goals, standards, and guidelines.

There are six broad categories of land use that apply to the STNF: Congressionally Reserved Areas, Late Successional Reserves, Administratively Withdrawn Areas, Riparian Reserves, Matrix, and Adaptive Management Areas (U.S. Forest Service 1995). All but Congressionally Reserved Areas are present in the Weaverville/Lewiston Management Area and the Trinity River Management Area of the STNF. The LRMP requires that land uses be managed in accordance with standards and guidelines. Lands designated as Riparian Reserve, for example, have specific management standards and guidelines for air quality, biological diversity, fire and fuels, etc. The following describes the five land use allocations applicable to the Proposed Project and their management prescriptions:

- **Late Successional Reserves:** These have been established to protect and enhance conditions of late-successional and old-growth forest ecosystems and to ensure the support of related species, including the northern spotted owl. The applicable management prescription is:
  - Provide special management for Late Successional Reserves and threatened and endangered species. The management prescription includes special, selected sensitive wildlife species that are primarily dependent on late seral stage conditions.

- **Administratively Withdrawn Areas**: These are identified in the LRMP and include recreation and visual areas, backcountry, and other areas where management emphasis precludes scheduled timber harvesting. The applicable management prescriptions are:
  - *Unroaded Non-Motorized Recreation*: Provide for semi-primitive non-motorized recreation opportunities in unroaded areas outside existing wildernesses while maintaining predominantly natural-appearing areas with only subtle modifications.
  - *Limited Roaded Motorized Recreation*: Provide for semi-primitive motorized recreation opportunities while maintaining predominantly natural-appearing areas with some modifications.
  - *Roaded, High Density Recreation*: Provide areas which are characterized by a substantially modified natural environment.
  - *Special Area Management*: Provide for protection and management of special interest areas (SIAs) and research natural areas (RNAs).
  - *Heritage Resource Management:* The primary theme of this prescription is to protect designated cultural resource values, interpret significant archaeological and historical values for the public and encourage scientific research of these selected properties.
- **Riparian Reserves**: Provide an area along streams, wetlands, ponds, lakes, and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis. The applicable management prescription is:
  - Maintain or enhance riparian areas, wildlife and fisheries habitat, and water quality by emphasizing streamside and wetland management.
- **Matrix**: Includes federal lands outside the categories of designated areas listed above. Matrix lands are where most timber harvest would occur and where standards and guidelines are in place to ensure appropriate conservation of ecosystems as well as provide habitat for rare and lesser known species. The applicable management prescriptions are:
  - *Roaded Recreation*: Provide for an area where there are moderate evidences of the sights and sounds of humans.
  - *Wildlife Habitat Management*: The primary purpose of this prescription is to maintain and enhance big game, small game, upland game bird, and non-game habitat, to provide adequate hunting and viewing opportunities.
- **Adaptive Management Areas**: Manage lands on an ecosystem basis in terms of both technical and social challenges, and in a manner consistent with applicable laws. There are no management prescriptions associated with Adaptive Management Areas.

Standards and Guidelines (LRMP, pp. 4-19 through 4-24)

The LRMP does not specifically identify land use goals. However, the following standards and guidelines that pertain to special uses such as fisheries are relevant to land use and planning. The standards and guidelines were excerpted from the LRMP (U.S. Forest Service 1995).

- Coordinate instream flow needs with the CDFG, counties, and other local agencies to benefit fish habitat.

- Improve the anadromous fishery within the Trinity River and its tributaries. This can be done by evaluating the implementing opportunities for stream habitat improvement, watershed restoration, and biological (stock) enhancement. This will be done in the context of a watershed/ecosystem analysis. These projects will be done in conjunction with the Trinity River Basin Fish and Wildlife Management Program.[5]

- Coordinate rehabilitation and enhancement projects with cooperating agencies involved in the Model Steelhead Stream Demonstration Project Plan and the Trinity River Basin Fish and Wildlife Management Program.

- Identify and treat riparian areas that are in a degraded condition.

- Manage activities and projects to meet adopted Visual Quality Objectives (VQOs) of: (1) preservation; (2) retention; (3) partial retention; (4) modification; or (5) maximum modification. On rare occasions, the adopted VQO may not meet the management objectives (i.e., catastrophic events). Any proposed modification to adopted VQOs must go through the NEPA process and be approved by the Forest Supervisor.

- In the following sensitive travel corridors [along the Trinity Heritage National Scenic Byway within the Weaverville/Lewiston Management Unit] the foreground portions (areas located from 1/4 to 1/2 mile from the road viewer) will be managed primarily to meet the adopted VQO of Partial Retention:

  - Rush Creek Road (County Road 204), and

  - Trinity Dam Boulevard (County Road 105).

- Implement habitat management activities for the winter deer range and the anadromous fishery where opportunities exist.

- Manage developed recreation sites according to designated ROS [Recreation Opportunity Spectrum] classes.

[5] The Trinity River Basin Fish and Wildlife Management Program was superseded by the 2000 Trinity River Mainstem Fisheries Restoration Program ROD and the advent of the TRRP.

- Provide barrier free recreation facilities that are accessible to physically challenged individuals. Emphasize these facilities at urban interface and other developed recreation locations.

- Prepare objectives and prescriptions for managing vegetation in and around developed recreation sites.

- Provide interpretive services to direct visitors to their recreation destinations, to facilitate understanding of resource management activity, and to acquaint them with unique or special features on the STNF and the function of forest ecosystems.

- Continue to improve access to rivers, streams, and lakes for water-oriented recreation activities consistent with the LRMP. Continue to provide access to hunting, fishing, and wildlife viewing areas.

- Promote partnerships with user groups to assist in the operation, maintenance, and development of recreation sites and facilities.

- Encourage the private sector to help provide needed recreation sites, facilities, and services with a development level consistent with the environmental setting and appropriate studies.

Management Guide for the Shasta and Trinity Units of the Whiskeytown-Shasta-Trinity National Recreation Area

The Management Guide for the Whiskeytown-Shasta-Trinity NRA contains management strategies intended to achieve or maintain a desired condition. These strategies take into account opportunities, management recommendations for specific projects, and mitigation measures needed to achieve specific goals. The following strategies related to recreation issues associated with the project area are excerpted from the Management Guide (USDA Forest Service 1996).

Recreation: Land Based (Management Guide pp. IV-7 through IV-8):

- All interpretive signing within the NRA will be coordinated between Recreation and other resource program areas to insure consistency in message and presentation. Applicable recommendations from the NRA Interpretive Plan will be incorporated as opportunities arise.

- Emphasis will be given to maintenance and replacement of directional signs with the NRA.

- Bear management in NRA recreational facilities will include the provision of bear-proof facilities, such as dumpsters and food lockers in high bear concentration areas, an active education/signing program, and coordination with California Department of Fish and Game (CDFG).

- All design opportunities to develop or improve recreation facilities will take into consideration higher development level needs of RV users and accessibility for disabled.

As discussed above, a ROD signed in 1994 by the Secretaries of Interior and Agriculture amended Forest Service and BLM Planning Documents within the range of the northern spotted owl (U.S. Department of Agriculture and U.S. Department of the Interior 1994). In addition to the land allocations described in the preceding paragraphs, the STNF LRMP requires compliance with the ACS contained in the ROD. The authorization of a project on lands managed under the STNF LRMP requires a consistency determination with the ACS contained in the ROD. The supporting documentation for this determination is provided as Appendix A to this document.

U.S. Bureau of Reclamation

The Central Valley Project Improvement Act of 1992 (CVPIA) provides the legal authority for projects that restore the fishery resources of the Trinity River. This act includes language intended to require the federal government to preserve, propagate, protect, restore, and enhance fish, wildlife, and associated habitats within the Trinity River basin. Reclamation's TRRP office in Weaverville is charged with implementation of the 2000 Trinity River Mainstem Fisheries Restoration Program ROD including rehabilitation site design and construction; Reclamation is the proponent for the Proposed Project.

State

California Department of Fish and Game

The CDFG manages several parcels of land along the Trinity River between the Lewiston Bridge and Bucktail Bridge. Because fish and wildlife protection and habitat enhancement are CDFG's primary management responsibilities, and because so many of the recreational opportunities along the Trinity River center on fish and wildlife resources, CDFG manages its lands for fish and wildlife, habitat improvement, and enforcement of the Fish and Game Code and wildlife area restrictions and regulations.

California Department of Water Resources

The DWR manages 90 acres of land along the Trinity River and Grass Valley Creek in Lewiston at the site of the historic Lowden Ranch. In an effort to restore Trinity River fisheries, DWR purchased land at the mouth of Grass Valley Creek, a major sediment contributor, to construct sediment control ponds and to store sediment removed from the ponds. The Hamilton Ranch Management Plan (1994) provides land use guidance for this 90-acre parcel at the mouth of Grass Valley Creek.

Local

Trinity County General Plan

The Trinity County General Plan (Trinity County 2003) contains goals, objectives, and policies designed to guide the future physical development of the county based on current conditions. The General Plan, which applies to the entire county, includes community plans for Lewiston (Trinity County 1986), Douglas City (Trinity County 1987a), and Junction City (Trinity County 1987b).

One way in which the General Plan goals, objectives, and policies are implemented is through land use designations. Specific land use designations dictate the types of land uses that may occur on a specific parcel. The general objectives of these land use designations are shown in Table 4.2-1.

The following goals, objectives, and policies related to land use and planning are applicable to the proposed project; these goals, objectives, and policies were excerpted from relevant elements of the Trinity County General Plan.

Land Use Element

Among the goals, objectives, and policies of the Land Use Element, the following are applicable to the Proposed Project:

to retain the rural character of Trinity County by:

- encouraging uses that fit with the land
- considering the "rights" of the individual when making decisions as well as the "rights" of the community
- seeking information and cooperation from state and federal agencies within Trinity County when considering projects

to strive to conserve those resources of the county that are important to its character and economic well-being by:

- assuring that developments occurring on these lands are compatible with the resources
- strongly supporting the county as "lead agency" or as an integral participant in any state or federal project within the county so that all agencies are made aware of local desires and all plans are coordinated
- utilizing a sound resource-related planning process in decision-making
- protecting not only rare and endangered species, but also required habitat for more plentiful species

to encourage adequate housing and residential space to keep pace with a moderate population growth by:

- avoiding the need for increased public services
- keeping density, and thus demand, as low as possible in the most rural areas
- determining "threshold" densities that require expensive public services

to maintain and enhance a viable economic base for Trinity County by:

- maintaining as many privately owned prime timber, agricultural, mineral, sport and commercial fishery, and animal-producing lands as possible

- encouraging tourism
- implementing the General Plan so that it is applied fairly and consistently and by stabilizing land-use regulations

Safety Element

Among the goals, objectives, and policies of the Safety Element related to land use and planning, the following is applicable to the Proposed Project:

Reduce hazards in Trinity County resulting from floods:

- Reduce loss of life and property by establishing development standards for areas subject to flooding.
- Reduce the potential for the loss of life and property from dam failure inundation.

Reduce the threat to life and property from seismic and geologic hazards:

- Geologic hazards and seismic safety shall be considered in the preparation of environmental documents as required by CEQA.
- The County shall confirm that all construction and grading activities done will not adversely affect the stability of any slope.

Continue to maintain a high standard of air quality in Trinity County:

- Ensure burning projects will not diminish air quality.
- The burning of any material shall comply with burning permits, conditions and/or standards established by the NCUAQMD.

Reduce threats to the public and the environment caused by the use, storage, and transportation of hazardous materials and hazardous waste:

- Ensure proper regulation of transportation and storage
- Ensure adequate cleanup of hazardous materials and hazardous waste.
- Ensure water quality.

Reduce fire hazards in wildland, wildland/urban interface, and developed areas:

- Ensure emergency accessibility to development through proper road construction and signage.

- Reduce potential fire activity through fuels reduction programs.

Open Space and Conservation Elements

Among the goals, objectives, and policies of the Open Space and Conservation Elements related to land use and planning, the following are applicable to the Proposed Project:

Preserve and maintain open space as a means of providing and preserving natural habitat for all species of wildlife:

- Maintain all species of fish and wildlife for their intrinsic and ecological values as well as for their direct benefit to mankind.
- Provide for diversified recreational use of fish and wildlife.
- Any plans to alter the present environment should be considered on the basis of protecting fish and wildlife and their habitat.
- Present land uses which result in siltation and pollution of lakes and streams should be carefully monitored, and if necessary, corrected to assure a clean and productive habitat.
- Encourage development and enhancement of wildlife habitat through careful use of methods such as controlled burning, planting, water development, judicious livestock grazing, and mechanical land manipulation.
- Retain and develop access to public areas very carefully through riding and hiking trails.

Protect the scenic natural resources of Trinity County and preserve areas which are important commercial natural resources for future generations:

- Conserve lands that provide viable natural mineral deposits for potential use.
- Preserve areas of natural scenic beauty as areas of active and passive recreation.
- Provide for a diversified recreational use of fish and wildlife while conserving and preserving their habitat.

Preserve the quantity and quality of the existing water supply in Trinity County and adequately plan for the expansion and retention of valuable water supplies for future generations:

- Disapprove of any developments that may pollute the existing streams and lakes or become a source of silt that washes down into water areas.

Retain the character and natural beauty of Trinity County with the preservation of existing open space and the control of open space:

- Protect stream-banks and lakeshores from undesirable development.

- Define and establish the use of primary floodplain areas as open space.

Conserve, preserve and maintain the habitat for wildlife species, plant life and the environment by:

- planning for mineral production and performance so as to avoid destruction, pollution or degradation of surrounding land, water and air resources. After mineral extraction has been completed, land used for mineral production should be revegetated and restored to its natural condition.

- identifying all geologic and soil areas and developing standards for restricted development of any hazard areas.

To reserve land for recreational facilities, encourage private recreational development and other open uses in categories characteristic and beneficial to the present and future residents of Trinity County without damage to the ecology of the area as well as to meet the tourist needs of the immediate future and the long range future.

- Recreational resources on public and private lands should be protected for the future as these resources are largely irreplaceable natural assets.

- Recreation to serve regional and state-wide residents should be encouraged on public lands in Trinity County.

- Provisions should be made for an adequate number of campsites, overnight camping facilities, scenic turnouts, picnic areas and roadside rests for the projected day visitors in the county.

- Retain the character and natural beauty of Trinity County with the preservation of existing open space and the control of open space by encouraging recreational facilities which will provide open space at all government levels.

Retain and develop access to public areas very carefully through riding and hiking trails (non-motorized).

Recreation development, second home development or extension of urban areas must be guided in several directions. It is necessary to:

- protect the physical environment, which now means that we must return it to its natural state insofar as possible and practical.

- ensure the most effective and beneficial use of land and its natural resources.

Retain the character and natural beauty of Trinity County by sound conservation practices.

Encourage recreational facilities which will provide open space at all government levels.

Conserve, preserve, and maintain the scenic beauty of Trinity County by:

- acquiring scenic easements for conservation of Trinity County's scenic beauty.
- controlling encroachment of cut and fill slopes into scenic easement areas or corridors along scenic highways, whether these highways are State or County.

Housing Element

Among the goals, objectives, and policies of the Housing Element related to land use and planning, the following are applicable to the Proposed Project:

Provide more diverse sources of income and stabilize the economy.

Provide a higher average in income levels.

Provide an adequate supply of sound affordable housing units in a safe and pleasant environment that enhance community quality of life for the present and future residents of the County, regardless of race, age, religion, sex, marital status, ethnic background, or disabilities by implementing the following policies:

- Ensure there are an adequate number of housing units to meet the needs of its citizens.
- Ensure that there are housing units to serve persons with special housing needs.
- Support community efforts and citizens in need of short-term emergency housing.
- Ensure environmental justice is adhered to in the process of providing housing.

Noise Element

Among the goals, objectives, and policies of the Noise Element related to land use and planning, the following are applicable to the Proposed Project:

- Protect citizens of the county from the harmful and annoying effects of exposure to excessive noise.
- Preserve the tranquility of residential areas by preventing noise-producing uses from encroaching upon existing or planned noise-sensitive uses.
- Noise created by new transportation noise sources shall be mitigated so that resulting noise levels do not exceed the [county noise] standards at noise sensitive land uses.

- The county shall review new public and private development proposals to determine conformance with policies in [the] Noise Element.

- The county shall require an acoustical analysis in those cases where a project potentially threatens to expose existing or proposed noise sensitive land uses to excessive noise levels. The presumption of potentially excessive noise levels shall be based on the location of new noise-sensitive uses to known noise sources, or staff's professional judgment that a potential adverse noise impact exists.

- It must be realized that although noise is not a health problem in Trinity County, it is a major annoyance in some areas and should be abated, when feasible, to the benefit of everyone.

Community Plans

The Lewiston, Douglas City, and Junction City community plans have similar goals, objectives, and policies related to land use and planning. Among the goals, objectives, and policies of these community plans related to land use and planning, the following are applicable to the Proposed Project:

Provide a variety of land use types and residential densities within the Plan area.

Encourage development that is consistent with the natural carrying capacity of the area's soil.

Discourage road building activities on identified unstable or slide prone areas.

Retain the quiet unobtrusive nature of development in the Plan area:

- Review future development proposals for excessive noise impacts.

Maintain the identity of existing neighborhood areas by ensuring that future public improvements do not significantly infringe upon the characteristics of existing neighborhoods.

Encourage the retention of and utilization of resource land for timber production, agricultural uses, and mineral extraction:

- Encourage mineral extraction activities, especially gravel extraction uses, within the Trinity River.

- Protect resource areas from encroachment by incompatible uses.

Encourage the sound use of mineral resources, especially sand and gravel operations, which reduce sedimentation of the river.

Protect public and private developments from flood hazards:

- Ensure that future developments do not create flood hazards either to themselves or to downstream developments.

Deter development away from unstable slopes or soils:

- Discourage development activities on fault zones and landslide areas.
- Ensure that existing development activities in unstable areas are monitored and stabilized.

Coordinate review of private and public developments with the Natural Resources Conservation Service.

Protect areas of special habitat considerations within the plan area by:

- encouraging retention of riparian habitat areas.
- working with property owners adjacent to the Trinity River to retain existing riparian vegetation.

Protect and improve fish habitat within the plan area by:

- encouraging the development of stream restoration projects within the plan area.

Preserve and maintain open space as a means of providing habitat for all species of wildlife:

- Retain open space for habitat uses.
- Protect floodplain areas from intensive development that could lead to adverse impacts to wildlife.
- Achieve a balance between development and maintenance of open space for critical deer winter range.
- Preserve and protect special habitats areas, such as mineral springs, and snags used by bald eagles and other raptors.
- Review future development to ensure protection of significant habitat areas (other than critical winter range).

Encourage recreation development as a viable sector of the local economy:

- Further develop and expand recreation developments along Rush Creek Road in order to provide for additional tourist camping facilities.

- Develop existing publicly owned access areas to the river to meet the needs of visitors to the area.

Provide for access to the Trinity River in a manner which recognizes and respects the rights of existing development.

- Ensure that the proper level of services is provided at river access points.
- Ensure that future access areas or sites are designed and located so as to avoid potential conflicts with private development.
- Continue to monitor recreational use of the river to ensure that additional use or access does not result in degradation of the river environment.

Provide more diverse sources of income and stabilize the local economy.

Provide for the economic viability of existing businesses which serve community residents:

- Recognize and encourage, as a priority, the small business activities located throughout the Plan area.
- Ensure that state, federal, or county projects provide every opportunity for small contractors to favorably compete against large contractors.

Encourage the preservation of historical structures within the Plan area:

- Provide for flexibility in land development standards so that retention and rehabilitation of historical structures is encouraged.

Retain and enhance the overall high visual quality of the Plan area by:

- designating portions of Trinity Dam Boulevard, Buckeye Creek Road, and Rush Creek Road as Scenic Roadways.
- reviewing future development within a quarter mile of the Trinity River for impact on the visual qualities on the Trinity River.

Provide an adequate level of fire protection services to resource lands:

- Encourage the continued cooperation of fire services providers servicing the Plan area.

Maintain as a priority the existing level of public services and improvements within areas of the community already served:

- Coordinate road improvements and maintenance activities with the Community Service District[s] to ensure all season access to existing and future fire stations.

- Ensure that new development does not reduce the level of existing services.

Coordinate the transportation and circulation system with planned uses:

- Coordinate public agency development of river access points and trails with their circulation systems.

- Concentrate heavy traffic generators on major roads.

- Provide a roadway system that effectively, efficiently and safely serves transportation needs.

- Improve the safety characteristics of identified roadways based upon average daily traffic and public safety requirements.

- Improve Browns Mountain Road from Lewiston Road to the Trinity River to a consistent width.

Trinity County Zoning Ordinance

The Trinity County Zoning Ordinance is the tool used by county planners to implement the Trinity County General Plan goals and policies. Zoning provides an additional layer of land use planning guidance under the General Plan. While the General Plan offers broad policies, the Zoning Ordinance provides specific standards for development.

Project Consistency with the Trinity County General Plan

This section compares the goals and objectives of the Proposed Project to the relevant local planning policies (i.e., Trinity County General Plan, which includes the Lewiston, Douglas City, and Junction City community plans) to determine if there are any inconsistencies. The Trinity County General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality.

The goals and objectives described in Chapter 2 are generally compatible with the applicable General Plan goals and policies summarized above. The overall goal of the Proposed Project is to rehabilitate the sites described in Chapter 2 so that they function in a manner that reestablishes the alluvial nature of the Trinity River.

4.2.3 Environmental Impacts and Mitigation Measures

Methodology

The methodology used for the land use impact analysis involved an assessment of the compatibility of the Proposed Project and alternatives with relevant plans and policies; a review of the Trinity County General Plan, local community plans, and zoning in relation to surrounding land uses and site features; and communication with county staff. The analysis was conducted through a literature review and site visits.

Significance Criteria

The following significance criteria were developed based on guidance provided by the CEQA Guidelines. Impacts to land uses would be significant 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.

Impacts and Mitigation Measures

Table 4.2-5 summarizes potential land use impacts that could result from implementation of the project.

Table 4.2-5. Summary of Land Use Impacts for the No-Project Alternative, the Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.2-1. Implementation of the project could disrupt existing land uses adjacent to the project sites.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

Table 4.2-5. Summary of Land Use Impacts for the No-Project Alternative, the Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.2-2. Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the DWR Hamilton Ranch Management Plan, the Trinity County General Plan, or other local community plans, policies, and ordinances.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.2-3. Implementation of the project could affect the availability of a locally important mineral resource recovery site.				
No Impact	Significant	Significant	Less than significant	Less than significant

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

Impact 4.2-1: Implementation of the project could disrupt existing land uses adjacent to the project site. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no activities would occur. There would be no temporary disruption to existing land uses within or adjacent to the project sites. Therefore, there would be no impact.

Proposed Project

The Proposed Project would not introduce a new land use within the boundaries of the Remaining Phase 1 or Phase 2 sites, and it would not obstruct the function of the 100-year floodplain. Project activities that aim to restore floodplain function would have long-term benefits for many land uses that are located along the Trinity River.

The Proposed Project is designed to minimize short-term disruptions to existing land uses adjacent to the project sites. The Remaining Phase 1 and Phase 2 sites are located on private, state, and federal lands that are adjacent to the Trinity River in the communities of Lewiston, Douglas City, and Junction City. Construction and staging areas would be located in and adjacent to the 100-year floodplain, which is designated as a Scenic Conservation overlay and is generally free of development. While many of the construction and staging areas would be located on state or federal lands along the 40-mile river reach, rehabilitation activities and river access would also occur on private lands that are adjacent to the river. Staging, construction, and access on private lands would require landowner approval. Residential and commercial development located on or near project sites is typically outside the areas of direct impact associated with the Proposed Project, and is generally located on uplands outside the 100-year floodplain.

There would be no road closures resulting from the project. Therefore, access to adjacent residences would be maintained during project construction and post-construction monitoring activities. However, access to adjacent residences could be temporarily disrupted during deployment of heavy equipment to and from the rehabilitation sites. Impacts associated with access to adjacent lands would be less than significant because they would be temporary.

Temporary disruption of public access to the river could occur at a number of sites, but would be localized. Moreover, the Remaining Phase 1 and Phase 2 projects would be implemented in phases over a 10-year period and would not preclude access from nearby access points located within several miles upstream and downstream of rehabilitation sites. For example, while Remaining Phase 1 project construction would occur at the UR site, river access would be available at the Old Lewiston Bridge and Bucktail river access points.

Construction activities in the river channel would not impair the adjacent land uses. No businesses or residences located adjacent to construction activities would be required to close or be emptied during project implementation. Construction and transportation associated with the Proposed Project could produce minor effects (i.e., air quality, aesthetics, and noise) at some nearby residences; however, such impacts would be temporary and would not significantly affect the ability to use adjacent lands. Project impacts associated with air quality, aesthetics, and noise are discussed in section 4.11, section 4.12, and section 4.14, respectively.

Land zoned as Timber Harvest, Ag Forest, and Agriculture is located in and adjacent to the project boundaries; however, there are no timber production or agricultural activities that extend into the project sites, nor are there any lands designated as Prime Farmland, Unique Farmland, or Farmlands of Statewide Importance.

Alternative 1

Like the Proposed Project, there would be no long-term land use impacts under Alternative 1. In general, long-term and temporary land use impacts related to Alternative 1 would be similar to those under the Proposed Project. However, the extent of such impacts would be less under Alternative 1 because of the smaller area of disturbance proposed. Alternative 1 would consist of less mechanical restoration, less staging area, less project-generated transportation, and a shorter duration for construction activities.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.2-2 Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the DWR Hamilton Ranch

Management Plan, the Trinity County General Plan, or other local community plans, policies, and ordinances. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the proposed rehabilitation activities would not occur, and there would be no inconsistency with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the Trinity River General Plan, or other local community plans, policies, or ordinances. Therefore, there would be no impact.

Proposed Project and Alternative 1

Implementation of rehabilitation activities proposed under either the Proposed Project or Alternative 1 would not introduce land uses that are incompatible with existing or proposed land uses nor would project activities conflict with federal, state, or local land use plans, policies, or ordinances.

Appendix A documents findings that support the determination that the activities proposed for the project would be consistent with the ACS.

The project goals and objectives described in Chapter 2 are generally compatible with the BLM RMP, the STNF LRMP, the Trinity County General Plan, and the Trinity County Zoning Ordinance. Project activities necessary for enhancing anadromous fisheries and river function would result in localized and short-term impacts to riparian vegetation in portions of the Remaining Phase 1 and Phase 2 sites. While in the short-term these activities would conflict with some goals and policies related to maintaining the riparian vegetation and the existing scenic quality of the river corridor, the purpose of removing riparian vegetation is consistent with the overall goals of the RMP, LRMP, Trinity County General Plan, and Trinity County Zoning Ordinance.

Open Space zones are intended to protect significant or critical wildlife habitat areas or areas that should not be developed due to public health and safety reasons. Because the purpose of this project is to rehabilitate the Trinity River and its fisheries, project activities carried out on lands zoned for Open Space would be consistent with this zone.

The purpose of the Trinity County Flood Hazard Districts and Flood Hazard overlay zones is to protect the public health, safety, and welfare; to protect fish and wildlife resources; and to minimize losses due to floods. According to the Zoning Ordinance, activities in the floodplain that could accomplish this purpose include "controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help to accommodate flood waters and maintain fish and wildlife resources." Because the project would enhance fish and wildlife resources and enhance the function of the floodplains, as well as act to protect the public health, safety, and welfare, this project would be consistent with the Flood Hazard District and Flood Hazard overlay zones.

Table 4.2-6 below provides specific consistency findings associated with rehabilitation activities that would occur in the Trinity River floodplain.

Table 4.2-6. Consistency of the Proposed Action and Alternative 1 with Applicable Flood Hazard Overlay Zoning District Standards

Objectives	Assessment of Consistency	
	Proposed Action	Alternative 1
Construction Materials and Methods		
All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.	Implementation of the Proposed Project would require temporary low water crossings to be constructed. The crossings would be necessary for access to several channel rehabilitation areas that are located in steep canyon terrain and lack overland access. The crossings have been designed by engineers to allow for unobstructed water flows. The project does not involve the placement of any permanent new construction or improvement to any existing structures within the floodplain (see Section 4.4, Water Resources). To improve river functions, natural substrates (i.e., cobbles, gravels, and sands) would be redistributed within several Phase 2 and Remaining Phase 1 sites.	Same as Proposed Action
Fill and Other Floodplain Encroachments		
All fill and other encroachments shall be certified by a registered professional engineer or architect not to increase the Base Flood Elevation more than 12 inches. Such a certification shall be provided to the Floodplain Administrator.	Implementation of the Proposed Action involves removal of alluvial (dredge) materials from the floodplain and redistribution of alluvial materials (fill) in a manner that would not result in a rise in the base flood elevation. Rehabilitation activities associated with removal and placement of alluvial materials in the floodplain have been designed by engineers with the purpose of improving floodplain function.	Same as Proposed Action

Overall, both the Proposed Project and Alternative 1 would further the goals and objectives of the federal and local land use goals associated with open space, conservation, safety, and land use. The project would not introduce a new land use in the project area, and it would not hinder future land use development at or adjacent to the Remaining Phase 1 and Phase 2 sites. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.2-3: Implementation of the project could affect the availability of a locally important mineral resource recovery site. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no rehabilitation activities would be implemented. Therefore, there would be no impact on locally important mineral resource recovery sites.

Proposed Project and Alternative 1

Currently, there are two active aggregate mining operations near Phase 2 sites. The Smith aggregate operation is located a half mile downstream from the Lower Junction City site on Hocker Flat. This operation does not entail activities in the active river channel and is buffered from the active channel by a large berm. Implementation of either the Proposed Project or Alternative 1 would not affect mineral resource extraction at Hocker Flat. The Eagle Rock mine is another aggregate mining operation located upstream of Junction City. This operation is adjacent to Poison Gulch, which is a tributary of Oregon Gulch. Oregon Gulch flows into the Trinity River approximately 1 mile upstream from a Phase 2 site. This aggregate mining operation does not include operations in or adjacent to the Trinity River. Implementation of the Proposed Project or Alternative 1 would not affect mineral resource extraction in Poison Gulch.

There are no locally important mineral recovery sites identified by the state located within the boundaries of any of the rehabilitation sites. However, Trinity County was historically a gold mining region, and several unpatented mining claims exist throughout the Remaining Phase 1 and Phase 2 sites. Project construction activities associated with the Proposed Project and Alternative 1 that occur in the river could temporarily preclude individuals from accessing and actively working their mining claims. This could threaten their ability to maintain individual claims. This impact would be significant.

Additionally, private land owners adjacent to the river could have mineral rights within the Remaining Phase 1 and Phase 2 project sites. Project construction activities associated with the Proposed Project and Alternative 1 that occur in the river could temporarily preclude individuals from accessing minerals to which they have a right. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.2-3a Reclamation will provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures.

Significance after Mitigation

Less than significant

SECTION 4.3

Geology, Fluvial Geomorphology, Minerals, and Soils

4.3 Geology, Fluvial Geomorphology, Minerals, and Soils

This section describes the geology, fluvial geomorphology, soils, and mineral resources of the Trinity River basin in close proximity to the proposed mechanical channel rehabilitation sites. It also evaluates potential impacts to these resources from implementation of the Proposed Project and its alternatives.

4.3.1 Environmental Setting

Regional Geology

The 40-mile reach of the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River occupies portions of two parallel but distinct geologic provinces: the Coast Ranges Province and the Klamath Mountains Province. This section focuses on the narrow corridor on either side of the Trinity River underlain by rocks of the Klamath Mountains Province.

The Klamath Mountains Province is divided into four north-south trending terranes. From east to west, these terranes are the Eastern Klamath, Central Metamorphic, Western Paleozoic and Triassic, and Western Jurassic. The terranes increase in age from west to east, except for the Central Metamorphic Terrane, which is slightly older than the Eastern Klamath Terrane. The rock units generally dip to the east, with the older eastern units overlying the younger western units. To varying degrees, these rock units are exposed throughout the 40-mile reach of the mainstem Trinity River.

The river corridor immediately downstream from Lewiston Dam and the Deadwood Creek watershed are underlain by rocks of the Eastern Klamath Terrane, primarily the Copley Greenstone, a metamorphosed volcanic sequence that consists mostly of intermediate and mafic volcanic rocks, and the Bragdon formation, a metamorphosed sedimentary formation that locally has been converted to gneiss and amphibolite. These units are considered to be generally stable and erosion-resistant (Strand 1977).

A belt of granitic rock, part of the Shasta Bally Batholith, trends roughly north to south near Lewiston. Outcrops of these granitic rocks are deeply weathered, highly erodible, and produce large volumes of sandy sediment (decomposed granite, or DG) when disturbed. Significant portions of both the Hoadley Gulch and Rush Creek drainages are underlain by these granitics, as well as rocks of the Eastern Klamath Terrane. Rush Creek also contains areas underlain by the Weaverville Formation, an unstable series of weakly consolidated mudstone, sandstone, and conglomerate with an impervious dark green clay matrix and sparse beds of light-colored tuffs.

Grass Valley Creek watershed is almost entirely underlain by deeply weathered Shasta Bally granitics. Historically high rates of sediment production in the Grass Valley Creek watershed led to the construction of the Buckhorn Debris Dam in the upper part of the watershed and on-going annual dredging of Hamilton ponds at the creek's confluence with the Trinity River. Based on need, these ponds may be dredged on an annual basis

The next three major tributaries downstream from Grass Valley Creek (i.e., Indian Creek, Weaver Creek, and Reading Creek) primarily drain areas underlain by the Central Metamorphic sub-province, which

includes two metamorphic rock units known as the Salmon Hornblende Schist and the Abrams Mica Schist. Both of these units are considered moderately erodible (Strand 1977). The Weaverville Formation outcrops in parts of the Weaver Creek drainage and in places along the Trinity River between Lewiston and Douglas City.

Downstream from Douglas City, the Trinity River flows into areas underlain by the Northfork and the Hayfork terranes. The Northfork Terrane consists of serpentinite, gabbro, and diabase along the western side. Rocks further east include silicious tuff, chert, mafic volcanic rock, minor lenses of limestone, phyllite, and, locally, sandstone and pebble conglomerate (Strand 1977). Serpentine intrusions within the unit produce unstable slopes. The Hayfork Terrane consists of metamorphic and meta-volcanic rocks that form the steep, stable slopes. Browns Creek and the south-side tributaries to the Trinity River near Junction City contain significant areas of both terranes. Canyon Creek, however, contains mostly rocks of the Central Metamorphic sub-province, with a substantial headwater area underlain by Shasta Bally granitics.

Sedimentary Deposits

The Weaverville Formation is a series of non-marine deposits. It consists of weakly consolidated mudstone, sandstone, and conglomerate with an impervious dark green clay matrix and sparse beds of light-colored tuffs. Gold-bearing alluvium in the Weaverville Formation was the target of the large hydraulic placer mining operations similar to the one that was developed on Oregon Mountain west of Weaverville. The Weaverville Formation tends to be unstable, particularly along roads and along streams where slopes are oversteepened.

Recent (Quaternary-aged) surficial deposits consist of recent and modern alluvium and historic hydraulic and dredge tailings from placer mining activities. These depositional features were the focus of large-scale placer gold mines that reshaped the alluvial landscapes of Trinity County, starting about 1850 with the discovery of gold at the mouth of Reading Creek. The introduction of hydraulic mining and, later, dredging equipment led to expanded gold-mining activities in the Trinity River basin. Large-scale dredging continued until the 1940s, resulting in extensive dredge tailing deposits along the Trinity River.

Glacial, Terrace, and Surficial Deposits

Glacially eroded materials, largely of granitic origin, add to the sediment input to the Trinity River system, particularly from streams such as Rush Creek and Weaver Creek that originate from the Salmon-Trinity Alps. Terraces composed of sand and gravel from glacial erosion flank much of the Trinity River upstream from the North Fork.

Regional Fluvial Geomorphology

Fluvial geomorphology was fundamental in the evaluation and selection of the preferred alternative in the Trinity River Mainstem Fishery Restoration EIS. Addressing the relationships between flow, sediment, and vegetation formed the basis for the Implementation Plan for the TRRP (Appendix C of the Trinity River Mainstem Fishery Restoration FEIS (U.S. Fish and Wildlife Service et al. 2000)). This plan

identified a number of actions and conditions concerning flow and sediment that would be implemented. These included the following:

- instream water release volumes and schedules to the Trinity River from Lewiston dam;
- mechanical channel rehabilitation (including riverine, high flow, and in-channel projects);
- sediment management (i.e., coarse sediment augmentation and fine sediment control);
- infrastructure modifications, such as bridge and structure relocation to pass ROD flows (e.g., new bridge construction and moving of wells, decks, and pumphouses);
- watershed protection program; and
- adaptive environmental assessment and management.

The natural hydrology of the Trinity River is characterized by intense winter storms capable of producing large floods, a spring snowmelt flood, and low summer baseflows. Peak flows and total annual discharges in the Trinity River downstream at Lewiston were drastically reduced with the construction of Trinity and Lewiston dams and diversion of Trinity water to the Central Valley (Figure 4.3-1). The pre-dam 2-year recurrence peak flow, based on the annual maximum flows for water years 1912 through 1959 at Lewiston (USGS Gage # 11525500, Trinity River at Lewiston, CA), was about 15,600 cfs. From 1960 through 1990, an average of 77 percent of the total annual water yield above Trinity Dam was diverted to the Sacramento River basin, and the 2-year recurrence peak flow discharged from Lewiston Dam was reduced to about 1,380 cfs. Lewiston and Trinity dams also trap all but the finest sediments delivered from the upper part of the Trinity River basin. At the same time, numerous minor tributaries continued to deliver copious quantities of sand and silt sized sediment to the Trinity River downstream from the dams.

Reductions in the supply of bed material sediments downstream from dams commonly result in an increase in the sizes of bed material sediments on the bed surface accompanied by reduced bed mobility (Williams and Wolman 1984). Concurrently, decreases in stream flows often result in the deposition of fine sediments on and within the gravel substrate, channel narrowing and the establishment of riparian vegetation in areas formerly occupied by active channel bed (Graf 1978; Friedman et al. 1996; Allred and Schmidt 1999; Gaeuman et al. 2005). All of these processes quickly occurred in the Trinity River in the first few decades following dam closure. Flow reductions and the loss of the coarse sediment supply allowed riparian vegetation to encroach into the pre-dam channel and large berms to deposit along the channel margin by about 1970 (Pelzman 1973), ultimately fossilizing formerly active gravel bars and clogging gravel substrates with sand and silt (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). These changes have substantially reduced the complexity and diversity of riparian and riverine habitats in the Trinity River.

The subsequent decline of the anadromous salmonid fishery in the river led to the implementation of flow releases from Lewiston Dam in the early 1990s. The rehabilitation activities intensified after the Secretary of Interior signed the 2000 ROD, establishing the TRRP. The 2-year recurrence peak flow at the Lewiston gage for water years 1992 through 2006 was about 5,120 cfs. Current dam operations include annual spring flow releases with peak flows ranging between 1,500–11,000 cfs, depending on the anticipated water yield captured by the TRD.

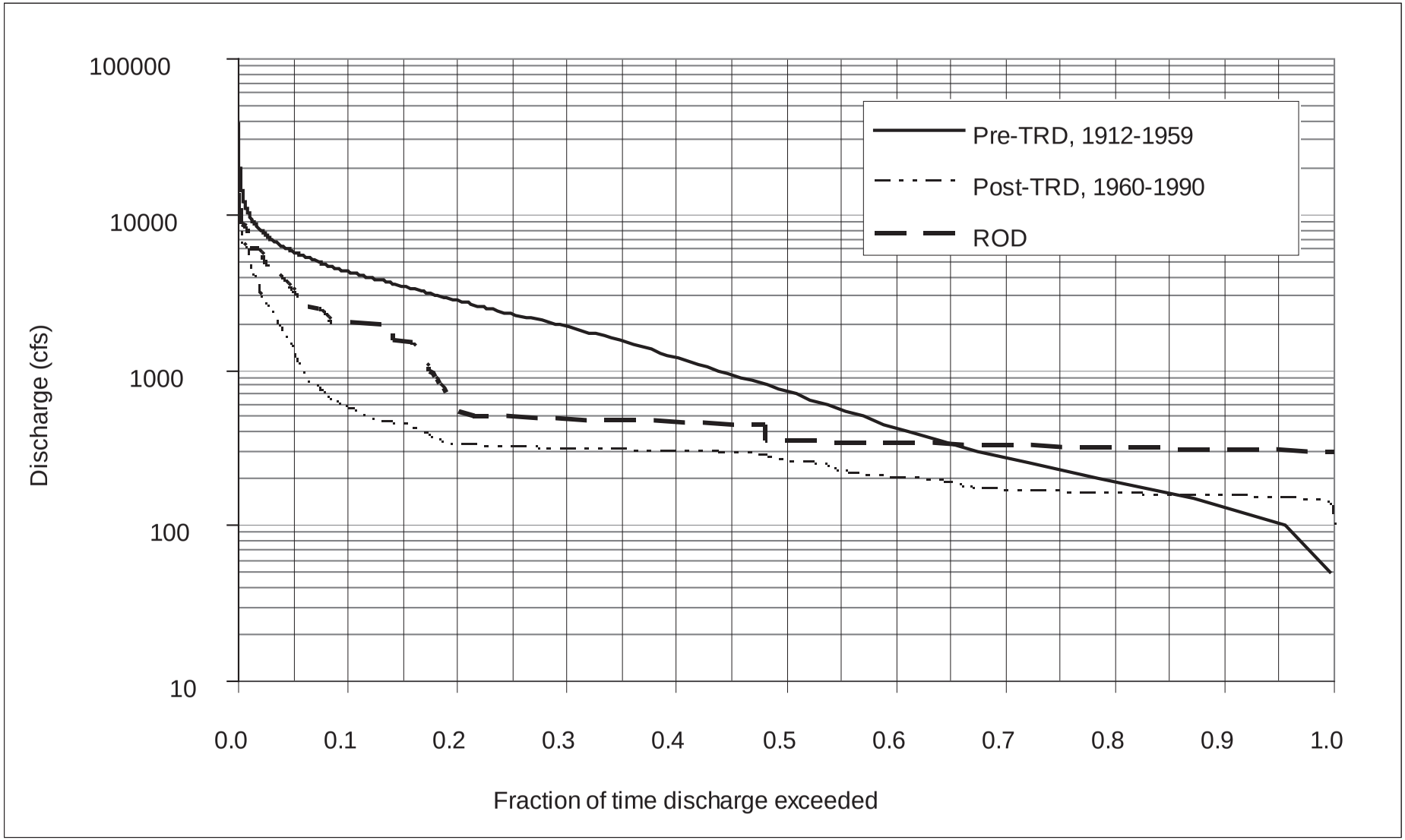

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Figure 4.3-1
Pre- and Post-Dam Hydrology
USGS Stream Flow Gage at Lewiston

Ten attributes identified in the Trinity River Flow Evaluation Report (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999) were used in the Trinity River Mainstem Fishery Restoration FEIS (U.S. Fish and Wildlife Service et al. 2000) to describe the geomorphic environment and processes of a healthy alluvial river. These "healthy river" attributes helped to provide a foundation for understanding the dynamic equilibrium of the river, and were used to develop recommendations to meet rehabilitation objectives.

The attributes presented in the Trinity River Flow Evaluation Report and the Trinity River Mainstem Fishery Restoration FEIS/EIR are as follows:

- attribute 1: spatially complex channel geomorphology;
- attribute 2: flows and water quality are predictably unpredictable;
- attribute 3: frequently mobilized channel bed surface;
- attribute 4: periodic channel bed scour and fill;
- attribute 5: balanced fine and coarse sediment budgets;
- attribute 6: periodic channel migration;
- attribute 7: a functional floodplain;
- attribute 8: infrequent channel resetting floods;
- attribute 9: self-sustaining diverse riparian plant community; and
- attribute 10: naturally fluctuating groundwater table.

An example of a reach in the TRRP project area that displays most of these attributes is shown in Figure 4.3-2. This reach demonstrates the three primary elements necessary to support the alluvial processes that maintain diverse, complex alluvial channel morphology, namely

- an adequate supply of bed material sediments to support high bed material transport rates and maintain bed surface mobility (attributes 3, 4, and 5);
- an alluvial corridor in which the channel can shift, i.e., the channel is not locked in position by valley walls, bedrock controls, structures, etc (attribute 6); and
- a variable flow regime capable of mobilizing bed and bank material sediments (attributes 2 and 8).

The supply of bed material sediments at the reach shown in Figure 4.3-2 is locally high because the reach is located a short distance downstream from Rush Creek, a tributary that contributes significant quantities of bed material sediments to the mainstem. Periodically, this locally important supply of gravel provides the building blocks for new gravel bars and replenishes gravel scoured from the reach during large flow events. Lateral migration of the channel removes older floodplain surfaces, provides room in the channel for new bars to form and grow, and allows the channel to respond to changes in alluvial features and riparian vegetation. Variable high flow releases from Lewiston Dam provide the energy to scour and transport sediment across a relatively wide range of channel locations. These processes create and maintain a variety of habitat elements that offer various ecological functions and values.

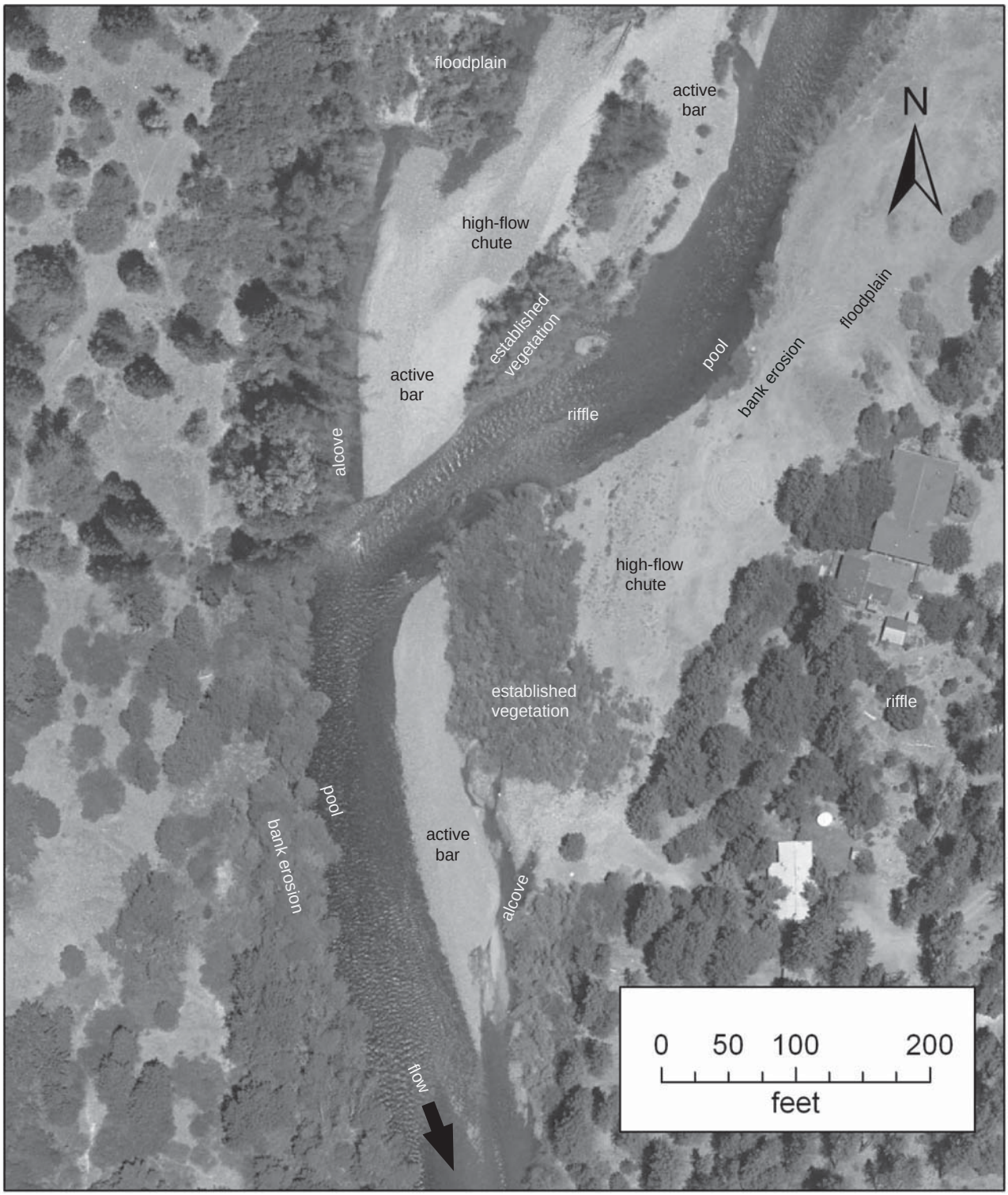

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Figure 4.3-2
Example of Alluvially Active Reach of Trinity River With Complex Channel Morphology

Geomorphic Consequences of the Trinity River Division of the Central Valley Project

The geomorphic environment of the 40-mile reach of the Trinity River below Lewiston Dam is directly affected by the construction and operation of the TRD. Post-TRD modification of the form and function of the alluvial features in this reach has altered, and to varying degrees, simplified the natural diversity of geomorphic processes and forms, habitats, and vegetation structures.

Few quantitative data are available to reconstruct the geomorphologic attributes of the pre-dam and pre-settlement Trinity River. The natural state of the river is essentially unknown because the area has been extensively modified by gold mining and other human disturbances since the mid-1800s. Mining activities in the second half of the 19th century used hydraulic cannons to placer mine entire mountain sides, inundating the main valleys with large quantities of sediment. While hydraulic mining was deemed illegal in Trinity County in the early 1900s, the advent of mechanized dredging had broad-scale impacts to alluvial deposits throughout the Trinity River basin well into the 20th century. Over time, most of the large alluvial features associated with the Trinity River and its major tributaries were subjected to dredge mining. This type of mining drastically altered the form and function of the Trinity River and its tributaries at many locations within the 40-mile reach. Timber management activities were initiated to support the mining industry, and following World War II, these activities accelerated resulting in the development of an extensive road network throughout the basin. Collectively, these activities contributed to the high sediment production rates documented in the Trinity River Total Maximum Daily Load (TMDL) for Sediment established by the EPA (North Coast Regional Water Quality Control Board 2001).

Post-mining but pre-dam conditions are primarily inferred from a few sets of aerial photographs and anecdotal accounts. Aerial photography of the TRRP project area taken in 1944 shows a denuded valley bottom containing extensive piles of dredger tailings, numerous dredger pits, and ongoing dredge operations. In some places, the channel itself is a trench-like feature set amid tailings piles, and likely represents the most recent pass of a dredge through the valley alluvium. In other locations, the channel has a braided appearance. The degree to which the pre-TRD channel planform was sculpted by fluvial processes as opposed to dredge operations is uncertain, but it is clear that some of the lower elevation tailings piles have been reworked by large winter floods, such as the December 1955 event when a peak discharge of 71,600 cfs was recorded at the Lewiston gage. The post-TRD channel includes numerous reaches bordered by high barren terraces with surface armor consisting of cobble-sized materials. Figure 4.3-3 illustrates these surfaces, which are most prevalent in the downstream third of the reach. These surfaces are interpreted as tailings that have been flattened by flood flows or, in some cases, subsequent post-dredging human activities.

The 1944 photographs clearly show that the pre-dam channel was larger than the modern channel, with minimal valley bottom riparian vegetation evident. With continued inputs of large quantities of fine sediments from tributaries downstream from Lewiston Dam, operation of the TRD allowed fine sediments to accumulate along the channel margins and riparian vegetation to colonize those new deposits. In some locations, the result was the development of a narrower, morphologically simple channel confined

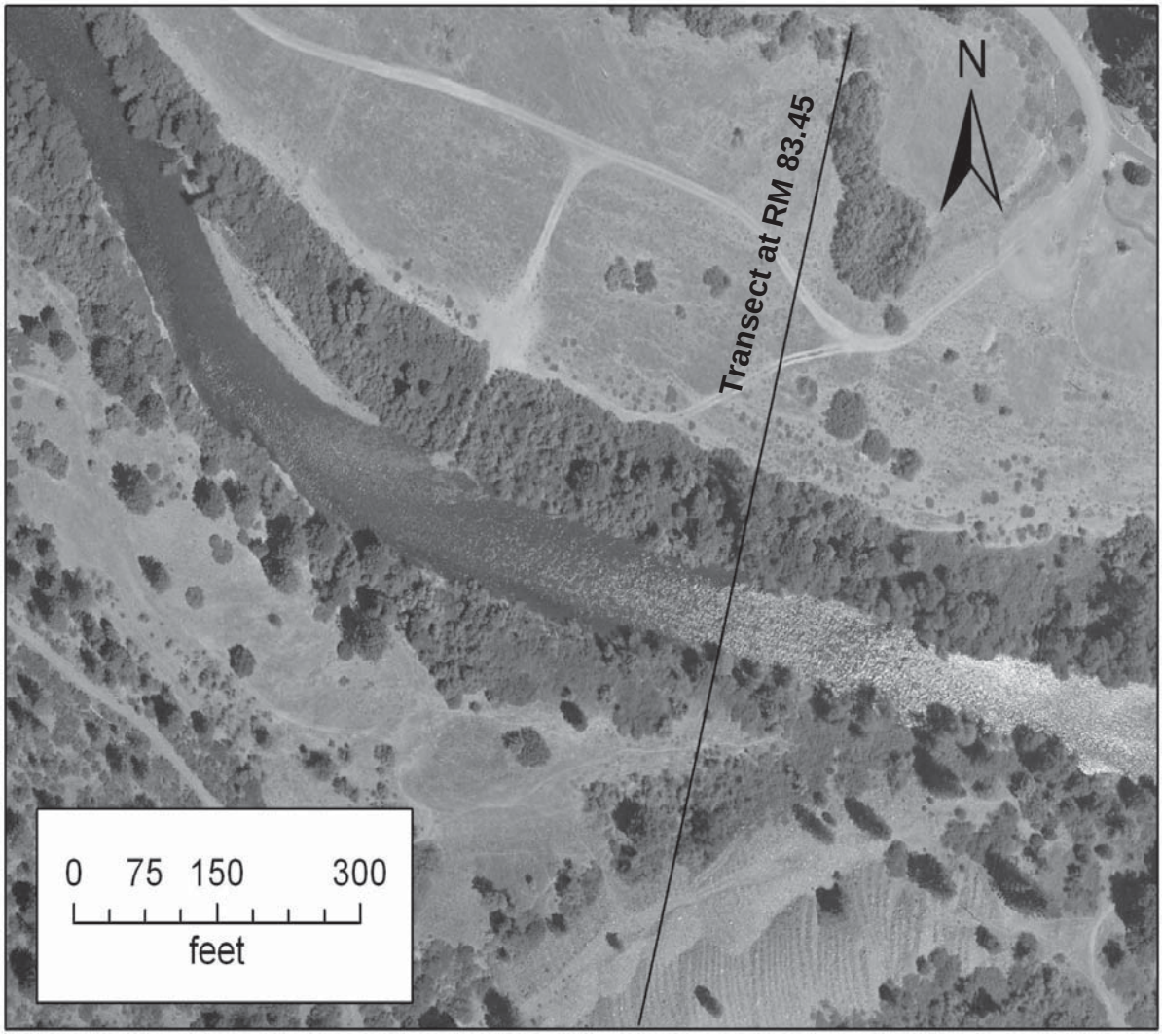

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Figure 4.3-3
Simplified Channel with Riparian Berm
at River Mile 83.45

between tailings terraces. Figure 4.3-4 provides a graphical representation of the channel cross-section that corresponds to the transect location on Figure 4.3-3.

Figure 4.3-5 illustrates deposition of fine-sediments along the channel margin (edge) that have resulted in the formation of riparian berms (large densely-vegetated natural levees). These berms, referred to as *fossilized,* confine stream flows in a deep, narrow channel with little habitat value and disconnect flows in the main channel from adjacent valley bottoms that are otherwise low enough to function as a post-dam floodplain. Figure 4.3-6 provides a graphical representation of the channel cross-section that corresponds to the transect location on Figure 4.3-5. Fossilized berms have also been hypothesized to be essentially impervious to fluvial erosion, such that mechanical removal or destabilization is necessary before fluvial process can resume under the post-ROD flow regime.

The Trinity River Mainstem Fishery Restoration FEIS (U.S. Fish and Wildlife Service et al. 2000) describes the mechanical restoration alternative later adopted in the ROD primarily in terms of berm removal, with the ultimate objective being the restoration of a naturally migrating alluvial channel. Although riparian berms do exist within the 40-mile reach of the Trinity River below the TRD, subsequent analysis by representatives of the TMC since the ROD was issued in 2000 has revealed that berms are not as ubiquitous as was earlier assumed. According to a geomorphic map prepared in 2003 by consultants to the Hoopa Valley Tribe, berms exist along only about 20 percent of the total bank length within this reach. This percentage is based on the assumption that all features mapped as berms are indeed berms, that is, they are significantly higher than an adjacent surface that could otherwise function as a floodplain. Similarly, subsequent field observations indicate that the proportion of the river that is unconfined and subject to channel migration is considerably smaller than implied in the 2000 ROD and early TRRP technical investigations. According to field mapping and subsequent GIS analysis conducted by TRRP scientist in 2007, approximately 35 percent of the bank length outside of the "canyon" segment (roughly between Dutton Creek and Dutch Creek) is non-alluvial due to confinement or close proximity to bedrock, valley walls, road embankments, etc. The remaining unmapped canyon segment contains about 8 percent of the total bank length between Lewiston Dam and the North Fork Trinity River, and is generally regarded as being almost entirely non-alluvial. The proportion of bank length within the 40-mile project area that is essentially non-alluvial is conservatively estimated to be 43 percent. This estimate does not include sections of bank that are highly resistant to erosion due to the presence of very coarse bank materials associated with dredge tailings.

These results have significant implications for planning and designing mechanical rehabilitation projects, and for realistically anticipating the channel forms and processes that the rehabilitated river can support. First, alluvial function cannot be restored in many reaches by the removal or destabilization of a relatively narrow berm. Instead, large scale excavation of terraces will be required to establish a functioning floodplain and a dynamic sinuous channel. Second, in many other reaches valley or bedrock confinement precludes establishment of a migrating alluvial channel. Alluvial dynamics in such reaches will be limited mainly to the vertical dimension – vertical cut and fill and bed-level as illustrated in Figure 2.3 a-i. Such limitations need to be considered in the rehabilitation design process, when projecting future site evolution and when evaluating rehabilitation success.

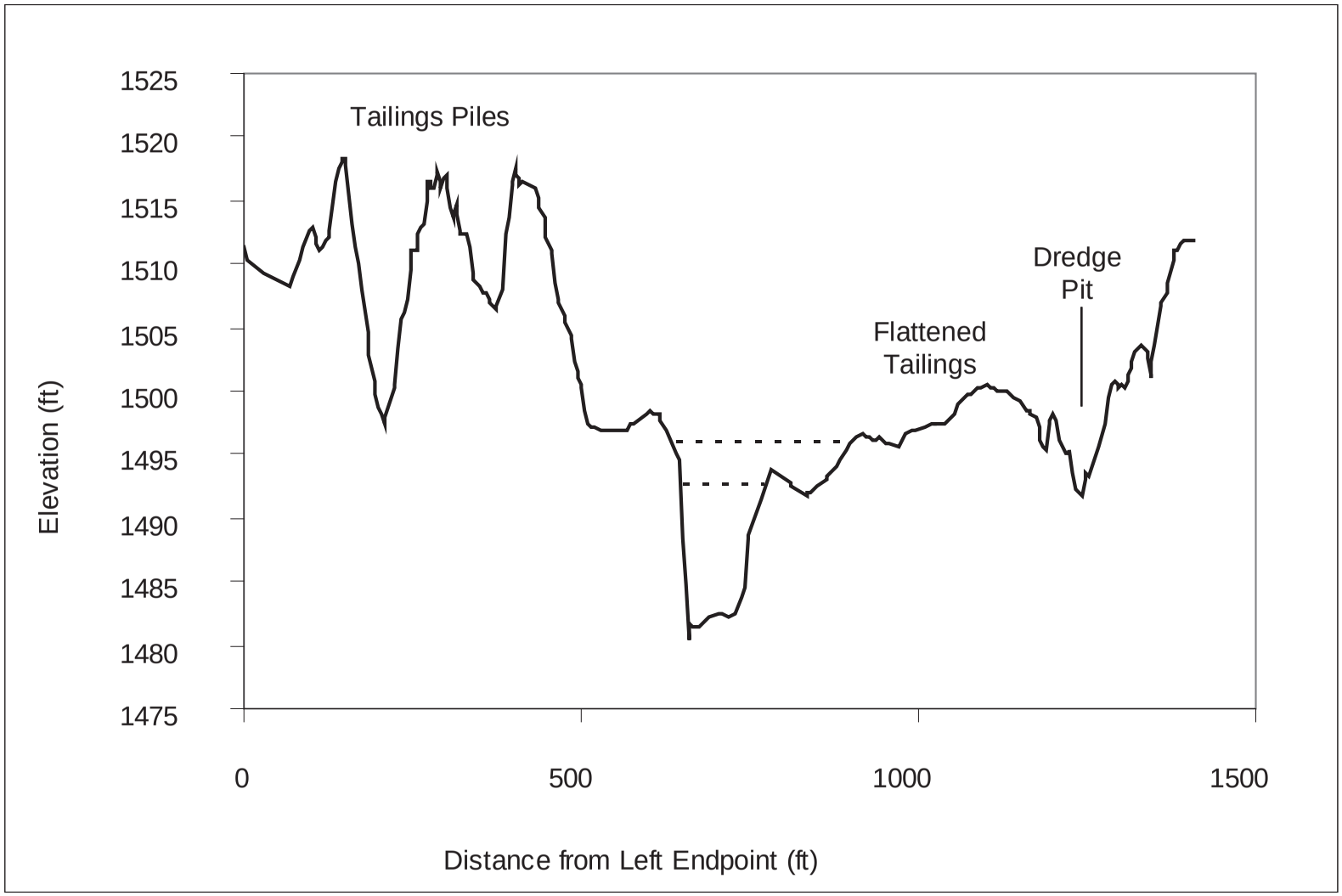

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Figure 4.3-4
HEC-RAS Cross Section of Channel at River Mile 83.45
Showing Confinement by High Terraces and Tailings Piles

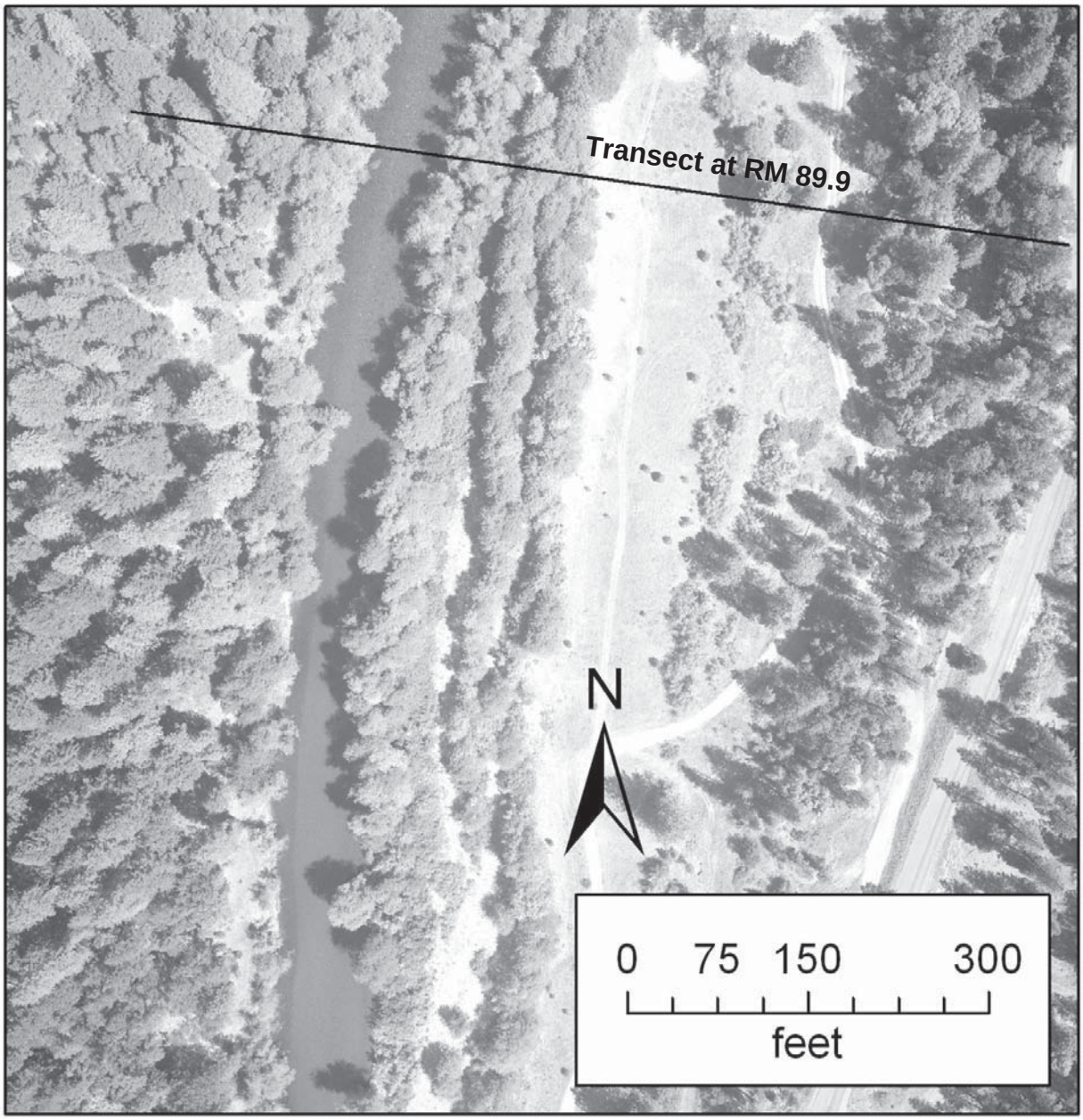

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Figure 4.3-5
Simplified Channel with Riparian Berm
at River Mile 89.9

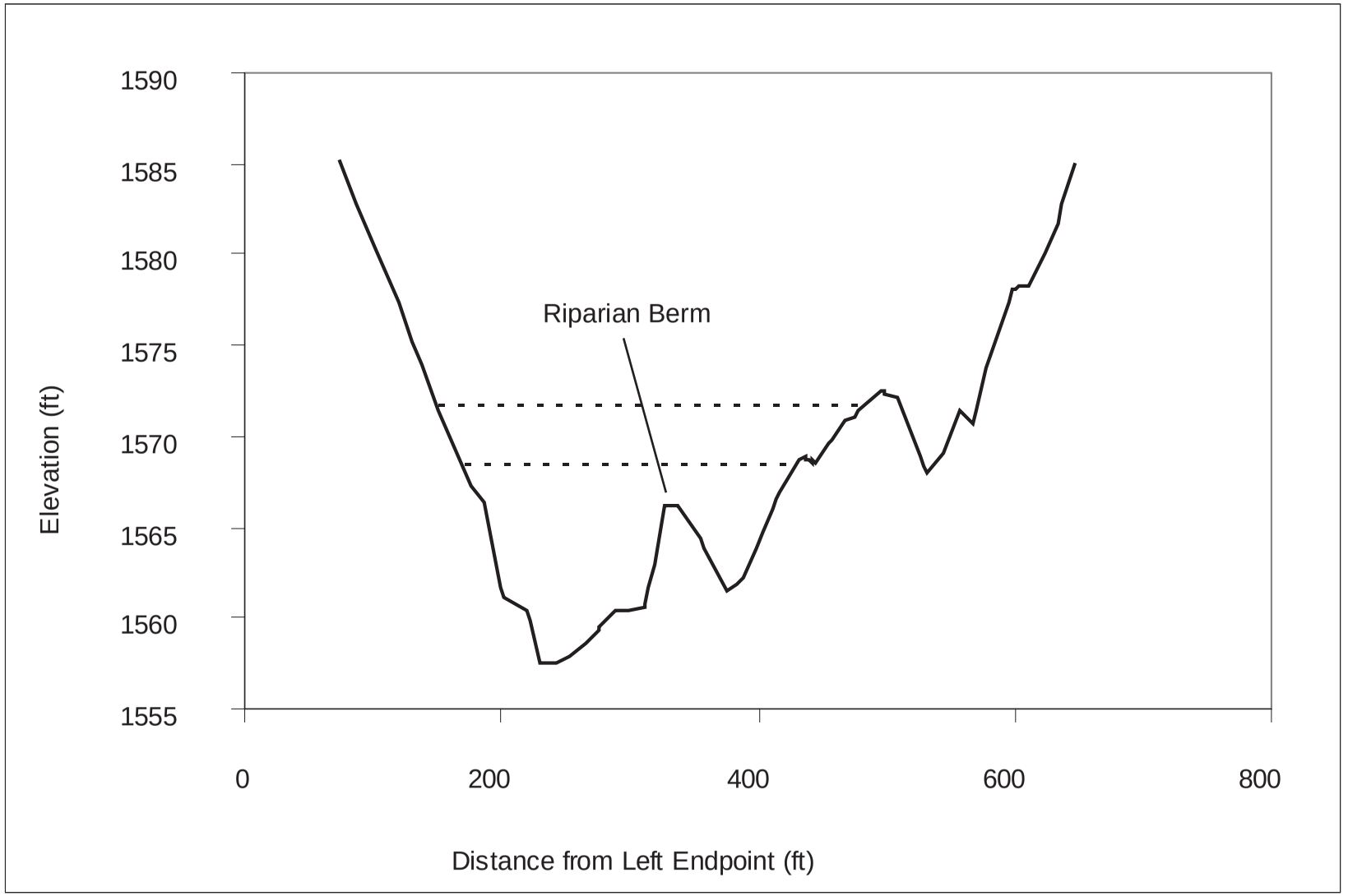

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Figure 4.3-6
HEC-RAS Cross Section of Channel at River Mile 89.9
Showing Confinement by a Berm

Mines and Mineral Resources

The geologic properties of many of the units in the Klamath Mountains Province 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.

Historically, the principal mineral of economic importance was gold. Both lode (hardrock) mines and placer (alluvial gravel) mines were present in the watershed with activity from 1848 to the present. The tailing deposits associated with large-scale placer mining provide a substantial source of aggregate required in various construction projects.

Until the 1940s, recent and ancient alluvial deposits were extensively mined using a variety of techniques. The hydraulic mining operations used high water pressure to erode and mobilize large quantities of unconsolidated overburden from gold-bearing areas. Evidence of this activity can be seen at various locations along the reach, including the Union Hill Pond. Large-scale bucket-line dredge operations were also common between 1930 and 1950. These activities left behind tailing deposits that continue to influence the form and function of the Trinity River and are apparent at a number of the rehabilitation sites described in Chapter 2.

Since World War II, mineral extraction activities have focused on aggregate resources, although some gold mining activity continues, primarily using suction dredging. Over time, aggregate mining of alluvial deposits and reworking of hydraulic tailings have resulted in additional channel modifications and changes in sediment supply.

Active Mining Claims

The General Mining Law of 1872 is one of the major statutes that direct 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. Sections of the Trinity River that are under federal jurisdiction are therefore open to prospecting.

There are 36 named active mining claims (U.S. Bureau of Land Management 2008) associated with the Trinity River in the 40-mile reach below Lewiston Dam. Figure 4.3-7 illustrates the general location (by legal subdivision) of these active claims relative to the Remaining Phase 1 and Phase 2 sites. With the exception of claims in the general vicinity of the SB site, the majority of the claims are in the general vicinity of one or more Remaining Phase 2 sites. Information available in BLM's database is not specific enough to make a determination of claim location relative to rehabilitation sites.

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 are no authorized operating plans for placer mining activities within or in close proximity to any TRRP rehabilitation sites, although suction dredging does occur at various locations along the Trinity River.

Suction dredging is the principal mining method currently used on the Trinity River for precious metals. In addition to activities on mining claims, this type of placer mining also occurs seasonally on private property throughout the Trinity River basin, primarily during base-flow periods. Other than mining activities authorized under the Surface Mining and Reclamation Act (SMARA), information on private mining activities in Trinity County is limited.

According to records provided by BLM and Trinity County, there are currently no approved mining activities operating under the provisions of the 1872 mining law or a county SMARA permit within, or in close proximity to, any of the Remaining Phase 1 or Phase 2 sites. There are, however, 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. The Smith Mine is active on an intermittent basis based on market conditions.

Geologic Hazards

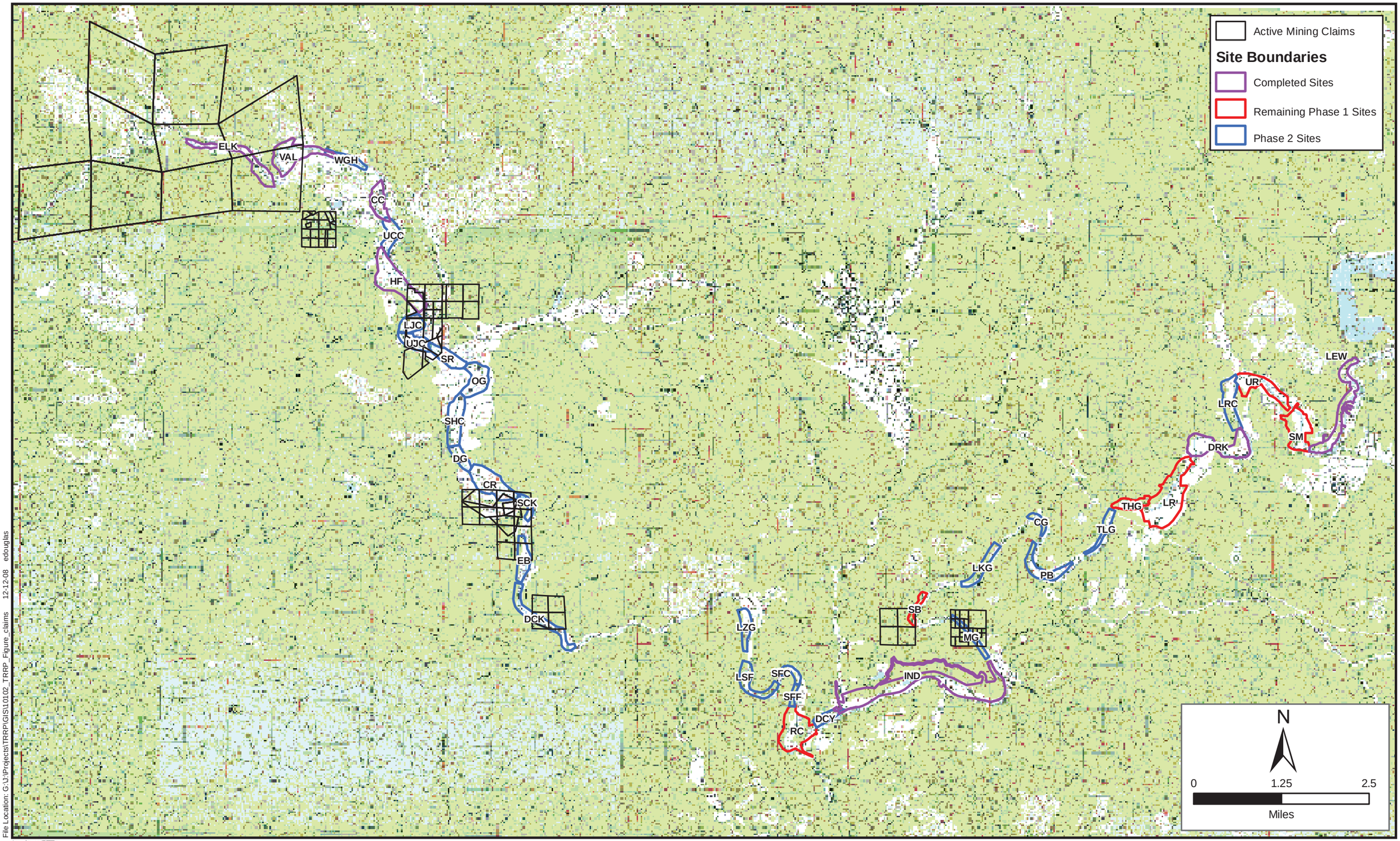
Seismicity and Seismic Hazards

Seismicity refers to the geographic and historical distribution of earthquakes, while a seismic hazard refers to the risk of loss from damaging effects caused by earthquakes. Historic earthquake activity in the study area has been very low. No areas of Trinity County are described or mapped as Fault-Rupture Hazard Zones under the Alquist-Priolo Earthquake Fault Zoning Act (California Department of Conservation Division of Mines and Geology 1999). The region, however, may be subject to low to moderate levels of ground shaking from nearby or distant earthquakes.

The most recent 1996 Probabilistic Seismic Hazards Assessment Model for California (California Division of Mines and Geology 1999) characterizes the study reach as having a 10–20 percent probability of a seismic event occurring that would cause peak ground acceleration (Pga) to be exceeded, assuming that a seismic event of that magnitude has a 10 percent probability of occurring every 50 years (California Geological Survey 2007). The study area is located between 62 and 124 miles from the northern San Andreas fault zone and the Cascadia Subduction Zone, which are the closest known active areas capable of producing an earthquake with a magnitude of 8.5 or greater.

Maximum credible earthquakes (MCEs) were determined for potentially significant faults, including Likely, Hat Creek, Freshwater, Mendocino, and San Andreas. These MCEs have projected surface wave magnitudes that range from 7 to 8.5. A maximum Modified Mercalli Level of VI to VII was also estimated for local seismicity (Trinity County 2003). The Modified Mercalli scale describes the intensity of an earthquake's effects at a given locality. The Mercalli level described above generally equates to a widely felt, often frightening, but minimally to moderately damaging earthquake.

No local active Quaternary faults have been identified, although little detailed mapping of Quaternary geologic features has been conducted in the area. However, there are historic faults that may influence the hydrology of the Trinity River if they were reactivated. There are several small faults near the LR and



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North State Resources, Inc.

Trinity River Restoration Program: Phase 1 and Phase 2 Sites

Figure 4.3-7
Active Mining Claims in General Vicinity of TRRP Sites

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DCY sites, and there is a large fault lineament that trends southeast to northwest and extends from the headwaters of Reading Creek through the headwaters of the North Fork Trinity River (Strand 1977).

Liquefaction

Liquefaction is a process whereby water-saturated granular soils are transformed to a liquid state during ground shaking. Loose to medium dense sands, gravels, and silts occurring below the water table are prone to liquefaction. The soils bordering this reach of the Trinity River in immediate proximity to the rehabilitation sites are predominantly alluvial. These soils have the potential to undergo liquefaction; however, no detailed analysis of the potential for liquefaction was conducted because the activities associated with the Proposed Project and its alternatives would not affect the potential for liquefaction or be affected by liquefaction were it to occur.

Landslides

The potential for landslides triggered by seismic events is not considered significant along the 40-mile reach of the mainstem Trinity River due to the low historical seismicity and the distance from active faults capable of producing high-magnitude earthquakes. There is a potential for steep-sided confined sections of this reach with unstable geologic materials to experience slope failures during seismic events. Possible effects of large landslides could include temporary damming of the mainstem Trinity River, or at least a temporary alteration of the hydrology due to a localized change in gradient and resulting increases in sediment load. It is unlikely that the effects of such an event would persist for a sufficient period to affect the rehabilitation sites described in Chapter 2.

The potential for landslides exists throughout the 40-mile reach of the mainstem Trinity River. Typically, landslides in the Klamath Mountains Province occur in association with high precipitation and runoff events. To varying degrees, the inherent slope stability along the reach is dependent on the underlying geology. The underlying geology of the reach is dominated by metamorphosed marine-sedimentary rock, which generally has layers of incompetent rock embedded within its stratigraphy. These incompetent layers can facilitate landslides, depending on their spatial relationship with the river and other local geographic features. Additionally, disturbance associated with historic mining features, road construction, and high-intensity wildfires could further influence landslide types and locations along the reach. Although landslides are a common occurrence along SR 299 and other roadways in Trinity County, these features are typically intercepted by the highway and contribute little, if any, material to the river along the reach.

Seiches

A seiche is an oscillation or standing wave in a body of water confined in a basin. Seiches commonly arise from a sudden local change in atmospheric pressure accompanied by wind and, occasionally, tidal currents. They can also occur as the result of ground shaking caused by earthquakes or by the force of large landslides or debris flows entering a water body. Local water bodies capable of generating a large-scale seiche include Trinity Lake, Lewiston Lake, and Grass Valley Creek Reservoir. The hazards associated with a seiche involve the overtopping or possible failure of these dams, with resulting

modifications to the flow regime of the Trinity River (i.e., flooding). However, the likelihood of such an event is considered small.

Volcanic Activity

Volcanic hazards in the general vicinity of the rehabilitation sites are limited primarily to ash fall and minor seiches in Trinity and Lewiston lakes. There are three large active volcanoes in the Cascade Range in California—Lassen Peak, Mount Shasta, and the Medicine Lake Volcano—as well as numerous smaller vents. The distance (75 to 100 miles) from these volcanic centers and the prevailing westerly winds suggests it is unlikely that the Proposed Project or its alternatives would be significantly affected by a volcanic eruption (Trinity County Historical Society 2001; Trinity County 2003)

Soils

Most of the soils on the project sites are described in the Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture 1998), with lesser amounts described in the Soil Survey of Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California (Natural Resources Conservation Service 2008). A 500-foot zone of influence perpendicular to the 40-mile reach of the mainstem Trinity River was used to characterize the soil units that occur within this reach. More than 60 different soil types occur within or in close proximity to the rehabilitation sites described in Chapter 2. Appendix F provides a table of these soil types.

Soils derived from granitic or ultramafic rocks are typically fine-grained and often referred to as decomposed granite. While these soils occur in isolated locations, they are recognized as a leading contributor of fine sediments (sand) to the Trinity River. Grass Valley Creek, originating in the headwaters of the Shasta Bally Batholith, has been the subject of ongoing sediment reduction efforts by Reclamation, BLM, and private land managers for more than 20 years.

4.3.2 Environmental Impacts and Mitigation Measures

Methodology

Data for the following analysis were taken from existing reports on regional and local geology as well as on-site assessments during field reviews. These reports include the following documents: Geology of Northern California (U.S. Geological Survey 1966); Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture 1998); site-specific reports documenting wetland delineations performed by North State Resources for the TRRP; Trinity River Mainstem Fisheries Restoration Program EIS; Trinity River Maintenance Flow Study Final Report (McBain and Trush 1997); Trinity County General Plan; and previously cited online and Geographic Information Systems (GIS) data sources.

Criteria for Determining Significance

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. Significant impacts would occur 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 ten Trinity River healthy alluvial river attributes.

Impacts and Mitigation Measures

Table 4.3-1 summarizes the potential geology, fluvial geomorphology, soils, and mineral resource impacts that would result from the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 4.3-1. Summary of Geology, Fluvial Geomorphology, Soils, and Minerals Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.3-1. Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.				
No impact	No impact	No impact	Not applicable[1]	Not applicable[1]
Impact 4.3-2. Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.3-3. Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.				
No impact	Significant	Significant	Less than significant	Less than significant

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

Impact 4.3-1: Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction. ***No impact for No-Project Alternative, Proposed Project, and Alternative 1.***

No-Project Alternative

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

Proposed Project and Alternative 1

Under the Proposed Project and Alternative 1, no permanent structures or facilities would be constructed. There would be no new exposure of structures and/or people to geologic hazards.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative I

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.3-2: Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River. ***No impact for No-Project Alternative; significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the project would not be constructed, and no construction-related erosion or associated short-term sedimentation of the Trinity River would occur. The managed flows of the Trinity River would continue to modify the bed and banks of the Trinity River to varying degrees on a reoccurring basis. Channel modifications may result in changes to the overall sediment flux in a manner that influences erosional processes related to the Trinity River. Since the proposed project would not be constructed, there would be no impact.

Proposed Project

Most of the rehabilitation activities described in Chapter 2 would occur in or near flowing water and could expose introduced, newly disturbed, and stable sediments and other alluvial materials to flowing water. 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; and changes to the type, volume, and character of deposition downstream. Monitoring results at previous TRRP channel rehabilitation sites (i.e., Hocker Flat, Canyon Creek, Indian Creek, and Lewiston-Dark Gulch) demonstrate that these impacts decrease rapidly once construction activities have ceased and the existing hydrologic conditions have shaped the disturbed area into a quasi-stable configuration. However, downstream turbidity levels may become elevated again as seasonal fluctuations in hydrologic conditions (winter or spring high-water conditions) further shape the disrupted area into a more stable geometry.

Construction activities in the riverine and uplands areas would decrease soil cohesion and armoring, which would increase soil exposure to energetic weather conditions and increase the short-term potential for wind and water erosion. Increased wind and water erosion and subsequent downstream sediment transport within the Trinity River would occur if any soils were left exposed during the wet season (typically November through May) and other infrequent precipitation events, such as summer thunderstorms.

Implementation of the Proposed Project would result in temporary soil disturbance, soil compaction, and sediment mobilization associated with in-channel, riverine, and upland area restoration activities. Susceptibility to erosion is controlled by several factors, including terrain, land use, vegetation, soil type, and local climate. A soil with high erodibility typically erodes at a higher rate than a soil with low erodibility. However, in the absence of an adverse condition (e.g., rainfall or lack of vegetation), a soil that is classified as highly erodible may not experience significant erosion. 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., feathered edges, side channels, and floodplains). The activities would place spoil piles at upland locations that are not hydrologically connected to the Trinity River (surface water features). At these locations, the exposure of fine-textured soils during and after construction would increase the potential for soil erosion and sedimentation. This would be a significant impact.

Impacts to water quality are analyzed in section 4.5, Water Quality, and impacts to fisheries are analyzed in section 4.6, Fishery Resources.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would decrease. This alternative would limit the types of activities to those that simply remove the riparian berms and reestablish functional side-channels at select locations. The elimination of some activities would translate to an overall reduction in the volume of excavation (cut/fill) at the rehabilitation sites; the number of roads and staging areas; the number of in-channel activities, including crossings; and the amount of soil disturbance that could contribute sediment to the Trinity River or its tributaries. Nonetheless, the impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative I

4.3-2a Reclamation will implement the following measures during construction activities:

- Areas where ground disturbance would 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.

4.3-2b Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention 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 CDFG) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction.

The following measures will be used as a guide to develop this plan:

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

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

- Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site would 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.

- 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 revegetated. If work activities take place during the rainy season, erosion control structures shall be in place and operational at the end of each construction day.

Significance after Mitigation

Less than significant

Impact 4.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources. ***No impact for the No-Project Alternative; less than significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the project would not be constructed, and no interference with existing, proposed, or potential development of mineral resources would occur as a result of activities described in Chapter 2. Therefore, there would be no impact.

Proposed Project

As illustrated in Figure 4.3-7, there are a number of active mining claims located in the general vicinity of the Trinity River below Lewiston Dam. Other than specific information provided to the TRRP staff relative to the SB site, there is no evidence that any of the activities described in Chapter 2 would have any affect on mineral resources located on public or private lands within the boundaries of the rehabilitation sites. Excavation and other construction activities could inhibit the development of mineral resources on mining claims or private lands. In addition, local increases in turbidity could impair suction dredge operations downstream. There are two current aggregate mining activities operating through a County SMARA permit, the Eagle Rock and Smith aggregate mines. The Eagle Rock Mine is not located within hydrologic influence of the Trinity River and will not likely be affected by the Proposed Project. The Smith Mine is located within the boundary of the completed Hocker Flat site and continues to operate intermittently following completion of the Hocker Flat Project. Additionally, there are at least 36 named mining claims along the Trinity River on public lands managed by BLM. Currently, BLM has no authorized operating plans for mines along this reach of the Trinity River. Mining activities are likely to occur on private lands in this reach; however, it is unlikely that land owners would authorize activities

associated with the Proposed Project that preclude their ability to develop mineral resources. Overall, the Proposed Project could inhibit the development and extraction of mineral resources, including precious metals and aggregate resources within and in close proximity to rehabilitation sites. This would be a significant impact.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would decrease. The overall reduction in activities and the substantial decrease in the overall acres and volume of material would reduce the impacts related to the development and extraction of mineral resources. However, because of the potential conflicts between mineral management and rehabilitation activities, the impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

Increased sedimentation rates in the Trinity River could degrade the quality and impair access to existing placer deposits. Reclamation or its contractors will implement the same erosion control measures proposed for Impact 4.3-2. Implementation of these procedures should reduce the amount of disturbance at each site and thereby reduce the amount of sediment entering the Trinity River. Decreased sediment input into the fluvial system will assist in limiting the impacts to existing placer deposits caused by construction activities.

4.3-3a Reclamation will implement the following measures during construction:

- Areas where ground disturbance would 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.

4.3-3b Reclamation will prepare an erosion and sedimentation control plan (SWPPP) as stipulated in Mitigation Measure 4.3-2b.

4.3-3c Reclamation will coordinate with private land owners and owners of active mining claims to 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.

Significance after Mitigation

Less than significant

SECTION 4.4

Water Resources

4.4 Water Resources

This section describes the water resources in the vicinity of the proposed mechanical channel restoration sites. It also evaluates potential impacts to water resources from implementation of the Proposed Project and its alternatives.

4.4.1 Environmental Setting

Surface Water Hydrology

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. Accretion flows from tributaries to the Trinity River modify the flow regime and contribute water, sediment, and other materials throughout the water year. Figure 1-2 shows the locations of the proposed rehabilitation sites along the Trinity River and its tributaries.

The Trinity River is the largest tributary to the Klamath River. From its headwaters to its confluence with the Klamath River at Weitchpec, the mainstem Trinity River is 170 miles long (Figure 4.4-1). The Trinity River basin encompasses approximately 2,965 square miles, about one-quarter of which is upstream of the TRD. Elevations in the basin range from 9,025 feet (msl) at Mount Eddy at the northeastern extremity of the watershed to 300 feet (msl) at the confluence of the Trinity and Klamath rivers. The climate is Mediterranean, with an average precipitation of 62 inches per year. Precipitation in the basin varies from 30 to 70 inches annually and typically occurs as rain in the lower elevations and snow in the higher elevations.

Construction of the TRD began in 1957, and storage of Trinity River water began in 1960. The Lewiston and Carr powerhouses commenced operation in April 1964. The TRD consists of a series of dams, tunnels, and powerplants that export water from the Trinity River basin into the Sacramento River basin. Trinity and Lewiston dams currently regulate Trinity River flows, particularly downstream of River Mile (RM) 112. With a capacity of 2.4 million acre-feet (maf), Trinity Lake is the largest component of the TRD. In order to regulate flow, discharges from Trinity Lake are held in Lewiston Reservoir prior to release downstream into the Trinity River. Lewiston Reservoir also acts as a forebay for the transbasin export of water into Whiskeytown Reservoir via the Clear Creek Tunnel. Since the TRD was constructed, Lewiston Dam has blocked access of anadromous salmonids to upstream habitat.

The 40-mile reach of the Trinity River downstream of Lewiston Dam is most affected by the changes in hydrologic regimes imposed by the TRD. Tributaries contribute relatively little accretion flow to this reach on an annual basis, although certain components of the annual hydrograph are locally modified by various tributary inflows (peak flows). Prior to authorization of the 2000 ROD for the Trinity River Mainstem Fishery Restoration EIS, 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.

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Source: Trinity River Flow Evaluation Report 1999

Figure 4.4-1
Trinity River Basin Hydrology

Prior to the completion of the TRD, flows in the Trinity River were highly variable, ranging from summer flows of 25 cfs to extreme winter events with instantaneous peak flows higher than 100,000 cfs. The maximum recorded flow at Lewiston was 71,600 cfs in 1955. Annual hydrographs typically followed a seasonal pattern of high winter and spring flows followed by low summer and fall flows. Total annual flow volumes at Lewiston ranged from 0.27 to 2.7 maf, with an average of 1.2 maf.

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[1]. After 1979, river releases were increased from 110,000 to 340,000 acre-feet (af) annually, substantially increasing the available flow to in the Trinity River during the period between 1979 and 2002 (ROD flows).

Although the 2000 ROD for the Trinity River Mainstem Fishery Restoration EIS 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. As the operator of the TRD, Reclamation is responsible for establishing the water year type each spring.

Increased water releases are periodically made from Trinity Dam consistent with Reclamation's safety of dams criteria intended to prevent overtopping of Trinity Dam. Although flood control is not an authorized purpose of the TRD, flood control benefits are provided through normal operations. Trinity Dam has limited release capacity below the spillway crest elevation. Studies completed by the USACE in 1974 and Reclamation in 1975 showed that the spillway and outlet works at Trinity Dam are not sufficient to safely pass the anticipated design flood inflow. For this reason, Reclamation implemented safety of dams criteria stipulating flood season release and storage criteria at Trinity Dam to reduce the potential for overtopping during large flood events. The safety of dams criteria attempt to prevent storage from exceeding 2.1 maf from November through March by prescribing reservoir releases when storage in Trinity Lake is forecast to exceed 2.0 maf during that period.

The safety of dams criteria specify that the Judge Francis Carr Powerplant be used as a first-preference destination for safety of dams releases made at Trinity Dam. Releases to the Trinity River are made as a second-preference destination. During significant northern California high-water or flood events, water stages in the Sacramento River are also of concern. Under such conditions, water that would otherwise move through the Carr Powerplant is routed to the Trinity River.

The flood season in the Trinity River basin is typically between October and April, when more than 90 percent of the annual precipitation falls. Floods on the Trinity River are controlled to some extent by the TRD. The greatest flood recorded for the area occurred in December 1955, although the ungaged flood of 1861–1862 likely exceeded all known historical events. Floods have also been recorded for the years 1926, 1928, 1937, 1940, 1941, 1948, 1950, 1958, 1960, 1963, 1964, 1972, 1974, and 1997 (Federal Emergency Management Agency 1996).

[1] The percentage of the Trinity River diverted to the CVP is the percentage of total reservoir release, not the percentage of the inflow.

From Lewiston Dam downstream to the Klamath River, a number of major tributaries provide accretion flows to the Trinity River. These tributaries include Rush Creek, Indian Creek, Weaver Creek, Canyon Creek, the North Fork Trinity River, Big French Creek, New River, South Fork Trinity River, Willow Creek, Horse Linto Creek, Tish Tang Creek, and Mill Creek.

The amount of winter precipitation in the basin increases steadily from east to west, as favorable orographic (related to, or caused by, physical geography) conditions extract more moisture from Pacific weather fronts closer to the coast and rain shadows reduce precipitation in the eastern portion of the watershed. Consequently, winter peak flows in the downstream portions of the Trinity River are much higher than in the upstream portions, with influence from the control of flows by the TRD greatly reduced. Trinity River flows at the Hoopa gage average about 10,000 cfs from January through March. A peak flow volume of 122,000 cfs was recorded at the Hoopa gage during the January 1997 flood, although less than 7,000 cfs was released from Lewiston Dam.

During the dry period following spring snowmelt, flow accretion and its influence on the hydrology of the mainstem Trinity River decreases dramatically. During summer and fall baseflow periods, tributary accretion flows contribute minimally to low release volumes from the TRD. In general, during low-flow periods, flow accretion is minimal from Lewiston Dam to Canyon Creek and becomes most significant downstream of the confluence with the North Fork Trinity River. However, during high flows (>10-year recurrence interval), tributary accretion substantially exceeds dam release flows within 15 to 20 miles downstream of Lewiston Dam (McBain and Trush 1997). Tributary flow influence on this reach during flood events and as a proportion of the high range of average daily flows is a reversal of pre-dam conditions, where mainstem flows would almost always exceed the contribution of tributaries. Despite tributary contributions, flood frequency and peak flows in the uppermost reaches of the mainstem below the TRD are greatly reduced compared to pre-dam conditions.

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 has 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 is a one-time only opportunity to receive financial assistance from the TRRP to ensure that ROD flows do not have negative effects on existing infrastructure and site improvements (e.g., water sources and wastewater disposal systems). To date, approximately 75 wells/septic systems have been improved and another 40 are planned for enhancement with TRRP funding. Additionally, there are a number of wells that are designed to be inundated, and often are, during the course of a water year.

Several community water systems use near-surface groundwater via intake galleries adjacent to the Trinity River. These systems include the Lewiston Community Services District, Lewiston Valley Water Company, and the Lewiston Park Mutual Water Company. BLM recreation sites at Douglas City and Junction City have reliable sources of potable water. No water service is available at the Steel Bridge recreation area.

Floodplain Hydrology and Hydraulics

Floodplain Hydrology

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 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-gradient riffle habitat. Additional information on morphologic processes and aquatic habitat is provided in section 4.3 and section 4.6 of this document.

River flow hydrology estimates used for reach-level hydraulic modeling analyses have been derived from the following sources:

- Flood Plain Information Report: Trinity River, Lewiston Lake to Junction City, Trinity County, California (U.S. Army Corps of Engineers 1976);
- Flood Insurance Study (FIS) for Trinity County (Federal Emergency Management Agency 1996);
- Estimation of 50- and 100-Year Tributary Accretion Floods: Lewiston Dam to Treadwell Bridge, Trinity River, California (McBain and Trush 2002); and
- Trinity River, California Flood Plain Infrastructure Modifications Spring Flow Events (Bureau of Reclamation 2005).

The 1976 USACE report provides the 100-year and 500-year annual flood flow estimates and hydraulic analyses used by FEMA to develop the current flood insurance rate maps (FIRMs) for the Trinity River. However, this report provides flow rates only at Lewiston, Douglas City, and Junction City.

The 2002 McBain and Trush report provides flood flows as measured at mainstem Trinity River gages during the January 1997 flood and estimates of tributary accretion between mainstem gages during this event. This report was used to approximate how flows would have accumulated between gage locations if the flood assumed in the 1976 study were similar to the 1997 flood. The 2005 Bureau of Reclamation Spring Flow Events Study provides an estimate of 10-year and 100-year spring tributary flows during the period when maximum fishery flows (11,000 cfs) would be released from Lewiston Dam. The Reclamation study provides the most current and best available hydrology for the reach. Estimated flows from the 2005 Reclamation study and the 1976 USACE report are provided in Table 4.4-1.

Table 4.4-1. Estimated Trinity River Flows by Location

Location (below confluence)	Maximum Fishery Flow (cfs) + 10-year Spring Tributary Flow[a]	Maximum Fishery Flow (cfs) + 100-year Spring Tributary Flow[a]	FEMA 100-Year Flood[b]
Lewiston Release	11,000	11,000	8,500
Deadwood Creek	11,070	11,219	
Rush Creek	11,433	12,096	
Grass Valley Creek	12,248	13,962	
Limekiln/China Gulch	12,543	14,226	
Indian Creek	13,316	15,771	38,500
Weaver Creek	14,177	17,544	
Reading Creek	14,697	18,613	
Browns Creek	16,020	21,336	
Dutch Creek	16,233	21,736	
Canyon Creek	17,028	23,207	46,000
North Fork Trinity	17,612	23,854	

[a] 2005 Bureau of Reclamation (Technical Service Center) Maximum Fishery Flow (MFF) + Spring Tr butary Flow Study

[b] 1976 USACE Report & 1996 FEMA Flood Insurance Study for Trinity County

The information provided in Table 4.4-1 indicates that the annual hydrograph is influenced by accretion flow from tributaries, which augments TRD releases. 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.

A number of major tributaries enter the Trinity River within the 40-mile reach below Lewiston Dam. Rehabilitation sites are located near the confluences of most major tributaries, including Rush Creek, Reading Creek, Sheridan Creek, Dutch Creek, Soldier Creek, and Canyon Creek

Floodplain Hydraulics

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 Department of Water Resources (DWR) for the TRRP using flow data from the 2005 Bureau of Reclamation study (California Department of Water Resources 2007). The study used the USACE Hydraulic Engineering Center's River Analysis System (HEC-RAS) software to develop the hydraulic model. HEC-RAS is a one-dimensional, steady flow hydraulic model developed for use in channel flow analysis and floodplain determination and is considered the industry standard. An output of the HEC-RAS model is water surface elevations (WSEs) that are widely used for floodplain management and flood insurance studies.

The 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 WSEs 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. Currently, all existing structures within the MFF inundation zone have been structurally improved, relocated, or otherwise addressed by the TRRP to allow this flow to be implemented.

The HEC-RAS hydraulic model allows a preliminary evaluation of risks to Trinity River properties by comparing the WSE of the proposed rehabilitation project's design conditions with the existing conditions. The comparison indicates how the features of the Proposed Project could affect the base flood elevation (BFE) estimated by FEMA for the 100-year flood. One of the design criteria has been 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.

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

- an increase of more than 12 inches in the base flood elevation;
- substantial alteration of the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, or substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site; or
- exposure of 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.

Floodplain Corridor

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 in the accompanying Flood Insurance Rate Map (FIRM). The countywide FIRM map became effective on August 16, 1988, and was updated in 1996.

The FIRM map as it relates to the Proposed Project, including the 100-year floodplain, is shown in Figure 4.4-2. The floodplain designations for the Trinity River between Lewiston and Helena were identified from a flood study performed by the USACE (U.S. Army Corps of Engineers 2004). Because there have been changes in channel morphology and estimated hydrology since the 1996 FEMA Flood Insurance Study, DWR's modeling of the MFF provides the best available basis for evaluating Trinity River flows from Lewiston Dam to the North Fork Trinity River. Near the dam (e.g., upstream of Rush Creek), the MFF exceeds the BFE (Table 4.4-1).

Except for some upland areas, the project boundaries are within the 100-year floodplain designated by FEMA and within Special Flood Hazard Area Zones A, AE, X, and X500. Zone A is the flood insurance

rate zone inundated by 100-year flooding for which no BFE (or depth of inundation) has been determined. Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that were determined by detailed analyses in the Flood Insurance Study. Lenders require flood insurance within both Zones A and AE (Zone AE simply has a detailed study that defines the zone). Zone X is the flood insurance rate zone that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees.

No BFEs or depths are shown within this zone. Zone X500 is an area between the 100 and 500-year flood zone.

Recent studies elsewhere on the river indicate that the flood magnitude determined by the 1976 USACE study may underestimate the actual flood magnitude and, therefore, the extent of the floodplain. As this project and other TRRP rehabilitation projects are implemented in the future, updated hydrological and topographical information could be used to revise the flood insurance study and flood insurance rate maps. This issue will be addressed at the appropriate time by FEMA and Trinity County.

Chapter 2 provides a discussion of the hydraulic analysis of WSEs and channel velocities for design flows prescribed in the ROD. This analysis was used to ensure that the Proposed Project and Alternative 1 incorporate the design elements required for compliance with the County's Floodplain Management Ordinance.

4.4.2 Environmental Impacts and Mitigation Measures

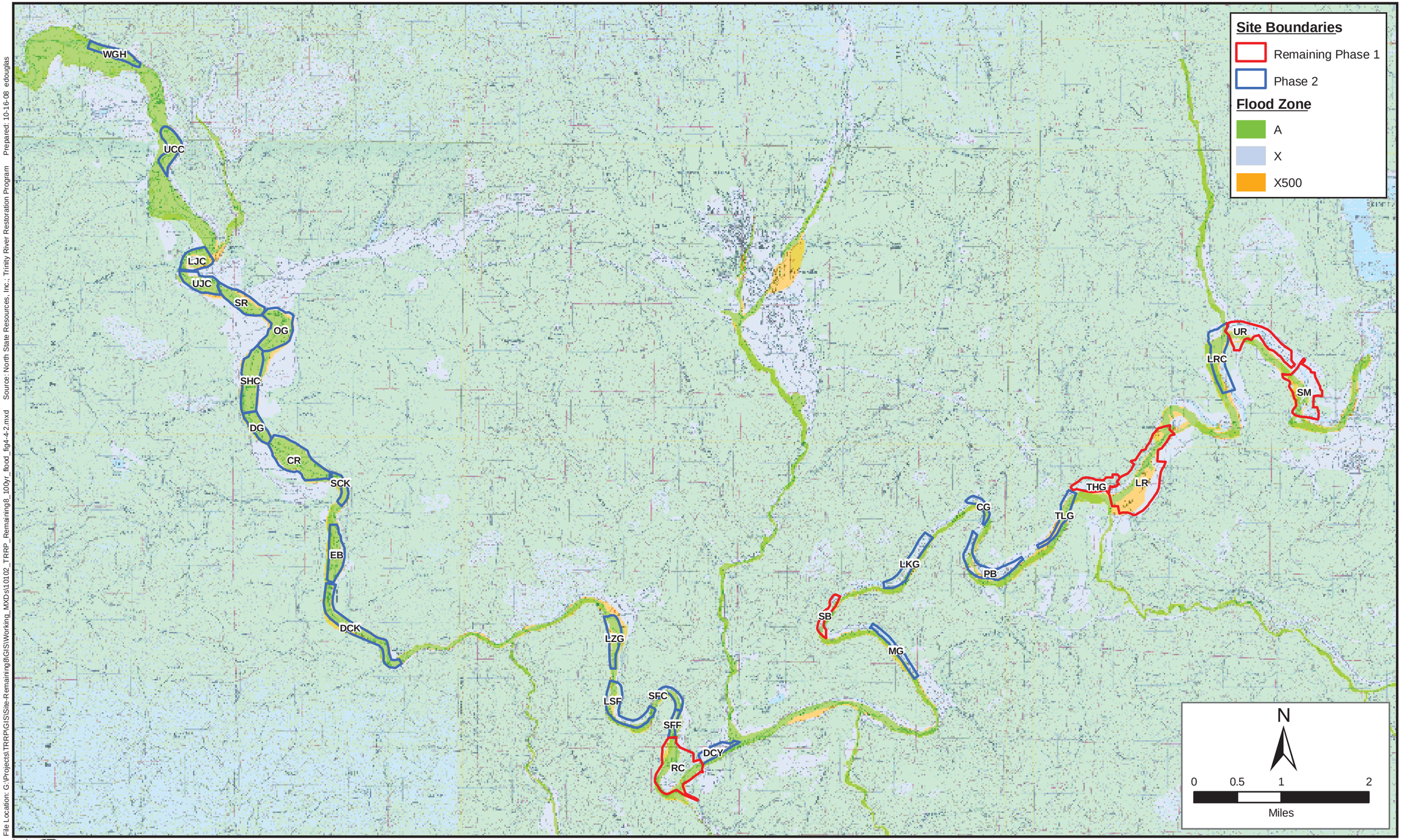
Methodology

Hydraulic models allow the preliminary evaluation of risks to Trinity River properties by comparing the WSE of the Proposed Project's design conditions with the existing conditions. The comparison indicates how the features of the Proposed Project could affect the 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.

Significance Criteria

The Proposed Project would have a significant impact related to water resources if one of the following conditions occurred:

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



File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\10102_TRRP_Remaining8_100yr_flood_fig4-4-2.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-16-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Phase 1 and Phase 2 Sites

Figure 4.4-2
100-year Floodplain and Flood Insurance Rate Map

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

- The base floodwater surface elevation 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.
- 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.

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.
- There would be a detectable degradation of groundwater quality.

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

Impacts and Mitigation Measures

Table 4.4-2 summarizes the potential impacts related to water resources that could result from construction of the project.

Table 4.4-2. Summary of Water Resources Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.4-1. Implementation of the project could result in a temporary or permanent increase in the BFE.				
No Impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

Table 4.4-2. Summary of Water Resources Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.4-2. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.4-3. 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	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 4.4-1: Implementation of the project could result in a temporary or permanent increase in the BFE. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the Trinity River floodplain would not be altered by any of the activities described in Chapter 2. The existing BFEs would not increase because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Under either action alternative, the elevation and extent of the floodplain of the Trinity River would be modified through the activities associated with both Remaining Phase 1 and Phase 2 sites, as described in Chapter 2. At the Remaining Phase 1 sites, the preliminary hydraulics 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. Additionally, the analysis indicates that there would be no increase in the FEMA BFE from the placement of low-flow channel crossings at the Remaining Phase 1 sites.

Although a hydraulic model has been developed to assist in the initial planning efforts for the Phase 2 sites, the conceptual nature of the activities at these sites precludes conducting site-specific hydraulic analysis. Final site-specific hydraulic analyses would be performed prior to implementing any of the alternatives. In any case, the action alternatives described in Chapter 2 would be consistent with the overall project objectives and design criteria established by the TRRP and the Regional Water Board. Therefore, the impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.4-2: Implementation of the project could result in a permanent decline in groundwater elevations or a permanent change in groundwater quality. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, none of the activities identified in Chapter 2 would be implemented, although Reclamation would continue to implement other elements of the ROD, including the development of annual flow recommendations and ongoing implementation of the Assistance Program. No effects on local groundwater levels would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

The displacement of channel and floodplain materials has only a minimal potential to change the groundwater hydraulics within the boundaries established for the Remaining Phase 1 and Phase 2 sites under the Proposed Project and Alternative 1. 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.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.4-3: 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 for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, none of the activities identified in Chapter 2 would be implemented, although Reclamation would continue to implement other elements of the ROD, including the development of annual flow recommendations and ongoing implementation of the Assistance Program. No people or structures would be exposed to flood risks associated with the Proposed Project because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Neither the Proposed Project nor Alternative 1 would result in activities intended to increase the BFE at the Remaining Phase 1 or Phase 2 sites. Activities intended to modify the bed and banks of the Trinity River could have ancillary impacts to the bed and banks downstream. To date, the 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 either the Proposed Project or Alternative 1 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 TRRP assistance program for water and sewer, bank stabilization measures, specifically the bio-engineering measures described in Chapter 2, 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 program and the activities described in Chapter 2, both of the action alternatives are 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.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 4.5

Water Quality

4.5 Water Quality

This section describes water quality conditions in the vicinity of the proposed channel rehabilitation sites along the Trinity River. It also evaluates potential impacts to water quality from implementation of the Proposed Project.

The principal components of the Trinity River Division (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 this topic is provided in section 4.4, Water Resources, and section 4.6, Fisheries.

4.5.1 Environmental Setting

Water Quality Management

Basin Plan

The Proposed Project is subject to compliance with the Water Quality Control Plan for the North Coast Region (Basin Plan). The Basin Plan covers all basins, including the Lower Klamath Lake and Lost River basins, draining into the Pacific Ocean from the California-Oregon state line south to the southern boundary of the Estero de San Antonio/Stemple Creek watershed in Marin and Sonoma counties. The Trinity River is the largest tributary to the Klamath River. Section 4.4, Water Resources, provides additional discussion of the Trinity River and the tributaries that influence the rehabilitation sites.

The beneficial uses for the Trinity River defined in the Basin Plan are listed in Table 4.5-1. This table also shows whether these beneficial uses already exist or whether they have the potential to exist.

Table 4.5-1. Trinity River Beneficial Uses

Beneficial Water Uses	Existing or Potential
Municipal and domestic supply	Existing
Agricultural supply	Existing
Industrial service supply	Potential
Industrial process supply	Potential
Groundwater recharge	Existing
Freshwater replenishment	Existing
Navigation	Existing
Hydropower generation	Potential
Water contact recreation	Existing
Non-contact water recreation	Existing
Commercial and sport fishing	Existing

Table 4.5-1. Trinity River Beneficial Uses

Beneficial Water Uses	Existing or Potential
Cold freshwater habitat	Existing
Wildlife habitat	Existing
Rare, threatened, or endangered species	Existing
Migration of aquatic organisms	Existing
Spawning, reproduction, and/or early development	Existing
Aquaculture	Potential and existing

Source: North Coast Regional Water Quality Control Board 2007

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). Recreation activities in and adjacent to the rehabilitation sites include whitewater recreation, fishing, swimming, and sightseeing.

The Basin Plan identifies both numeric and narrative water quality objectives for the Trinity River. Table 4.5-2 summarizes the water quality objectives for each of the categories that have been established by the Regional Water Board to protect designated beneficial uses.

In addition to water quality objectives, the Basin Plan includes two waste discharge prohibitions that pertain to logging, construction, and associated nonpoint source activities, as follows:

- 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.

- The placing or disposal of soil, silt, bark, slash, 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.

Two additional documents address specific elements of water quality in the Trinity River basin. The Interim Action Plan for the Trinity River incorporated into the Basin Plan addresses flow and temperature issues in the portion of the river affected by the TRD. The Trinity River Total Maximum Daily Load (TMDL) for Sediment (U.S. Environmental Protection Agency 2001) identifies the total load of sediment that can be delivered to the Trinity River and its tributaries without exceeding water quality standards, based on projected flows.

Table 4.5-2. Water Quality Objectives for the Trinity River

Category	Objective Threshold	Applicable Portion of Water Body
Bacteria	The bacteriological quality of waters of the North Coast region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following: In waters designated for contact recreation, the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 milliliters (ml), nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 ml.	Entire Trinity River
Biostimulatory substances	Water shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Color	Water shall be free of coloration that causes nuisance or adversely affects beneficial uses.	Entire Trinity River
Chemical constituents	Waters designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the limits specified in the California Code of Regulations (CCR).	Entire Trinity River
Dissolved oxygen	Shall not be depressed below 8.0 mg/L and 50 percent or more of the monthly means for a calendar year must be greater than or equal to 10 mg/L.	Lower Trinity River
Floating material	Water shall not contain floating material, including solids, liquids, foams, and scum in concentrations that cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Oil and grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.	Entire Trinity River
pH	Shall not be depressed below 7.0 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.	Entire Trinity River
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in bottom sediments or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limiting concentrations set forth in the CCR.	Entire Trinity River

Table 4.5-2. Water Quality Objectives for the Trinity River

Category	Objective Threshold	Applicable Portion of Water Body
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, nor which result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or indigenous aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the limits specified in the CCR.	Entire Trinity River
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Settleable material	Water shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.	Entire Trinity River
Suspended material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Tastes and odors	Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.	Entire Trinity River
Temperature	At no time or place shall the temperature of any COLD water be increased by more than 5 °F above the natural receiving water temperature.	Entire Trinity River
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.	Entire Trinity River
Turbidity	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 the issuance of discharge permits or waiver thereof.	Entire Trinity River

Source: North Coast Regional Water Quality Control Board 2007

Trinity River Water Quality

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 (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 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 (North Coast Regional Water Quality Control Board 2005).

Disturbances, primarily fires, floods, and landslides, are a natural part of the riverine ecosystem that directly influence water quality and, therefore, beneficial uses. The beneficial uses associated with salmonid species are subject to natural fluctuations in water quality in response to disturbances. Anthropogenic (human-caused) activities can affect the severity and frequency of these disturbance processes.

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 Trinity Dam are generally cold (42 to 47 ˚F). These temperatures are transmitted through Lewiston Reservoir to the Trinity River below Lewiston Dam.

The Basin Plan (North Coast Regional Water Quality Control Board 2007) defines temperature objectives that apply to the Trinity River. These objectives are effective from July 1 through December 31 for the 40-mile reach between Lewiston Dam and the North Fork Trinity River. Table 4.5-3 lists these objectives; the Basin Plan also stipulates that water released into the Trinity River may be no more than 5 °F warmer than receiving water temperatures.

Table 4.5-3. Temperature Objectives for the Mainstem Trinity River

Daily Average Temperature Not to Exceed	Period	Trinity River Reach
60 °F (15.6 °C)	July 1 – September 14	Lewiston Dam to Douglas City Bridge
56 °F (13.3 °C)	September 15 – October 1	Lewiston Dam to Douglas City Bridge
56 °F (13.3 °C)	October 1 – December 31	Lewiston Dam to confluence with North Fork

Source: North Coast Regional Water Quality Control Board 2007

Sediment

In 1992, the 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 exceeded due to excessive sediment. In 2001, the EPA established a TMDL 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 (U.S. Environmental Protection Agency 2001). The reduction in available coarse sediment upstream of Rush Creek and the significant contribution of fine sediment from Grass Valley Creek have combined to severely affect the sediment flux and particle size distribution in the river. These effects are observable downstream at both the Remaining Phase 1 and the Phase 2 sites throughout the 40-mile reach.

The magnitude, timing, duration, and frequency of sediment delivery in the Trinity River watershed have considerable inherent inter-annual and seasonal variability. Because of this variability, the TMDL and load allocation are designed to apply to sources of sediment rather than the movement of sediment across the landscape and to estimate average sediment input using a 10-year rolling average. The TMDL also takes into account critical conditions for flow, sediment loading, and water quality parameters.

In order to alleviate the adverse impacts associated with excessive sediment in the Trinity River, a number of projects have been implemented to control and reduce input of excessive fine sediments into the Trinity River from tributary streams, including Grass Valley Creek, Rush Creek, and Deadwood Creek. The DWR constructed the upper and lower Hamilton Ponds on DWR property at the mouth of Grass Valley Creek in 1988 and 1989. Reclamation constructed the Buckhorn Sediment Dam in 1990 on BLM managed lands in the upper Grass Valley Creek watershed. In combination, these sediment-retention structures minimize fine sediment output from Grass Valley Creek. The Hamilton Ponds are located immediately downstream of two Remaining Phase 1 sites, LR and THG, near the confluence of Grass Valley Creek. Since the construction of the sediment-retention structures, other measures, including revegetation, bioengineering, grade stabilization, and sediment capture, have been implemented in the Grass Valley Creek watershed to further reduce the amount of soil erosion and transport of sediment. Recent efforts to reduce sediment input into the Trinity River include sediment reduction projects in the Deadwood Creek watershed and periodic excavation and removal of fine sediments from the Hamilton Ponds.

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. Direct measurements to compare in-channel fine sediment concentrations pre- and post-ROD flows have not been completed.

Turbidity

The Basin Plan (North Coast Regional Water Quality Control Board 2007) 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 Remaining Phase 1 and Phase 2 sites described in Chapter 2. 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 (Table 4.5-1) 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 nephelometric turbidity units (NTUs). Turbidity generally does not cause acute adverse affects 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 NTU). 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 (Harvey, pers. comm. 2009). In the lab, benthic feeding success of coho salmon in water with turbidity levels as high as 100 NTU 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 NTU) as protective cover during their spawning migrations through the project areas (Gutermuth, pers. obs.). Finally, the Alaska Department of Environmental Conservation (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 best management practices. 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 NTU 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 (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). However, so 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 the 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 that are 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 these projects are 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 (U.S. Geological Survey, unpublished data). Biological samples taken from the Trinity River downstream of Lewiston Dam (40-mile reach) have not yielded significantly elevated levels of mercury in biota from various trophic levels to date; however, studies that focus on the river downstream of the TRD and specifically at TRRP mechanical channel rehabilitation projects constructed over the past several years are ongoing. 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.

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. The USGS has been monitoring mercury levels at the TRRP Hocker Flat site; the 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. The levels are also well below the narrative threshold, which states that toxic substances should not be in such concentrations that they produce detrimental physiological responses in humans or aquatic life. Furthermore, sequential chemical extraction testing of placer tailings and floodplain sediment containing from 24 to 104 ng/g (parts per billion (ppb)) mercury has found that mercury concentrations in water that leached through sediments were very low, ranging from 1.1 to 4.2 ng/L (parts per trillion (ppt)) (U.S. Geological Survey, unpublished data). Under the California Toxics Rule, the numeric water quality criteria for mercury (total recoverable) in inland surface waters is 50 ppt. The mercury concentrations in the waters of the Trinity River downstream of the TRD were found to be well below the water quality objective under all flow regimes, both prior to and after the completion of channel rehabilitation activities at the Hocker Flat and Canyon Creek sites (Rytuba et al. 2005). Overall, the U.S. Geological Survey's assessment of site-specific methylation data suggests that the bioavailability of mercury in the Trinity River and its floodplain is not presently high and will not likely be modified by the activities described in Chapter 2.

4.5.2 Environmental Impacts and Mitigation Measures

Methodology

Impacts on water quality were determined by analyzing whether the proposed modification of the physical features and biological conditions at the Remaining Phase 1 and Phase 2 sites would comply with Basin Plan objectives for the Trinity River. Although the Phase 2 sites are described in a conceptual manner, the type and magnitude of the activities that would be implemented are similar to those described for the Remaining Phase 1 sites in Chapter 2.

Significance Criteria

The Proposed Project would result in significant adverse impacts 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 Water Quality Control Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007) and included as Table 4.5-3 of this document.

Impacts and Mitigation Measures

Table 4.5-4 summarizes the potential water quality impacts resulting from construction and operation of the project.

Table 4.5-4. Summary of Water Quality Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.5-1. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.5-2. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.5-3. Construction of the project could cause contamination of the Trinity River from hazardous materials spills.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.5-4. Construction of the project could result in increased stormwater runoff and subsequent potential for erosion.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.5-5. Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.				
No impact	Significant	Significant	Less than significant	Less than significant

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

Impact 4.5-1: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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

Under the Proposed Project, the activities at the rehabilitation sites described in Chapter 2 would temporarily increase turbidity and total suspended solids in the Trinity River. The incorporation of design elements and construction criteria described in Chapter 2 (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 will be staged to minimize the potential turbidity effects. During in-channel construction activities, increases in turbidity levels could occur because of excavation of alluvial material. The removal of grade control features will 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.

Low-flow channel crossings will be constructed of clean gravel-sized alluvial materials. Size criteria for alluvial materials that would be used in the construction of low-flow channel crossings are defined further in section 4.6. Placement of clean gravel-sized alluvial materials could temporarily increase turbidity and suspended materials during and immediately following construction of the crossing. Removal and distribution of alluvial materials upon connection of low-flow channels with the Trinity River could also increase turbidity and suspended materials during and immediately following excavation. In the event that additional material may be required to construct embankments and/or temporary bridge abutments upslope of the active channel, unprocessed native alluvial material will be used consistent with the requirements outlined in Chapter 2 design elements and construction criteria.

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.

Alternative 1

Temporary increases in turbidity or total suspended solids levels associated with construction of Alternative 1 would likely be lower than under the Proposed Project because of the reduction in in-channel and riverine activities.

Similar to the Proposed Project, rehabilitation activities would be staged to minimize potential turbidity effects. However, these activities 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.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Turbidity increases associated with construction of the 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 2007), is summarized below.

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

- 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 would 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 (4.5-1a) 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 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.

4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.

4.5-1d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.

4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:

- Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed 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.

Significance after Mitigation

Less than significant

Impact 4.5-2: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 riverine activities described in Chapter 2 emphasize in-channel excavation and placement of alluvial materials, selective removal of fossilized riparian berms reconnecting the river's floodplain with the river at intermediate flows (between 450 and 6,000 cfs), and enhancing or constructing side-channels that function under various flows. 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 will promote the river processes necessary for the restoration and maintenance of Trinity River alternate bars, thereby enhancing salmonid rearing habitat. These activities will also increase the habitat available for salmonid rearing under various flows.

Implementing the Proposed Project would increase turbidity and total suspended solids in the river and fluvial surfaces following construction. Following construction, increases in turbidity levels would occur when newly disturbed areas are exposed to elevated river stages during high river flows. 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 the 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, such as 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.

Alternative 1

Under Alternative 1, the reduction of activities would decrease the surface area subject to erosional processes. Short-term increases in turbidity and suspended solids levels following construction would be a significant impact.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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 2007).

4.5-2b To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed.

- If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature.
- If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed.

4.5-2c To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended

solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in Chapter 2 (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.

Significance after Mitigation

Less than significant

Impact 4.5-3: Construction of the project could cause contamination of the Trinity River from hazardous materials spills. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

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 4.13, Hazardous Materials, evaluates potential effects associated with exposing the public to hazards associated with the transportation and use of hazardous materials at the project sites. Additional requirements outlined in Chapter 2 (Design Elements and Construction Criteria) will be incorporated into the project description to reduce the potential impact. However, construction activities could result in a spill of hazardous material, which would be a significant impact.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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 would 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 must 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. 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.

Significance after Mitigation

Less than significant

Impact 4.5-4: Construction of the project could result in increased stormwater runoff and subsequent potential for erosion. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Implementation of the Proposed Project and Alternative 1, including those measures described in Chapter 2 (Design Elements and Construction Criteria), 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 under these alternatives would be located on gentle terrain and would require minimal grading. The impact associated with runoff and erosion would, therefore, be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.5-5: Construction and maintenance of the project could result in the degradation of the beneficial uses of the Trinity River identified in the Basin Plan. ***No impact for***

the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.

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 and Alternative 1

Under either action alternative, 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
- chemical constituents

The magnitude of these impacts would be lower for Alternative 1 than for the Proposed Project, primarily due to the reduction in the location and number of these activities. Although the design elements and construction methods described in Chapter 2 are intended to minimize these impacts, under either action alternative, the activities associated with the placement and deconstruction of the low-flow channel crossings combined with the construction of new road access to the activity areas would result in significant impacts.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required

Proposed Project and Alternative 1

The significance of impacts related to sediment, settleable materials, suspended materials, turbidity, and increased stormwater runoff and subsequent potential for erosion, as well as mitigation measures that would reduce the significance of these impacts, are addressed under Impacts 4.5-1, 4.5-2, and 4.5-4. The significance of, and mitigation for, chemical constituents and toxicity impacts are addressed under Impact 4.5-3.

Significance after Mitigation

Less than significant

SECTION 4.6

Fishery Resources

4.6 Fishery Resources

This section describes the fisheries resources in the Trinity River basin in proximity to the proposed Remaining Phase 1 and Phase 2 rehabilitation sites along the Trinity River, emphasizing native anadromous and resident fish and non-native fish. It also evaluates potential impacts to fisheries resources from implementation of the Proposed Project.

The Trinity River Flow Evaluation Study (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999) determined that the lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor in limiting the recovery of salmonid populations in the Trinity River. The Proposed Project is specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, and increasing channel sinuosity.

4.6.1 Environmental Setting

Native Anadromous Fish Species

The native anadromous salmonid species of interest in the mainstem Trinity River and its tributaries are Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and steelhead (*Oncorhynchus mykiss irideus)*. 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 species and their distinct spawning populations are described in Appendix G.

All anadromous salmonid species begin their life in fresh water, migrate to the ocean to rear and mature, and return to spawn in fresh water. Although the three species have generally similar life histories, they differ in the time of year they migrate and spawn, as well as when egg incubation typically occurs (Figure 4.6-1).

Adequate flows, water temperatures, water depths, and velocities; appropriate spawning and rearing substrates (e.g., riverbed gravels); and availability of instream cover and food are critical for the production of all anadromous salmonids. Spring-run Chinook salmon and summer-run steelhead also need long-term adult holding habitat for which pool size and depth, temperature, cover, and proximity to spawning gravel are important requirements. Newly emerged fry and juveniles of all species require rearing habitat with low velocities, open cobble substrate, and cool water temperatures. The emigration of smolts to the ocean and the immigration of spawning adults require adequately timed flows with the appropriate temperature, depth, and velocity.

Native non-salmonid anadromous species that inhabit the Trinity River basin include green sturgeon (*Acipenser medirostris*) and Pacific lamprey (*Lampetra tridentata*). These fish spend their early life stages in fresh water, migrate to the ocean for maturation, and return to their natal streams to spawn. Appendix G provides additional information on these species and their life stages. Information on native non-salmonid anadromous species residing in the Trinity River basin is very limited. However, the Klamath/Trinity River basin is known to contain the largest spawning population of green sturgeon in California (Moyle 2002).

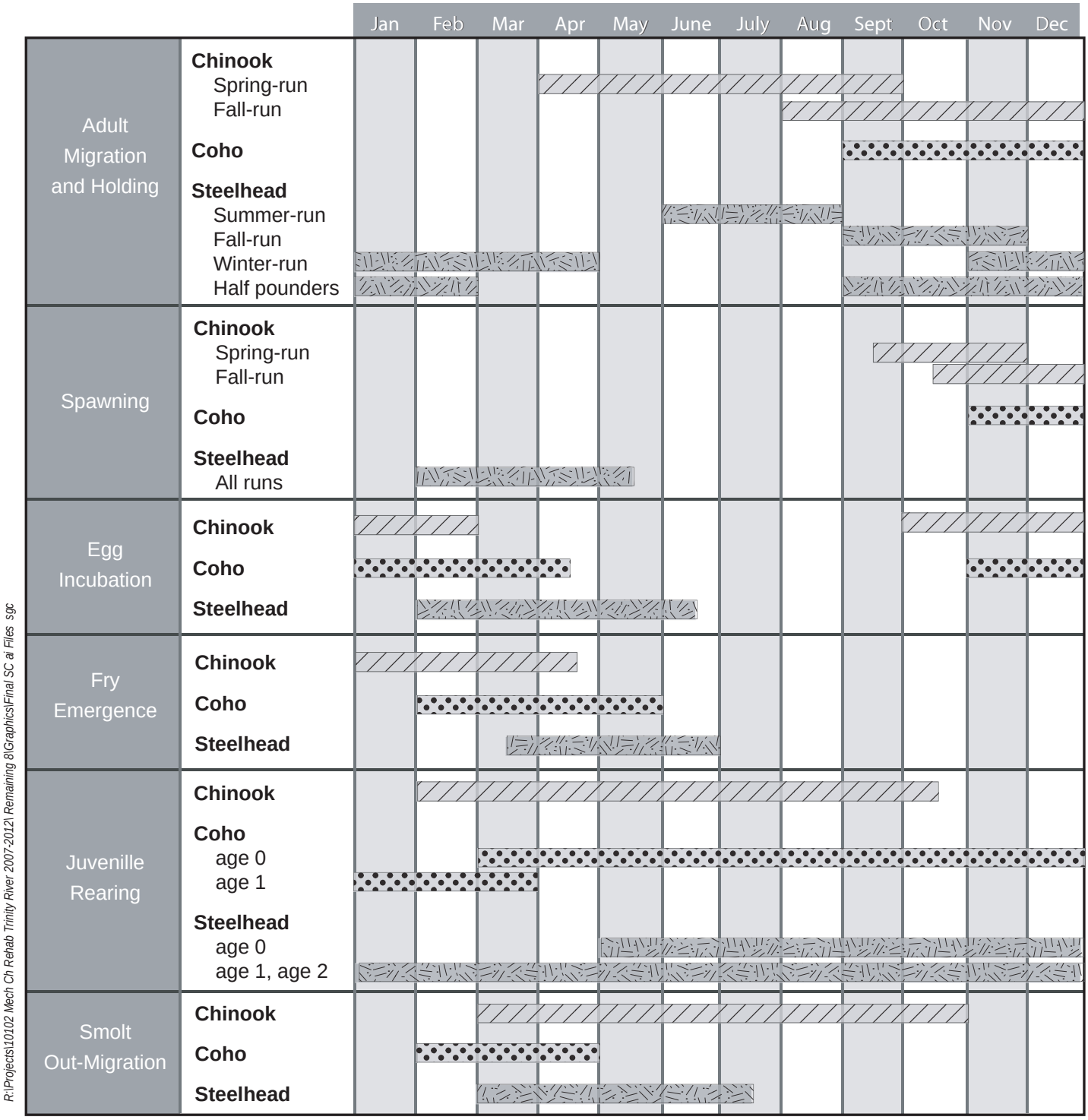

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Figure 4.6-1
Trinity River Anadromous Salmonid Life History Patterns

All three species of native anadromous salmonids may be expected to occur throughout the mainstem Trinity River below Lewiston Dam, including the segments associated with the Remaining Phase 1 and Phase 2 sites. All freshwater life stages of these species (i.e., adult, embryo, fry, and juvenile/smolt) may be expected to use habitats in this reach. The anadromous Pacific lamprey may also be expected to occur in each of its freshwater life stages (i.e., adult, embryo, larval ammocoete, metamorphosed and emigrating juvenile) within this reach of the Trinity River.

Adult spring-run Chinook salmon use the mainstem Trinity River for holding and spawning habitat. Adult spring-run Chinook are likely to hold in the deeper pool habitats, especially from late April through August. These fish commence spawning about the second week of September and spawn through mid-October. Fry and juvenile spring-run Chinook salmon would be expected from late December through October in suitable habitats throughout the proposed rehabilitation sites. Outmigration of spring-run smolts would occur from late October through June.

Adult fall-run Chinook salmon migrate to, and are expected to use, suitable spawning habitat within and adjacent to the Remaining Phase 1 and Phase 2 sites, typically from late September through mid-December. Fry and juveniles are expected in suitable rearing habitats from January through June (Manji, pers. comm. 2004). Sub-yearling fall Chinook smolts generally outmigrate from April through June (Leidy and Leidy 1984; Moyle 2002).

Trinity River coho salmon populations were historically smaller than Chinook salmon populations. Pre-dam estimates for coho salmon spawning above Lewiston were 5,000 fish (U.S. Fish and Wildlife Service et al. 2000a). Access to high-quality habitat with year-round cold, clear flows for coho salmon was blocked by construction of the TRD (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). Because coho salmon generally rear for at least one full year in freshwater, prior to TRD construction, seasonally warm water temperatures occurring in much of the mainstem Trinity River during the summer limited mainstem coho production in downstream reaches (Moffett and Smith 1950).

Adult summer-run steelhead hold primarily in the headwaters of mainstem Trinity tributaries during the summer months and spawn during the following late winter/early spring. Some Trinity River steelhead return to the river 4 to 6 months after first emigrating to the ocean. Upon their return, these fish, known as “half-pounders,” feed in the river but do not spawn. They subsequently return to the ocean before returning to spawn. When in the half-pounder phase, these fish are not counted as part of the escapement (i.e., number of fish returning to spawning grounds), but they are important to the sport fishery.

Trinity River Restoration Program Goals

The 1983 EIS for the Trinity River Basin Fish and Wildlife Management Program (U.S. Fish and Wildlife Service 1983) documented historical in-river and hatchery spawner escapements. Based on this level of escapement, goals were developed to compensate for the impacts to the fishery resources resultant from the construction and operation of the TRD. The Trinity River Salmon and Steelhead Hatchery (TRSSH), managed by the CDFG, is charged with implementation of the hatchery production goals to meet the hatchery escapement objectives. These spawner escapement goals were subsequently adopted by the

TRRP. The in-river goals represent the total number of naturally produced adult spawners (excluding jacks[1]) for the Trinity River basin below Lewiston Dam and exclude fish caught (Table 4.6-1). The hatchery goals represent numbers of adult fish needed by the hatchery, exclusive of fisheries for Chinook and coho salmon. An undefined in-river harvest goal for steelhead is also established by the TRRP.

Table 4.6-1. Trinity River Restoration Program Spawner Escapement Goals

Species	In-River Spawner Goals	Hatchery Goals	Total
Fall-run Chinook	62,000	9,000	71,000
Spring-run Chinook	6,000	3,000	9,000
Coho	1,400	2,100	3,500
Steelhead	40,000	10,000	50,000

Source: U.S. Fish and Wildlife Service et al. 2000b

In-river spawner escapement is the number of fish returning to spawning grounds, which consists of two subgroups, naturally produced fish and hatchery-produced fish. Marking of hatchery-produced fish, which began in the mid 1980s, allows for estimation of the hatchery-produced component of each run annually, allowing for independent estimates of hatchery-produced and naturally-produced fish. Though hatchery-produced fish are not considered to contribute toward natural in-river spawner escapement goals of the TRRP, their offspring do (i.e., if hatchery-produced fish spawn in-river and their offspring survive to return to spawn, these offspring never are marked and are naturally produced by definition). The best available data indicate that large numbers of hatchery-produced fish spawn in-river, particularly in areas close to the hatchery.

Fall-Run Chinook Salmon Population

Average in-river escapement of naturally produced fish (Table 4.6-2) was calculated by averaging annual in-river spawner escapement above Willow Creek weir (with the exception of spring-run Chinook salmon that were estimated above Junction City weir) for the years of available data (excluding grilse[2]) multiplied by the percentage of that population estimated to be "natural spawners" reported in the Trinity River Mainstem Fishery Restoration EIS/EIR (U.S. Fish and Wildlife Service et al. 2000b).

Although annual pre-dam escapement data are sporadic, estimates of the number of fall-run Chinook salmon adults in the Trinity River prior to 1964 above the North Fork ranged from 19,000 to 75,600 and averaged 45,600 for the 5 years of available data. Comparisons between pre- and post-dam averages are difficult because (1) few pre-dam estimates exist; (2) pre-dam estimates typically represent fish spawning in the river above the North Fork, while post-dam estimates are above Willow Creek; and (3) post-dam estimates are only for the river below Lewiston Dam and are confounded by large numbers of hatchery-produced fish that spawn in natural areas (recent changes have been enacted to reduce competition of

[1] A male salmon that spawns after spending a year or two less in the sea than the majority of individuals of its species. It is smaller than the usual spawner.
[2] A mature one-winter salmon ready to spawn

hatchery-produced fish with naturally produced spawners). Comparisons between pre-dam escapements and the TRRP in-river spawner escapement goals are not equitable because the in-river goals represent the numbers of fish that could be produced in the entire Trinity River basin below Lewiston Dam once successful restoration is completed, whereas the pre-dam numbers are sporadic and limited to the Trinity River above the North Fork.

Table 4.6-2. Comparison of TRRP In-River Spawner Escapement Goals to Average Numbers of Naturally Produced Fish

Species	TRRP In-River Spawner Escapement Goals	Average In-River Escapement of Naturally Produced Fish	Years of Available Data	Percent of TRRP Goal Met
Fall-run Chinook	62,000	11,940	1982–2007	19
Spring-run Chinook	6,000	4,024	1982–2005	67
Coho	1,400	306	1982-2005	22
Steelhead	40,000	3,010	1992–1996/ 2002–2005	8

Source: Sinnen et al. 2008, U.S. Fish and Wildlife Service et al. 2000b, and California Department of Fish and Game, unpublished data

Yearly estimates of fall-run Chinook salmon runs in the Trinity River basin have been compiled by CDFG since 1978 as a part of the Klamath Basin Fall Chinook Salmon Spawning Escapement Estimate. Post-dam in-river spawner escapement estimates for the Trinity River basin upstream of Willow Creek weir from 1982 through 1997 averaged 34,670 fall-run Chinook salmon, of which an average of 22,440 fish are hatchery-produced fish. Naturally produced fish have ranged from 10 to 94 percent of in-river spawner escapements, with an average of 47 percent. Applying this proportion to escapement surveys from 1982 through 2007, the Trinity River below Lewiston produced an average of 11,940 naturally produced fall-run Chinook spawners, which is approximately 19 percent of the TRRP goal of 62,000 naturally produced fall-run Chinook salmon (Table 4.6-2).

In September 2002, a large fish die-off occurred in the Klamath River. A conservative estimate of the total number of fish that died during the incident is 34,056, of which approximately 98.4 percent were adult anadromous salmonids. Out of the 33,527 anadromous salmonids estimated to have succumbed during this event, 97.1 percent were fall-run Chinook salmon. The Klamath River Technical Advisory Team estimated that 21.7 percent of the Chinook were of hatchery origin, with 12.7 percent being of Trinity River Hatchery origin (U.S. Fish and Wildlife Service 2003). The fish die-off disproportionately affected fall-run Chinook salmon, resulting in subsequent reduced production (Sinnen et al. 2005).

Spring-Run Chinook Salmon Populations

Fisheries investigations conducted from 1942 through 1946 identified spring-run Chinook salmon populations in the Trinity River above the North Fork Trinity River confluence (Moffett and Smith 1950). In 1955, an in-river spawner escapement estimate of 3,000 spring-run Chinook salmon upstream of

Lewiston was reported by the CDFG (U.S. Fish and Wildlife Service et al. 2000b). Escapement surveys for the years 1982 through 2000 (excluding 1983 and 1995 because surveys were not conducted in those years) indicate that an average of 65 percent of the in-river spawner escapement of Trinity River spring-run Chinook salmon was hatchery produced (Figure 4.6-2). Conversely, only 35 percent were naturally produced. For the years 1982 through 2005 (excluding 1983 and 1995 as noted above), the Trinity River below Lewiston Dam produced an average of 4,024 spring-run Chinook salmon or 67 percent of the TRRP goal (Table 4.6-2).

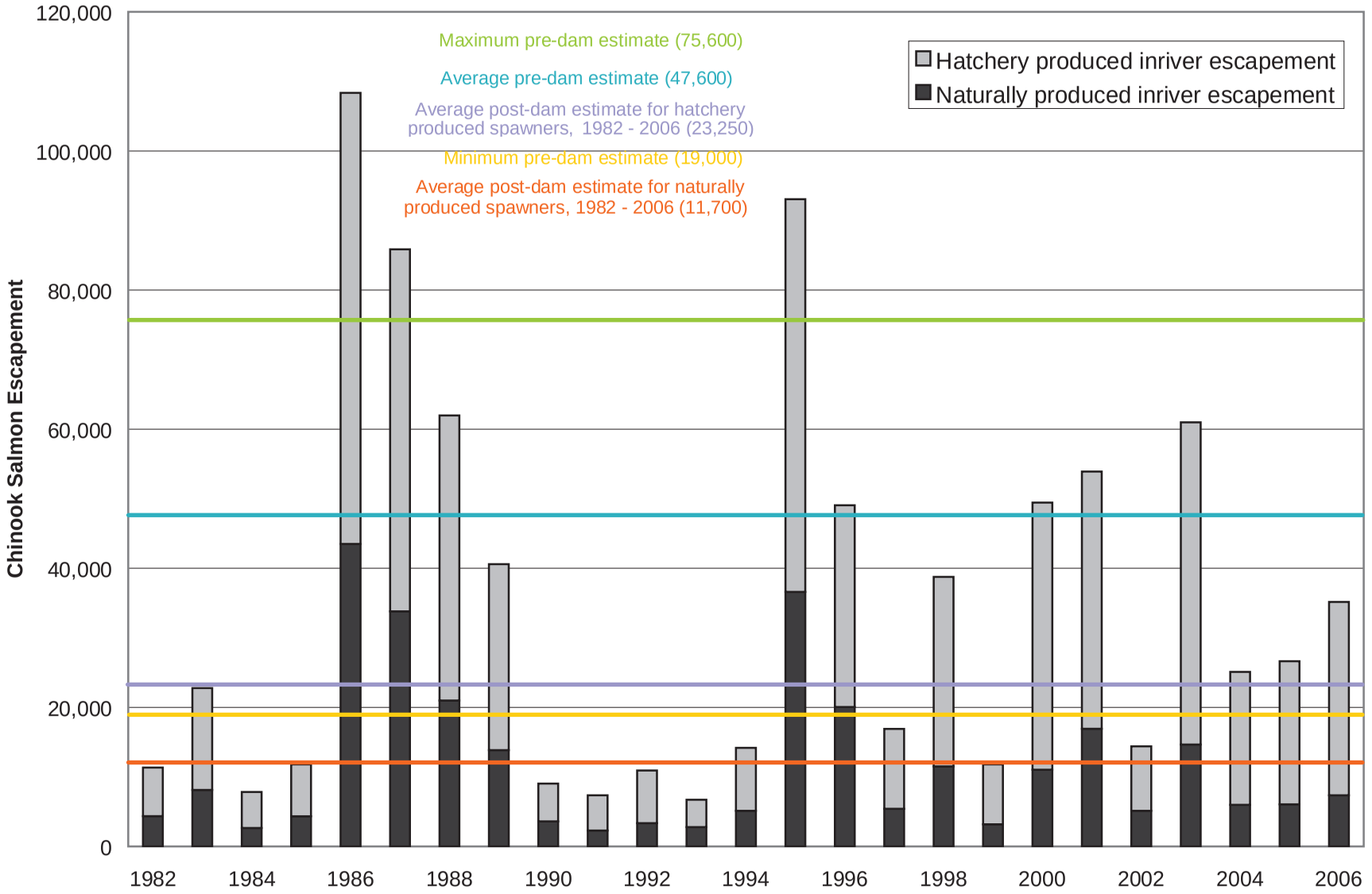
Coho Salmon Populations

As described previously, Trinity River coho salmon populations were historically smaller than Chinook salmon populations. Seasonally, warm water temperatures typical of the Trinity River prior to the construction of the TRD limited mainstem coho production in downstream reaches (Moffett and Smith 1950). Total run size for Trinity River coho salmon below Lewiston Dam from 1973 through 1980 averaged 3,300 adults (U.S. Fish and Wildlife Service et al. 2000b). This estimate includes hatchery production. Estimates of coho salmon spawning in the Trinity River upstream of the Willow Creek weir (1991–1995) indicated that naturally produced coho salmon averaged 200 fish, ranging from 0 to 14 percent of the total annual escapement (an annual average of 3 percent). Current estimates for coho salmon spawning in the Trinity River upstream of the Willow Creek weir (1982–2005) indicate that naturally produced coho salmon average about 306 fish, which is approximately 22 percent of the TRRP goal of 1,400 (Table 4.6-2).

The majority of coho salmon spawning in the Trinity River are produced by the hatchery. Based on the levels of in-river naturally-produced coho salmon, NMFS has concluded that (1) current coho salmon runs are largely composed of hatchery-produced adults; (2) the remaining naturally produced stocks are, and have been, heavily influenced by hatcheries (such as from occasional inter-basin stock transfers); and virtually all of the naturally spawning coho salmon, in the Trinity River particularly, are first-generation hatchery fish; and (3) the remaining natural coho salmon populations in the Klamath/Trinity River system are likely incapable of sustaining themselves (National Marine Fisheries Service 1997).

Between 1997 and 2002, hatchery fish constituted an estimated 89 percent to 97 percent of the fish (adults plus reproductively mature grilse) returning to the Willow Creek weir in the lower Trinity River (Sinnen 2002). Outmigrant trapping conducted on the lower Trinity River indicates that marked TRSSH fish made up 91 percent, 97 percent, and 65 percent of the catch in years 1998, 1999, and 2000, respectively (Yurok Tribal Fisheries Program 2002). Additionally, it appears that a significant fraction of the naturally produced fish is likely the progeny of hatchery strays.

By subtracting the number of hatchery- and naturally produced fish returning to TRSSH from counts at Willow Creek weir, Sinnen (2002) estimated that hatchery fish made up between 76 percent and 96 percent of fish that spawned in the Trinity River system upstream of the weir from 1997 to 2002. The lack of natural production in the Trinity Basin, however, remains a significant concern (Good et al. 2005).



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(Source: USFWS et al. 2001; CDFG unpublished data)

Figure 4.6-2
Post-TRD Fall-run Chinook Salmon Spawner Escapements

NMFS' updated status review of federally listed west coast salmon and steelhead concluded that none of the new data reviewed contradict conclusions that the Biological Review Team previously reached in 1995 and 1997. Coho salmon populations continued to be depressed relative to historical numbers, and strong indications exist that breeding groups have been lost from a significant percentage of streams in their historical range (Good et al. 2005).

Since 2000, however, run size estimates for coho salmon in the Trinity River have increased in comparison to the depressed estimates through the 1990s. In 2004, run size estimates for Trinity River coho salmon upstream of Willow Creek weir were 1.2 times the long-term (1977–2004) average of 17,778 (Sinnen et al. 2006). Additionally, average run-size estimates for Trinity River coho salmon between 2000 and 2004 are more than double what they were for the previous 10-year period. Recent increases in coho salmon populations can be attributed to a number of factors, including, but not limited to, favorable ocean conditions, elimination of the sport and commercial coho fishery, recent water years with average to above average rainfall and relatively high river flows, and recent habitat improvements and protection.

Coho salmon were also affected by the Klamath fish die-off in 2002, but not nearly to the extent of Chinook salmon. One percent of the adult anadromous salmonids that died were coho salmon. Of that one percent, approximately 92 percent were of TRSSH origin (U.S. Fish and Wildlife Service 2003).

Steelhead

As stated previously, adult summer-run steelhead hold primarily in the headwaters of mainstem Trinity tributaries during the summer months and spawn during the following late winter/early spring. Pre-dam winter-run steelhead spawner escapements in the Trinity River and its tributaries upstream of Lewiston have been estimated to range from 6,900 to 24,000 adults. From 1992 through 1996, and again for years 2002 and 2005, the CDFG estimated run sizes for wild and hatchery-produced steelhead upstream of Willow Creek weir. The estimated total steelhead escapement of the naturally produced fall/early-winter portion of the winter run upstream of the Willow Creek weir averaged 3,010 fish (surveys from fall and early winter period only). This average represents approximately 8 percent of the TRRP in-river spawner escapement goal of 40,000 adult steelhead (Table 4.6-2). Estimates for the remaining winter portion of the escapement are unavailable because winter river flows render fish-counting weirs inoperable.

Pre-dam summer-run steelhead spawner escapements for the Trinity River upstream of Lewiston were estimated to average 8,000 adults annually. Recent (1985–2002) post-dam CDFG/USFS estimates have ranged from 20 to 2,575 adult summer-run steelhead returning to the mainstem Trinity River and tributaries (California Department of Fish and Game 1997, unpublished data; U.S. Forest Service 2002, unpublished data). The TRRP escapement goals do not establish specific targets for summer-run steelhead in the Trinity River, nor does the TRSSH mitigate specifically for summer-run steelhead.

Trinity River Salmon and Steelhead Hatchery

The TRSSH is operated by CDFG and funded by Reclamation to mitigate for the loss of salmonid production upstream of Lewiston Dam resulting from the TRD. Concerns regarding the potential impacts

of hatchery operations on naturally produced populations of the Klamath River basin (including the Trinity River) prompted the CDFG to revise hatchery operations in 1996 to minimize future impacts. Additionally, further review of hatchery operations conducted during 1999 and 2000 resulted in recommendations for (1) periodic evaluation of coho salmon production levels required to support recovery of Southern Oregon/Northern California Coast Evolutionarily Significant Unit (SONCC ESU) coho salmon and (2) evaluation of spawning and brood stock selection practices for maintaining genetic separation of spring- and fall-run Chinook salmon (California Department of Fish and Game and National Marine Fisheries Service 2001).

Fish Harvest

The harvest of Klamath River basin (including the Trinity River basin) fall-run Chinook salmon is managed jointly by the CDFG, Oregon Department of Fish and Wildlife, California Fish and Game Commission, YT, HVT, NMFS, and U.S. Bureau of Indian Affairs (BIA). The mixed-stock ocean population is harvested by commercial and sport fisheries and the in-river population is harvested by tribal (ceremonial, subsistence, and commercial) and sport fisheries. Chinook salmon harvest (both fall-run and spring-run) includes both naturally produced and hatchery-produced fish. Commercial and sport harvest of coho salmon has been incrementally restricted in California ocean and inland waters since 1994, resulting in statewide harvest prohibitions within the last 5 years, including the use of barbless hooks and "catch and release only." The steelhead is rarely caught in the ocean commercial and sport fisheries, but is harvested by the in-river tribal and sport fisheries. Historically, Klamath/Trinity River Chinook and coho salmon populations have been harvested in the ocean from Santa Barbara County, California, to the Oregon/Washington border. Ocean harvest of naturally produced salmon may have been sufficient in the late 1970s to cause declines in Klamath River basin (including Trinity River) populations, but, based on the best available data, fall-run Chinook salmon harvest management restrictions implemented since 1986 have decreased harvest impacts to levels believed to be sustainable.

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 4.3, Geology, Fluvial Geomorphology, and Soils; section 4.4, Water Resources; and section 4.5, Water Quality. The relationship between these factors and fish is summarized in the following paragraphs.

The TRD dams blocked access to 59 miles of Chinook salmon habitat, 109 miles of steelhead habitat, and an undetermined amount of coho salmon habitat (U.S. Fish and Wildlife Service 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 (U.S. Fish and Wildlife Service 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 (U.S. Fish and Wildlife Service 1994).

The altered patterns of fluvial geomorphic processes in the upper Trinity River have resulted in a reduction in the number of alternate gravel bar sequences with a resultant change in substrate quality. Important salmonid habitats associated with alternate bars include pools that provide cover from predators and cool resting places for juveniles and adults; riffles with appropriate sized gravel substrate where adults typically spawn; open gravel/cobble bars that create shallow, low-velocity zones important for emerging fry; and slack-water habitats for rearing juveniles. 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. Fine sediment fills open spaces between gravels and cobbles, which impedes water percolation through the river substrates, degrading and reducing available spawning habitats. Sedimentation of spawning areas can impede intragravel flow (which is important for delivering oxygen and carrying away metabolic waste products) to incubating embryos, as well as create an impenetrable barrier that prevents the emergence of salmon sac-fry from their gravel nest. Accumulation of fine sediments can also decrease the amount of space between gravel and cobble, thereby decreasing the amount of available habitat for over wintering juvenile coho salmon and steelhead that “burrow” into the substrate. Sedimentation may also decrease aquatic invertebrate production and diversity, thereby limiting a primary food source for juvenile salmonids.

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.

The dams blocked access to the upstream river reaches that are dominated by snowmelt runoff and remain cool throughout the year. Prior to the dam, these areas provided important juvenile rearing and adult holding habitats for salmonids when the majority of the lower mainstem habitats (i.e., below Lewiston

Dam) had likely become too warm. The upstream tributaries contributed snowmelt runoff and cool temperatures throughout the spring and early summer that aided smolt emigration through much of the mainstem. Because the habitat in the upper river is now blocked by the TRD and much of the snowmelt is retained in the TRD reservoirs, it is necessary to maintain artificially cooler temperatures below Lewiston Dam than existed prior to the TRD. The Trinity River below the dam must now function thermally like the upstream reaches and tributaries for anadromous salmonids.

Habitat Restoration Projects

Since the early 1980s, the Trinity River Basin Fish and Wildlife Restoration Program has conducted a variety of restoration activities in the mainstem Trinity River and its tributaries. These activities include watershed rehabilitation and habitat enhancement work within the tributaries, and dam construction and channel dredging in Grass Valley Creek to decrease the amount of fine sediment entering the mainstem Trinity River. Restoration activities in the mainstem Trinity River have 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). In late fall 2005, the TRRP completed the Hocker Flat demonstration project, which was the first mechanical channel rehabilitation project stemming from the TRRP ROD. Construction on the Canyon Creek project was completed in 2006, and the Indian Creek project was completed in 2007. Construction of the Lewiston-Dark Gulch project was finished in December of 2008.

Completion of the Trinity and Lewiston dams in 1964 blocked migratory fish access to aquatic habitat upstream of Lewiston Dam and eliminated coarse sediment transport from more than 700 square miles of the upper watershed. The lack of coarse sediment transport reduced the quantity and quality of gravel-sized material available for salmonid spawning and rearing in the mainstem Trinity River. The Preferred Alternative in the 2000 ROD for the Trinity River Mainstem Fishery Restoration EIS included a sediment management component that called for gravel supplementation in the Trinity River. The FEIS identified two sites that would require immediate coarse sediment augmentation for spawning purposes. The ROD anticipated an average of 10,300 cubic yards annually but acknowledged a range from 0 to 67,000 cubic yards in any one year depending upon the water year type The two sites include a 1,500-foot reach immediately downstream of Lewiston Dam and a 750-foot reach immediately upstream of the USGS cableway at Lewiston (U.S. Fish and Wildlife Service et al. 1999). In 2003, 3,000 tons of ½- to 5-inch diameter gravel was placed at the cableway. In 2006, 2,500 tons of ½- to 5-inch diameter gravel was placed downstream of the TRSSH as part of the Shasta Trinity National Forest (STNF) Hatchery Coarse Sediment Project. The purpose of these projects was to supplement coarse sediment in the reach immediately downstream of Lewiston Dam. The 2006 work also included channel manipulations to about 1,800 linear feet of the mainstem Trinity River, beginning 400 feet downstream of Lewiston Dam, in accordance with the design concepts developed by the University of California, Davis, and approved by the TMC.

During 2007, an additional 6,500 tons of 3/8- to 4-inch diameter gravel were added downstream of the Lewiston Dam to complete the 2006 STNF Hatchery Coarse Sediment Project. In 2008, another 3,500 tons of gravel was introduced in the Lewiston reach during 2007 spring flows and 13,100 tons were

placed in-channel (August and September 15 , 2008) during 2008 Lewiston-Dark Gulch project implementation.

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 (Chamberlain, pers. comm. 2004); U.S. Fish and Wildlife Service unpublished data). The nine bank rehabilitation projects between Lewiston Dam and the North Fork were constructed by physically removing vegetated sand berms along the bank to restore the channel to a "pre-dam configuration." Channel rehabilitation sites are significantly wider and shallower than corresponding control sites at intermediate and high flows. 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" (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).

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 (*Lampetra 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*) (United States Fish and Wildlife Service, unpublished data). American shad are known to 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 TRSSH 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. Brown trout are predatory in nature and as a result, bag limits in the Trinity River have recently been increased by CDFG to control their population. 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. Factors that affect their abundance in the Trinity and lower Klamath River basins have not been studied and remain unknown.

Special-Status Fish Species

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 ESA or 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 CDFG 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 CDFG, USFWS, and NMFS; and a review of applicable biological literature.

The SONCC 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. A review of the listing status of the SONCC ESU coho salmon was initiated during 2002 in response to a petition to de-list the species in the Klamath River basin (67 Federal Register 40679-40680). This status review included evaluation of both natural and hatchery components of the ESU according to the recently proposed policy on the consideration of hatchery-origin fish in federal ESA listing determinations for Pacific salmon and steelhead (69 Federal Register 31354-31359). NMFS recently concluded and that the SONCC ESU coho salmon should remain listed under the ESA as a threatened species (69 Federal Register 33102-33179).

Critical habitat for the SONCC ESU coho salmon was designated on May 5, 1999 and includes all river reaches accessible to the listed coho salmon between Cape Blanco and Punta Gorda. Excluded are areas above specific dams or above longstanding, naturally impassable barriers (e.g., natural waterfalls in existence for at least several hundred years). In the Trinity River basin, designated critical habitat for the SONCC ESU coho salmon 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 (CFR Vol. 64, No. 86, May 5, 1999).

The 2000 Biological Opinion on the Trinity River Mainstem Fishery Restoration EIS (National Marine Fisheries Service 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."*

This Biological Opinion included an incidental take statement authorizing the alternative actions described in this Master EIR, which envisioned some potential "take" of the listed coho salmon related to the channel rehabilitation component of the TRRP. The Biological Opinion states:

> "The NMFS does anticipate that SONCC coho salmon habitat adjacent to and downstream of the 47 channel rehabilitation projects may be temporarily degraded due to localized turbidity and potential fine sedimentation of channel substrate during construction activities. However, the amount of habitat temporarily degraded due to these localized effects is negligible compared to the long-term creation of additional suitable habitat along approximately 40 miles of the Trinity River."

The 2000 Biological Opinion includes several terms and conditions discussed in Chapter 3 of this document that serve to avoid and minimize "take" of the listed species during implementation of channel rehabilitation projects.

Both Reclamation's 2000 Biological Assessment and NMFS' subsequent 2000 Biological Opinion acknowledged that construction at channel rehabilitation projects would not occur "within the wetted channel." However, in-channel work would occur during direct placement of gravel for coarse sediment additions. 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. Authorization to perform in-channel activities, as well as crossing the Trinity River for access to work sites, would create conditions conducive for sediment (gravel) routing as well as needed construction flexibility to maximize long-term benefits for Trinity River salmonid populations.

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 Biological Opinion. In May 2006, NMFS concurred that reinitiation of formal consultation was not warranted if bank rehabilitation activities were authorized within the wetted channel (National Marine Fisheries Service 2006). The Amendment to the 2000 Biological Opinion states:

> "Coho salmon primarily utilize tributary habitat for spawning and rearing and therefore, large numbers of coho salmon are not expected to be rearing within the mainstem Trinity River during the summer and fall period. Any increase in turbidity level arising from instream construction activities will likely affect the small population of juvenile coho salmon via the same mechanism as previously considered, that is, forcing fish to move downstream to escape turbid conditions. How the effect differs under the new regime is that more fish will relocate a farther distance downstream than originally considered due to the greater spatial extent of turbid water. However, NMFS expects that all displaced juvenile fish, including coho salmon, will find suitable habitat within river reaches downstream of the project, since juvenile rearing habitat within the Trinity River mainstem is likely under-saturated during summer and fall months. For these reasons, NMFS believes the proposed change to allow instream construction activities at future Trinity River Bank Rehabilitation sites is unlikely to cause additional effects to listed coho salmon above those that were considered within the original 2000 Biological Opinion."

To date, NMFS has determined that TRRP activities are consistent with the Biological Opinion (as amended), however as additional information becomes available through ongoing monitoring efforts, the TRRP anticipates that reinitiation of consultation between Reclamation and NMFS may be necessary to increase the TRRP's cost effectiveness and flexibility for implementation. Until restoration strategies and potential impacts to coho are evaluated, new options to increase river restoration effectiveness determined, and a new Biological Opinion written, the 2000 Biological Opinion will remain in effect and channel rehabilitation projects would continue under this coverage.

In 2000, the California Fish and Game Commission (Commission) received a petition to list coho salmon north of San Francisco as an endangered species under provisions of the CESA. The Commission required that a comprehensive, statewide coho salmon recovery strategy and plan be developed while they considered the petition. The coho recovery plan was adopted by the Commission in February 2004 (California Department of Fish and Game 2004). The Commission declined to list the coho under CESA in June 2004 on a split vote. On August 5, 2004, the Commission made the decision to list the California portion of the SONCC ESU coho as threatened north of Punta Gorda.

The green sturgeon was petitioned for listing under the ESA in 2001. After a lengthy review, in 2003 the NMFS determined that the species does not warrant listing. In April 2005, NMFS proposed to list North American green sturgeon south of the Eel River (the southern distinct population segment, or DPS); because of concerns over the uncertainty and availability of data, the northern DPS was placed on NMFS' Species of Concern List and its status will be reassessed within five years if information warrants. There is no evidence to suggest that this species is present in the Trinity River above Burnt Ranch Falls.

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 (CFR Vol. 64, No. 86, December 27, 2004).

The Klamath Mountains Province (KMP) ESU of steelhead, which includes stocks from the 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 (CFR Vol. 66, No. 65). 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; U.S. Fish and Wildlife Service 1995).

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. However, spring-run Chinook salmon within the Klamath-Trinity basin is a California Species of Special Concern (Moyle et al. 1995). The 2005 NMFS status review did not reveal new information that would warrant listing of the upper Klamath-Trinity ESU Chinook salmon (Good et al. 2005).

4.6.2 Environmental Impacts and Mitigation Measures

Methodology

The following section provides a brief overview of the analytic methods used to assess potential impacts of the Proposed Project on fisheries resources. These methods 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 Remaining Phase 1 and Phase 2 sites established for the project was conducted by performing a database search of the CNDDB, informally consulting with resource agencies (e.g., CDFG, NMFS, and USFWS), and reviewing environmental documents and technical studies prepared for projects in the vicinity. Representatives from the USACE, CDFG, NMFS, USFWS, HVT, and YT were contacted to discuss specific biological resource issues associated with the project, including potential impacts and suggested mitigation measures.

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 within this reach.

Significance Criteria

Significance criteria used to assess the potential impacts of the 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. A significant impact on anadromous salmonids and other native fish would occur if the project would result in any of the following:

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

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

Impacts and Mitigation Measures

The following sections provide detailed descriptions of the potential impacts to fishery resources and mitigation measures for each alternative evaluated in this document. To reduce redundancy and improve readability, the impacts to the federally and state listed SONCC ESU coho salmon, other special-status species (i.e., "species of special concern" for CEQA), and non-listed fish species are described together under each action alternative. Because the threshold for "significance" of an impact is lower (i.e., more restrictive) for threatened and endangered species, impacts are described separately when they differ among species.

The effects have been evaluated for the principal species of interest and address the full range of potential impacts to anadromous and resident riverine fishes within the boundaries of the Remaining Phase 1 and Phase 2 sites. Table 4.6-3 summarizes the potential fishery resource impacts that would result from implementation of the project.

Table 4.6-3. Summary of Fishery Resource Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.6-1. 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	Significant	Less than significant	Less than significant
Impact 4.6-2. 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.				
No impact	Significant	Significant	Less than significant	Less than significant

Table 4.6-3. Summary of Fishery Resource Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.6-3. 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	Significant	Less than significant	Less than significant
Impact 4.6-4. 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	Significant	Less than significant	Less than significant
Impact 4.6-5. Implementation of the project would result in the permanent or temporary loss of SRA habitat for anadromous salmonids.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.6-6. Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.				
No impact	Significant	Significant	Less than significant	Less than significant

Impact 4.6-1: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the rehabilitation and sediment management activities described in Chapter 2 would not be implemented; therefore, there would be no adverse effects on spawning and rearing habitat other than those associated with the current ongoing programs, projects, and activities described in Chapter 5. In addition to the previously constructed mechanical channel rehabilitation projects at Hocker Flat, Canyon Creek, Indian Creek, and Lewiston-Dark Gulch, Reclamation has an ongoing responsibility to provide the flows prescribed in the ROD and implement additional channel rehabilitation and sediment management activities necessary to meet the project objectives. Authorized TRRP projects, combined with ongoing watershed restoration efforts by the USFS, BLM, Trinity County, HVT, and YT are expected to provide meaningful benefits to these fishery resources. While the No-Project alternative is expected to improve the quality and quantity of fish habitat, it would not ensure that the TRRP meets the fundamental project objectives to restore fish populations and increase spawning or rearing habitat for anadromous fish, including coho salmon within the Trinity River.

Proposed Project

Coho Salmon

No permanent adverse effects on spawning habitat for coho salmon within the boundaries of the Remaining Phase 1 or Phase 2 sites would occur. The permanent effects would be substantial and beneficial. The long-term design objective is 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 project sites. This dynamic fluvial channel would result in a net increase in point bar surface area through coarse sediment deposition; thereby, increasing riffle-spawning habitat within the project boundary. The addition of coarse sediment (including spawning sized gravels) to the Trinity River at select coarse sediment activity areas would immediately provide suitably sized spawning gravels to coho and other salmonids.

Adverse effects on spawning habitat associated with the Proposed Project are expected to be limited to short-term, localized sedimentation caused by construction activities in and immediately adjacent to the active Trinity River channel. Any salmon redds (i.e., nests) on or near the existing in-channel activity areas 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 these construction areas. However, in-channel activities would be conducted during late-summer (July 15–September 15) low-flow conditions, as authorized by NMFS and CDFG, to avoid impacts to spawning anadromous salmonids. The addition of coarse sediment at various in-channel activity areas would sometimes occur in conjunction with bar construction activities and could affect spawning anadromous fish (including coho salmon). If in-stream work was allowed outside the current in-channel late-summer work period, this activity could result in percussive impacts to incubating embryos and mortality through compression (crushing) of embryos and alevins[3]. The addition of coarse sediment at various in-channel activity areas would also occur during the channel maintenance flows released from the TRD during the spring. While the volume of material introduced to the channel may vary by water year type, the timing would be based on the transport capacity of these flows. Planned placement of coarse sediment during peak ROD flows, starting approximately May 1, is late enough to eliminate detrimental effects on fish in the gravel because fry will have already emerged. In addition, extreme water velocities at the high flow injection sites would make these locations unsuitable for juvenile salmonids; therefore, eliminating the chance for them to be impacted by the gravel injections. High-flow placement of coarse sediment is not expected to have additional adverse effects on redds or juvenile salmonids beyond those that already would have occurred from scour and sediment transport of gravels already in the mainstem Trinity River.

Suitable rearing habitat for juvenile coho salmon and other salmonids occurs within the boundaries of the Remaining Phase 1 and Phase 2 sites, primarily along the river margins. Some temporary adverse effects on the quality of juvenile salmonid rearing habitat will occur through removal of riparian vegetation that contributes to SRA habitat at various sites throughout the 40-mile reach below Lewiston Dam. Temporary adverse effects to the quality of juvenile salmonid rearing habitat will occur during upland construction activities adjacent to the river channel (e.g., removal of SRA habitat) and in-channel

[3] A salmon fry whose yolk-sac is depleted.

construction activities (e.g., coarse sediment addition, temporary crossings, and grade control removal) The principal adverse effects on fish include displacement of rearing salmonid fishes from their habitat and an 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). The potential direct and indirect effects to fish resulting from increased suspended sediment and turbidity levels are addressed under Impact 4.6-2.

The limited and localized temporary impacts on rearing habitat are expected to be offset in the long-term by substantially more significant beneficial long-term increases in, and improved suitability of, physical rearing habitat associated with implementing the Proposed Project. These benefits will accrue from (1) the engineered floodplain habitat improvements, (2) overall reconnection of the floodplain to the river at low flows, (3) potential channel migration through the upper elevation floodplain, and (4) revegetation of the rehabilitated floodplain with native plant species that will contribute shade and large wood to the river channel. Improved river connection with the floodplain during high flows throughout the year is expected to increase areas of slow, shallow-water habitat preferred by salmonid fry. The process of channel migration through the floodplain may also create new shallow point bars, further increasing the availability of this preferred habitat. Within the project boundaries, the channel migration process and engineered side channel and alcove habitats will collectively increase the relative abundance of this preferred salmon rearing habitat compared to the existing condition.

Ultimately, the collective changes in channel morphology as a result of the Proposed Project, including activities at both the Remaining Phase 1 and Phase 2 sites, are intended to improve habitat diversity for all life-stages of anadromous salmonids. To enhance habitat complexity, large woody debris (LWD) would be strategically placed in restored side-channels and floodplain areas. The addition of LWD will provide complex physical habitat that would have important effects on juvenile and adult fish in the Trinity River in that it 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; as cited in Cederholm et al. 1997). Although the adverse impacts to coho salmon would be temporary and localized, they are considered significant under the Proposed Project.

Chinook Salmon

Potential impacts and benefits to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River would be generally similar to those described for coho salmon. Long-term benefits are expected to substantially outweigh temporary adverse effects. Spring- and fall-run salmon are known to spawn and rear within the boundaries of the Remaining Phase 1 and Phase 2 sites. Spring-run Chinook salmon juveniles can be expected to rear year-round in and adjacent to these sites and may be displaced by in-channel work activities. Additionally, adult spring-run salmon over-summer in the deeper run and pool habitats at various locations in this reach prior to spawning. 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 in the Trinity River. Temporary effects on spring-run holding habitat associated with construction of the

Proposed Project are expected to be limited to short-term, localized increases in turbidity caused by bank-side excavation activities or in-channel work activities. The potential effects of increased suspended sediment and turbidity to holding adult spring-run Chinook salmon are addressed under Impact 4.5-2.

Steelhead

Potential impacts and benefits to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Project would be generally similar to those described for coho and Chinook salmon. Long-term benefits are expected to substantially outweigh temporary adverse effects. Summer and winter runs of KMP ESU steelhead are known to migrate and stage and may spawn within the project boundaries established for the Proposed Project.

Pacific Lamprey

Potential impacts and benefits to Pacific lamprey populations would be similar to those previously described for salmon and steelhead. Adult Pacific lampreys migrate upstream to spawn from spring through early summer and again in the fall. The removal of riparian vegetation that contributes to SRA habitat within the project boundary could have a temporary impact on adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the implementation of TRRP's riparian vegetation management plan should alleviate this impact over the longer term.

Alternative 1

Coho Salmon

Rehabilitation activities under Alternative 1 would be similar to those described for the Proposed Project; however, the location, type, and magnitude of these activities would be less than under the Proposed Project, but would still be considered significant. While most of the expected benefits of the Proposed Project would occur under this alternative, particularly at the Remaining Phase 1 sites, the timeframe to achieve these benefits may be extended. Although Alternative 1 would provide benefits to coho salmon, the temporary and localized impacts to spawning and rearing habitat would be significant.

Chinook Salmon

Alternative 1 would result in lesser construction-related impacts to spawning, holding, and rearing habitat for Upper Klamath-Trinity Rivers ESU Chinook salmon due to the reduced nature of the surface disturbance at the Remaining Phase 1 and Phase 2 sites. Although Alternative 1 would provide benefits to Chinook salmon, the temporary and localized impacts to spawning and rearing habitat would be significant.

Steelhead

Alternative 1 would result in lesser construction-related impacts to spawning and rearing habitat for KMP ESU steelhead due to the reduced nature of the surface disturbance at the Remaining Phase 1 and Phase 2 sites. Although Alternative 1 would provide benefits to KMP ESU steelhead, the temporary and localized impacts to spawning and rearing habitat would be significant.

Pacific Lamprey

Alternative 1 would result in lesser construction-related impacts to spawning and rearing habitat for Pacific lamprey due to the reduced nature of the surface disturbance at the Remaining Phase 1 and Phase 2 sites. Although Alternative 1 would provide benefits to Pacific lamprey, the temporary and localized impacts to spawning and rearing habitat would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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).

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 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.

Significance after Mitigation

Less than significant

Impact 4.6-2: 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. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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.

Proposed Project

Coho Salmon

Activities related to implementation of the Proposed Project would result in the temporary, 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 Remaining Phase 1 and Phase 2 sites and increase the potential for sediment delivery to the Trinity River. The clarity of a water body is related to the concentration of suspended solids, which are predominantly less than 0.5 millimeters (mm) in diameter. Water clarity has been measured as the concentration of suspended solids (mg/l) or more recently as turbidity, measured in nephelometric turbidity units (NTUs). Turbidity generally does not cause acute adverse affects to aquatic organisms unless the 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 NTU). 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 and 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 turbidity occurred during periods of merganser (fish predator) activity, the turbidity would probably be an overall benefit to the fish (Harvey, pers. comm. 2009). In the lab, benthic feeding success of coho salmon in water with turbidity levels as high as 100 NTU has been found to be at least 70 percent of their feeding success in clear water (Harvey and White 2008). In-channel and riverine activities 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-channel excavation is planned as part of the Proposed Project; therefore, it is expected that excavation and operation of heavy equipment will resuspend silt and sand, which will result in localized and temporary increases of suspended sediment and turbidity.

Operation of heavy equipment in the active channel during restoration activities would likely resuspend streambed sediments but is not likely to add fine sediments to the river. Use of washed, spawning-sized gravels and the cleaning of vehicle wheels prior to crossing the channel will minimize the effects of this action on fish habitat. Any juvenile coho salmon rearing in the area during in-channel restoration-related construction activities 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 known spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning due to remobilization of this material and deposition on upper margins of the channel. In-channel construction activities, such as excavation, grading, and coarse sediment addition, would occur 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 these activity areas 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 of juvenile coho salmon to competitive interactions or predation (Berg and Northcote 1985). These temporary impacts were anticipated and addressed in the 2000 Biological Opinion (National Marine Fisheries Service 2000) and associated Incidental Take Statement for the ROD and amended BO for in-channel work. While the Proposed Project is intended to substantially improve aquatic habitat, the short-term adverse impacts associated with construction activities would be considered significant.

Chinook Salmon

Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations 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 habitats encompassed by the project boundary. Construction activities are proposed during the spawning period, though in-channel construction is scheduled outside the spawning period and therefore would not displace holding adult salmonids. Some fine-textured materials may settle near or on known spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Spring-run Chinook salmon juveniles are expected to rear throughout the year within the boundaries of the Remaining Phase 1 and Phase 2 sites 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 the KMP ESU steelhead populations in the Trinity River 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) within the boundaries of the Remaining Phase 1 and Phase 2 sites throughout the proposed construction season. Both runs generally spawn during the winter.

Pacific Lamprey

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

Alternative 1

Coho Salmon

Alternative 1 would result in a reduction in the temporary effects on coho salmon from erosion, sedimentation, and turbidity due to the overall decrease in the location, number, and magnitude of activities compared to those described for the Proposed Project. While the expected benefits of the Proposed Project would also occur under this alternative, these benefits would be reduced under Alternative 1. Although Alternative 1 is intended to increase aquatic habitat over the existing condition, the short-term impacts associated with construction activities would be considered significant.

Chinook Salmon

Alternative 1 would result in erosion, sedimentation, and turbidity impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon similar to those previously described for coho salmon.

Steelhead

Alternative 1 would result in temporary effects on KMP ESU steelhead from erosion and sedimentation similar to those previously described for coho salmon.

Pacific Lamprey

Alternative 1 would result in temporary effects on Pacific lampreys from erosion and sedimentation similar to those previously described for coho salmon.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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 2007), is summarized below.

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

- 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 would be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.

4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.

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

4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.

4.6-2d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls

will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.

4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:

- Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season.
- Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out.
- Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels.
- Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.

Significance after Mitigation

Less than significant

Impact 4.6-3: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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

Construction activities typically include the refueling of construction equipment on location. As a result, minor fuel and oil spills could occur, and there would be a risk of larger releases from locations along the river. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in relation to surface water features, including the Trinity River. Oils, fuels, and other contaminants could have deleterious effects on all salmonid life stages in close proximity to construction activities. These impacts, while short-term, would be considered significant.

Chinook Salmon

Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from the accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Steelhead

Potential impacts to KMP ESU steelhead populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Pacific Lamprey

Potential impacts to Pacific lamprey populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Alternative 1

The risk of, and impacts resulting from, construction-related accidental spills of hazardous materials associated with Alternative 1 would be similar to, but less than, those associated with the Proposed Project for all anadromous fish species due to an overall reduction in construction activities. These impacts would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary:

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

Section 4.5, Water Quality, and section 4.15, Hazards and Hazardous Materials, provide additional details on mitigation measures developed for water quality standards, hazards, and hazardous materials.

Significance after Mitigation

Less than significant

Impact 4.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state listed coho salmon. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 Remaining Phase 1 and Phase 2 project sites, and juvenile coho salmon may be expected to rear within these boundaries year-round. Adult coho migrate through the boundaries and use suitable spawning habitat throughout the 40-mile reach below Lewiston Dam. Direct injury to, or mortality of, coho salmon could occur during in-channel construction activities (e.g., excavation of existing grade control structures, coarse sediment addition including grading, and use of temporary river crossings). In-channel restoration construction activities would be conducted only during late-summer, low-flow conditions (e.g., July 15 – September 15), minimizing the potential for direct

mortality to rearing coho, since 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, will find suitable habitat within river reaches downstream of the project, since juvenile rearing habitat in the mainstem Trinity River is likely under-saturated during summer and fall months (National Marine Fisheries Service 2006). The construction period identified above would completely avoid the spawning period for coho salmon; therefore, direct impacts to adult coho salmon or their embryos/alevins would not occur. However, during spring flow events direct impacts to juvenile coho salmon could occur during the annual, long-term augmentation of coarse sediment at the sites identified on Figure 1-2. Augmentation methods may vary by site, and could be subject to change based on flows. Methods could include injection by positioning the material along the channel margin for distribution by the river at high spring flows, or by delivering the material to the mid-channel via mechanized equipment. Augmentation during high-flows is not expected to have additional adverse effects on redds or juvenile salmonids because the areas chosen for coarse sediment augmentation are high velocity sites where juvenile fish will not be holding and high concentrations of redds would not be expected. Additionally, scour and sediment transport in the Trinity River associated with high flow events would likely impact any existing redds at gravel augmentation sites prior to gravel augmentation.

A small, temporary, but uncertain level of stranding of coho salmon fry could occur on the newly excavated constructed inundation surfaces and side channels during rapidly receding flood-flow periods during 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 and in flood bypasses (Sommer 2001), the constructed features could increase this process to varying degrees. All of the constructed inundation surface designs incorporate a downstream slope equal to that of the river channel as well as high flow scour channels (chutes). These features would drain in a downstream direction that would be guided toward the river channel by earthwork contours to minimize the potential for stranding. As fluvial channel migration occurs across these inundated 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 Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon. Physical construction in and directly adjacent to the river channel could disturb holding adult spring-run Chinook salmon. The principal effect to adult spring-run is that they would be forced to relocate to suitable holding habitat. The Proposed Project would not impair migration, and adult spring-run 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 encompassed by the project boundaries, and physiological effects, or ultimately death, are not expected, as temperatures in this reach of the Trinity

River (13–15 °C) are below the threshold observed where adult spring-run Chinook salmon can accumulate stresses. Based on the proximity of the boundaries of the Remaining Phase 1 and Phase 2 sites to holding habitat observed in 2003/2004 and ongoing studies on temperature tolerance, temperatures in this section of the Trinity River are sufficiently cool that adult spring-run are able to deal with stressors (e.g., relocation) without adverse effect.

Steelhead

Potential impacts to the KMP ESU 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.

Pacific Lamprey

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

Alternative 1

Construction-related mortality of adult and juvenile salmonids and Pacific lamprey associated with Alternative 1 would be similar to, but less than, that associated with the Proposed Project for adult and juvenile fish due to an overall reduction in the construction activities. While the activities included in Alternative 1 are intended to benefit salmonids and other aquatic organisms, the potential for mortality would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.

4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, and 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.

4.6-4e To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select locations where water velocities are too high and juvenile salmonids would not be expected to be holding.

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, would 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.

Significance after Mitigation

Less than significant

Impact 4.6-5: Implementation of the project would result in the permanent or temporary loss of SRA habitat for anadromous salmonids. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project alternative, additional loss of SRA habitat along the Trinity River would not occur because the project would not be constructed. Under this alternative, other restoration projects implemented by the TRRP and other entities would occur, consistent with federal, state, and local requirements. Although some of these projects would result in loss of SRA habitat, this loss has been considered outside of the analysis provided in this document. Therefore, there would be no impact.

Proposed Project and Alternative 1

For the purposes of this document, the term riparian habitat encompasses the range of riparian vegetation conditions within the boundaries of the project sites and is synonymous with SRA habitat. It does not have a specific legal description or definition.

Coho Salmon, Chinook Salmon, and Steelhead

Removal of montane riparian wetland vegetation along the banks of the Trinity River within the boundaries of the Remaining Phase 1 and Phase 2 sites could adversely affect the quality of rearing habitats used by salmonids. These adverse effects are expected to be ephemeral, and long-term impacts will be beneficial as riparian vegetation is restored to a state more closely resembling pre-dam conditions with increased native species and increased diversity in ages and species composition.

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 LWD 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 the SONCC ESU coho salmon and a component of EFH for Chinook and coho salmon. However, complexity in the riparian environment is also an important component of fish habitat; such complexity would be increased under the Proposed Project.

Removal of the riparian berm and re-activation of adjacent floodplains and side-channels in activity areas would allow for natural revegetation of most of the riparian habitat (a mixture of willows, alders, and cottonwoods) that would be removed during berm removal and other excavation activities. Under either the Proposed Project or Alternative 1, large seed trees (willow and cottonwood) and other large nest trees would be left intact. Additionally, riparian habitat removed under either action alternative would be replaced consistent with the TRRP Riparian Revegetation and Monitoring Plan. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing riparian vegetation is considered a significant impact.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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 the floodplain. Boundary markers will be installed along all riparian areas outside of delineated rehabilitation activity areas. These markers will prevent construction access so that impacts

to riparian vegetation are minimized. To compensate for the loss of riparian vegetation in the project boundaries, Reclamation will implement the following measures:

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 project 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.

4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.

4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 Project site boundaries after 10 years.

Significance after Mitigation

Less than significant

Impact 4.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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

Coho Salmon

Construction activities associated with the Proposed Project may require temporary placement of low-flow channel crossings, which consist of gravel fill materials or temporary bridges. The crossings will be constructed to maintain adequate water depths and velocities for fish passage. The low water crossings would be used to move heavy equipment across the low-flow channels to access activity areas on opposite banks of the Trinity River or its tributaries. Construction activities could require service vehicles to cross up to several times per week; otherwise, vehicle crossing traffic would be kept to a minimum. Temporary gravel fill work ramps and low-flow channel crossings would be constructed to extend across the width of the low-flow channel and are expected to be in-place long enough to complete work in these activity areas. Construction involving in-channel activities will be completed only between July 15 and September 15. However, construction at the edge of the active low-flow channel may occur during both summer and autumn months (between July and December). Access in and out of the sites could be required during other low-flow times as well. Construction of the crossings on the mainstem Trinity River would only be conducted during late-summer, low-flow conditions (e.g., July 15–September 15). However, crossings of the river or tributaries at low-flow conditions during other months (e.g., October–December) may occur via a bridge. Consequently, it is likely that some work adjacent to the channel would occur during the coho salmon spawning period.

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. Fill materials would consist of appropriately sized spawning gravel from Phase 1 or Phase 2 TRRP sites as specified by NMFS and CDFG.

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 (National Marine Fisheries Service 2001) and Part IX Fish Passage Evaluation at Stream Crossings of CDFG's California Salmonid Stream Habitat Restoration Manual (California Department of Fish and Game 2003).

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-road crossings due to unsuccessful passage attempts at inadequate (blocking) structures can lead to reduced spawning success and pre-spawning mortality (Robison et al. 1999). Adequate depth and velocities over the crossing will allow both juvenile and adult passage. While long-term beneficial changes to physical

rearing habitat associated with implementing the Proposed Project are anticipated, the temporary impacts on fish passage would be considered significant.

In the event that a temporary bridge is required to implement an activity (as described in Section 2.3) all in-channel activities within the mainstem Trinity River will be restricted to the timeframes outlined in the 2000 Biological Opinion (National Marine Fisheries Service 2000).

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 low-flow channel crossings would not preclude fish passage since adequate depths and velocities will be maintained at the crossings.

Steelhead

Potential impacts to the KMP ESU 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.

Pacific Lamprey

Potential fish passage 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 and Chinook salmon and steelhead.

Alternative 1

Coho Salmon

Impacts to coho salmon resulting from temporary impairments to fish passage during the in-stream construction phase for Alternative 1 would be similar to, but less than, those associated with the Proposed Project due to an overall reduction in the number of stream crossings. These impacts would be 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.

Steelhead

Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of Alternative 1 would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey

Potential fish passage impacts to Pacific lamprey populations in the Trinity River resulting from implementation of Alternative 1 would be similar to those previously described for coho and Chinook salmon and steelhead.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.

4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and 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.

Significance after Mitigation

Less than significant

SECTION 4.7

Vegetation, Wildlife, and Wetlands

4.7 Vegetation, Wildlife, and Wetlands

This section describes the biological resources known to occur in the Trinity River basin in proximity to the proposed Remaining Phase 1 and Phase 2 sites. It also evaluates potential impacts to biological resources from implementation of the Proposed Project and its alternatives.

4.7.1 Environmental Setting

Riparian vegetation is most prevalent along the Trinity River from the Lewiston Dam downstream to the confluence with the North Fork Trinity River. This reach includes approximately 330 acres of early-successional, willow-dominated vegetation; 170 acres of more mature, later-successional, alder-dominated vegetation; and 380 acres of willow-alder mix (U.S. Fish and Wildlife Service et al. 1999). Between the North Fork and the South Fork, the mainstem Trinity River channel is constrained by canyon walls that limit riparian vegetation to a narrow band. In comparison to upstream reaches below Lewiston Dam, peak flows in this reach have been less affected by dam operations. Between the South Fork and the Klamath River, the Trinity River alternates between confined reaches with little riparian vegetation to alluvial reaches with vegetation similar to pre-dam conditions in the reach between Lewiston Dam and the North Fork. At Trinity and Lewiston reservoirs, plant species consist of those typically found in standing water and include floating species, rooted aquatic species, and emergent wetland species. Emergent wetland and riparian vegetation is constrained by fluctuating water levels and steep banks.

Many wildlife species that inhabited river and riparian habitats prior to the TRD still occur along the Trinity River, although species that prefer early-successional stages or require greater riverine structural diversity likely occurred in greater abundance prior to the TRD. Species commonly present prior to the TRD likely included the rough-skinned newt (*Taricha granulosa*), western aquatic garter snake (*Thamnophis couchi*), foothill yellow-legged frog (*Rana boylii*), western pond turtle *(Actinemys marmorata*), and American dipper (*Cinclus mexicanus*). Wildlife species that foraged on the abundant Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*) runs, such as the black bear (*Ursus americanus*), bald eagle (*Haliaeetus leucocephalus*), and other scavengers, were also common along the pre-dam Trinity River (U.S. Fish and Wildlife Service et al. 2000).

The post-dam flow regime established conditions that favored upland habitat at the expense of wetland and aquatic habitat. The shift in habitat types is a causative factor in the current depressed populations of aquatic, semi-aquatic, and wetland wildlife species compared to terrestrial species. Species such as the western pond turtle, an example of a semi-aquatic species, have declined since construction of the TRD in response to diminishing quality and abundance of riverine habitat. In contrast, species that favor mature, late-successional riparian habitats, such as the northern goshawk (*Accipiter gentiles*) and black salamander (*Aneides flavipunctatus*), prefer the current mature conditions (U.S. Fish and Wildlife Service et al. 2000).

The TRD reservoirs attract resting and foraging waterfowl and other species that favor standing or slow-moving water. Impounded water in the reservoirs also provides important foraging habitat for eagles and other raptors that prey on fish and waterfowl.

Overview of Plant Communities

The following plant community descriptions follow the nomenclature used in Sawyer and Keeler-Wolf (1995) and *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988) except for the foothill pine and open water categories, which are not included in either of these references.

Annual Grassland

This annual grassland plant community is commonly dominated by introduced annual grass species, including wild oats (*Avena fatua*), soft brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), and hare barley (*Hordeum murinum* ssp. *leporinum*). 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.

Barren

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

Foothill Pine

Foothill pine (*Pinus sabiana*) (also known as gray pine) is the dominant overstory species present in foothill pine communities. Understory vegetation includes common manzanita (*Arctostaphylos patula*), buck brush (*Ceanothus cuneatus*), skunkbrush (*Rhus trilobata*), and poison oak (*Toxicodendron diversilobum*). The herbaceous layer includes ripgut brome, cheatgrass, and false hedge-parsley (*Torilis arvensis*).

Fresh Emergent Wetland

Fresh emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Typically, the dominant plant species include narrow-leaf cattail (*Typha angustifolia*), Himalayan blackberry (*Rubus discolor*), perennial ryegrass (*Lolium perenne*), and narrow-leaved willow (*Salix exigua*). In the project area, fresh emergent wetlands are found in landscape depressions and at the edge of the Trinity River and its tributaries.

Klamath Mixed Conifer

Klamath mixed conifer habitats 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 white fir (*Abies concolor*) and Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*). Occasional broadleaf trees include golden chinquapin (*Chrysolepis chrysophylla*), canyon live oak (*Quercus chrysolepis*), and black oak (*Q. kelloggii*).

Mixed Chaparral

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 (*Arctostaphylos patula*) and buck brush.

Montane Hardwood

In montane hardwood communities, typical dominant tree species include Pacific madrone (*Arbutus menziesii*), bigleaf maple (*Acer macrophyllum*), canyon live oak, and black oak. Associated shrub species include common manzanita (*Arctostaphylos manzanita*), buck brush, skunkbrush, snowberry (*Symphoricarpos albus* var. *laevigatus*), and poison-oak. The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye (*Elymus glaucus*), silver bush lupine (*Lupinus albifrons*), purple sanicle (*Sanicula bipinnatifida*), and false hedge-parsley.

Montane Hardwood-Conifer

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, bigleaf maple, ponderosa pine (*Pinus ponderosa)*, gray pine (*Pinus sabiana*), Douglas-fir, canyon live oak, and black oak. Shrub species include common manzanita, buck brush, cascara (*Rhamnus purshiana*), 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.

Montane Riparian

Montane riparian communities occur adjacent to and below the ordinary high water mark of the Trinity River, as well as other relatively wet locations. In Trinity County, dominant tree species typically occurring in this community include bigleaf maple, white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and Goodding's black willow (*Salix gooddingii*). Typical understory species include mugwort (*Artemisia douglasiana*), virgin's bower (*Clematis ligusticifolia*), American dogwood (*Cornus sericea*), Oregon golden-aster (*Heterotheca oregona*), dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*), white sweet clover (*Melilotus alba*), musk monkeyflower (*Mimulus moschatus*), straggly gooseberry (*Ribes divaricatum*), Himalayan blackberry, California blackberry (*Rubus ursinus*), narrow-leaved willow, arroyo willow (*Salix lasiolepis*), shining willow (*S. lucida*), and California wild grape (*Vitis californica*).

Open Water

Open water habitat consists of deep-water areas that exhibit perennial inundation. Vascular plant species are typically limited to the edges of this habitat because the water depth inhibits sunlight from reaching to the channel bottom where vegetation would typically be rooted.

Perennial Grassland

Perennial grassland habitat typically occurs on ridges and south-facing slopes, alternating with forest and scrub in the valleys and on north-facing slopes. Species present in this habitat include a variety of introduced and native perennial species, including sedge (*Carex* spp.).

Ponderosa Pine

As the name implies, the dominant overstory species in ponderosa pine communities is ponderosa pine. Understory vegetation typically includes common manzanita, buck brush, and poison-oak. The underlying herbaceous layer includes ripgut brome and cheatgrass.

Riverine

Riverine habitat (Trinity River) is common to all Remaining Phase 1 and Phase 2 sites. The portion of the river where the rehabilitation sites are located is dominated by run and riffle areas, with boulder, cobble, gravel, and sand substrates. Vegetation in the active river channel is sparse, with occasional clumps of sedges.

Wildlife Resources

The plant communities described above occur in a complicated mosaic in the project area, providing habitat for a wide variety of wildlife species. A discussion of the species typically found in these communities is provided below.

Annual Grassland

Annual grasslands are productive wildlife habitat. Grassland bird species, such as the mourning dove (*Zenaida macroura*), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*), as well as rodents, including the California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), California kangaroo rat (*Dipodomys californicus*), and deer mouse (*Peromyscus maniculatus*), forage on the seed crop this community provides. These species, in turn, attract predators such as the gopher snake (*Pituophis melanoleucus*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and coyote (*Canis latrans*). Reptile species expected to occur here include the western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), western rattlesnake (*Crotalus viridis*), and yellow-bellied racer (*Coluber constrictor*).

Barren

Barren habitat provides few resources for wildlife species. Some species associated with adjacent habitats likely forage on the bare soil to some extent, and killdeer (*Charadrius vociferus*) may nest here. However, use of this habitat by wildlife is expected to be limited.

Foothill Pine

Numerous birds feed on the seeds of foothill pine, including the northern flicker (*Colaptes auratus*), Steller's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), and band-tailed pigeon (*Patagioenas fasciata*). The foliage, bark, and seeds also provide food for gray squirrels (*Sciurus griseus*), and black-tailed deer (*Odocoileus hemionus columbianus*) browse the foliage and twigs.

Fresh Emergent Wetland

Fresh emergent wetland provides habitat for breeding and larval development of amphibians, such as the western toad (*Bufo boreas*), Pacific chorus frog (*Pseudacris regilla*), and non-native bullfrog (*Rana catesbeiana*). This community also provides habitat for waterbirds, such as the green heron (*Butorides striatus*) and mallard (*Anas platyrhynchos*), as well as roosting and nesting habitat for the red-winged blackbird (*Agelaius phoeniceus*).

Klamath Mixed Conifer

Klamath mixed conifer habitat provides a wide array of nesting and foraging opportunities for wildlife. Species commonly found in this habitat include the mountain quail (*Oreotyx pictus*), hairy woodpecker (*Picoides villosus*), sharp-shinned hawk (*Accipiter striatus*), western gray squirrel, and gray fox (*Urocyon cinereoargenteus*). The leaf litter also provides habitat for reptiles and amphibians, such as the California kingsnake (*Lampropeltis zonata*) and ensatina (*Ensatina eschscholtzii*).

Mixed Chaparral

Mixed chaparral provides habitat for a wide variety of wildlife species. It provides seeds, fruit, and protection from predators and adverse weather. In addition, it provides singing, roosting, and nesting sites for many species of birds, including the California quail (*Callipepla californica*), wrentit (*Chameae fasciata*), and Bewick's wren (*Thryomanes bewickii*). Mammals common in this habitat include the black-tailed jackrabbit (*Lepus californicus*), gray fox, coyote, and deer mouse. Reptiles that make use of this habitat include the western fence lizard and southern alligator lizard (*Elgaria multicarinata*).

Montane Hardwood-Conifer

The variability of the canopy cover and understory vegetation makes montane hardwood-conifer communities suitable for numerous species of wildlife. Hollow trees and logs provide denning sites for mammals such as the coyote, while cavities in mature trees are used by cavity-dwelling species such as the acorn woodpecker, violet-green swallow (*Tachycineta thalassina*), northern flicker, great horned owl (*Bubo virginianus*), raccoon (*Procyon lotor*), and pallid bat (*Antrozous pallidus*). In addition, raptors, such as the red-tailed hawk, construct nests in the upper canopy of mature trees. Moreover, mast crops and conifer seeds are an important food source for many birds and mammals, including the Steller's jay,

acorn woodpecker, California quail, black-tailed deer, and western gray squirrel. In moist areas, many amphibians and reptiles are found in the detrital layer, including ensatina and western fence lizards. Snakes, including the western rattlesnake and sharp-tailed snake (*Contia tenuis*), also occur in this community.

Montane Riparian

Riparian woodlands represent some of the most important wildlife habitats due to their high floristic and structural diversity, high biomass (and therefore high food abundance), and high water availability. In addition to providing breeding, foraging, and roosting habitat for a diverse array of species, riparian habitats also provide movement corridors, connecting a variety of habitats throughout a region.

The leaf litter, fallen tree branches, and logs associated with the riparian communities in the project area provide cover for amphibians, such as the western toad and Pacific chorus frog. The western fence lizard, western skink, and southern alligator lizard are also expected to occur here. Species commonly nesting and foraging primarily in the riparian tree canopy include the tree swallow (*Tachycineta bicolor*), bushtit (*Psaltriparus minimus*), white-breasted nuthatch (*Sitta carolinensis*), and Nuttall's and downy woodpeckers (*Picoides nuttallii* and *P. pubescens*, respectively). Other resident species, such as the spotted towhee (*Pipilo maculatus*) and song sparrow (*Melospiza melodia*), nest and forage on or very close to the ground, usually in dense vegetation. A variety of mammals also occurs in riparian communities, including the deer mouse, raccoon, and Virginia opossum (*Didelphis virginiana*).

Open Water

Open water provides foraging habitat to waterfowl, such as the mallard and Canada goose (*Branta canadensis*). In addition, bats, black phoebes (*Sayornis nigricans*), tree swallows, and other birds that feed on insects found over water sources likely forage over this habitat. Further, open water provides habitat for amphibians and reptiles such as the western toad, Pacific chorus frog, and common garter snake (*Thamnophis sirtalis*).

Perennial Grassland

The suite of animals using this habitat is similar to that found in annual grasslands. For both types of grassland, the value of the habitat is enhanced by the variety of habitats surrounding it, which provide shelter for species that forage in the open grasslands. Perennial grasslands support several herbivores, including black-tail deer, California ground squirrels, Botta's pocket gophers, deer mice, and black-tailed jackrabbits. These species attract predators that breed in adjacent habitats, such as the bobcat (*Lynx rufus*), coyote, red-tailed hawk, and great-horned owl. Reptile species expected to occur here include the western fence lizard, western skink, and gopher snake.

Ponderosa Pine

Ponderosa pine needles, cones, buds, pollen, twigs, seeds, and associated fungi and insects provide food for many species of birds and mammals, including the mountain quail, western gray squirrel, black-tailed deer, and Allen's chipmunk (*Tamias senex*), and the needles are eaten by blue grouse (*Dendragapus obscurus*). Mature trees provide nesting habitat for raptors such as the sharp-shinned hawk and red-tailed

hawk, while snags and hollow logs provide shelter for species such as the Virginia opossum and western spotted skunk (*Spilogale gracilis*).

Riverine

The Trinity River provides potential habitat for several native and introduced fish species (see section 4.6). Amphibians and reptiles expected to occur here include the Pacific chorus frog, western toad, bullfrog, and western pond turtle. In addition, birds such as the mallard, great blue heron (*Ardea herodias*), osprey (*Pandion haliaetus*), and belted kingfisher (*Ceryle alcyon*) may forage here. Mammals expected to occur in this habitat include the river otter (*Lutra canadensis*) and beaver (*Castor canadensis*). Bats, including the Yuma myotis (*Myotis yumanensis*) and big brown bat (*Eptesicus fuscus*), forage above this habitat on warm evenings.

Special-Status Species

In Trinity County, the communities described above provide habitat for a number of special-status plant and wildlife species. For the purposes of this evaluation, special-status species are (1) designated as rare by the CDFG 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 CDFG 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 (California Native Plant Society 2008).

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 USFS "sensitive species" is any species of plant that has been recognized by the Regional Forester to need special management in order to prevent it from becoming threatened or endangered. The National Forest Management Act (NFMA) requires the USFS to "provide for a diversity of plant and animal communities" [16 U.S.C. 1604(g)(3)(B)] as part of its multiple use mandate. The USFS must maintain "viable populations of existing native and desired non-native species in the planning area" (36 CFR 219.19). The sensitive species program is designed to meet this mandate and to demonstrate the USFS' commitment to maintaining biodiversity on National Forest System lands.

A list of special-status plant species considered for the Proposed Project was compiled by performing searches of the California Natural Diversity Database (CNDDB) and CNPS Electronic Inventory database (Appendix I), informally consulting with the CDFG and USFWS, and reviewing biological literature for the project region, including BLM's special-status plants list for the Redding Field Office (U.S. Bureau of Land Management 2005). A list of federal special-status species potentially occurring in Trinity County was obtained from the USFWS on March 25, 2008. The list includes species potentially occurring in Trinity County that have endangered, threatened, or candidate status (Appendix J). Table 4.7-1 lists the special-status plant species analyzed for their potential to occur in the project area.

A list of special-status wildlife species considered for analysis in this environmental document was compiled by performing a CNDDB database search (Appendix I), conducting informal consultations with the CDFG and USFWS, and reviewing biological literature for the region. Habitat information for special-status wildlife species was excerpted from the following sources:

- the California Department of Fish and Game, Habitat Conservation Planning Branch website (California Department of Fish and Game 2008);
- Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994);
- California's Wildlife, Volume II: Birds (Zeiner et al. 1990a);
- California's Wildlife, Volume III: Mammals (Zeiner et al. 1990b);
- California's Wildlife, Volume I: Amphibians and Reptiles (Zeiner et al. 1990c); and
- California Wildlife Habitat Relationships Program, Version 8.1 (California Department of Fish and Game 2005).

The special-status wildlife species that occur in the project region are described in Table 4.7-2 and more detailed species accounts are provided in Appendix C. Federal and state designations, general habitat requirements, and information on each species' potential occurrence at the sites (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.

Table 4.7-1. Special-Status Plant Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Federally or State Listed Species				
McDonald's rock cress *Arabis macdonaldiana*	E/E/1B	Crevices, cracks, and margins of rocks on barren to shrub-covered, shallow, rocky, ultramafic soils (3,900–7,200 feet).	May–July	**Absent.** Not expected to occur at any of the project sites. Project sites do not contain ultramafic soils and are outside elevation range for this taxon.

Table 4.7-1. Special-Status Plant Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Other Special-Status Species				
Baker's globe mallow *Iliamna bakeri*	†/—/1B	Chaparral, pinyon, and juniper woodland/volcanic, often in burned areas (3,280–8,200 feet).	June–September	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Bay horsehair lichen *Sulcaria badia*	†/—/—	Hardwood trees (e.g., Oregon white oak) in areas with significant amount of fog and ambient humidity.	N/A	**Absent.** Does not occur at any of the project sites. BLM non-vascular plant surveys did not result in detection of this taxon.
Bottlebrush sedge *Carex hystericina*	*/—/2	Marshes, swamps, and wet places along stream banks (1,960–2,000 feet).	June	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
California globe mallow *Iliamna latibracteata*	†/—/1B	Often on burned areas in chaparral, lower montane coniferous forest, North Coast coniferous forest, and riparian scrub (200–6,565 feet).	June–August	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Canyon Creek stonecrop *Sedum paradisum*	*†/—/1B	Granitic, rocky sites in broadleaved upland forest, chaparral, lower montane coniferous forest, and subalpine coniferous forest (960–6,500 feet).	May–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Clustered lady's-slipper *Cypripedium fasciculatum*	*†/—/4	Variety of soil types (including serpentinite) and often, but not always, associated with streams in mixed conifer or oak forests (1,300–6,000 feet).	March–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Dubakella Mountain buckwheat *Eriogonum libertini*	†/—/4	Openings in Jeffrey pine and incense-cedar woodland or chaparral, always on ultramafic soils (2,500–5,500 feet).	June–August	**Absent.** Not expected to occur at any of the project sites because they do not contain ultramafic soils.

Table 4.7-1. Special-Status Plant Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Dudley's rush *Juncus dudleyi*	—/—/2	Wetlands or other wet areas in lower montane coniferous forest habitat (1,490–6,560 feet).	July–August	**May be Present.** Project sites are likely to contain suitable habitat for this species. It may occur at any of the project sites.
Elongate copper moss *Mielichhoferia elongata*	†/—/2	Usually on vernally mesic sites of metamorphic rock in cismontane woodland (1,640–4,265 feet).	N/A	**Absent.** BLM non-vascular plant surveys did not result in detection of this taxon.
English Peak greenbriar *Smilax jamesii*	*/—/1B	Broadleaved upland forest, lower and upper montane coniferous forests, marshes, swamps, and North Coast coniferous forest (2,900–7,500 feet).	May–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Flaccid sedge *Carex leptalea*	—/—/2	Marshes, swamps, wet meadows, bogs, fens, and wet places along stream banks (0–2,300 feet).	May–July	**May be Present.** Project sites are likely to contain suitable habitat for this taxon. Thus, it may occur at any of the project sites.
Fox sedge *Carex vulpinoidea*	—/—/2	Freshwater marshes, swamps, and riparian woodlands (100–4,000 feet).	May–June	**May be Present.** Project sites are likely to contain suitable habitat for this taxon. Thus, it may occur at any of the project sites.
Heckner's lewisia *Lewisia cotyledon* var. *heckneri*	*/—/1B	Outcrops and cliffs of various rock types, often near streams or rivers, in part to full shade, usually on northern aspects (730–6,900 feet).	May–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Howell's alkali grass *Puccinellia howellii*	*/—/1B	Meadows and mineralized seeps; known from a single location along highway 299 near Whiskeytown (1,600 feet).	April–June	**Absent.** Not expected to occur at any of the project sites because the sites do not contain mineralized seeps.
Howell's lewisia *Lewisia cotyledon* var. *howellii*	*/—/3	Rocky places in broadleaf upland and lower montane coniferous forests, chaparral, and cismontane woodland (490–6,600 feet).	April–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.

Table 4.7-1. Special-Status Plant Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Howell's montia *Montia howellii*	†/—/2	Early-successional, vernally moist habitats, often on compacted fine sediments (<1,500 feet).	March–May	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Klamath Mountain catchfly *Silene salmonacea*	—/—/1B	Openings in lower montane coniferous forest; usually on serpentinite (2,540–3,430 feet).	June	**Absent.** Not expected to occur at any of the project sites. Sites do not contain ultramafic soils.
Moonwort, grape-fern *Botrychium* subgenus *Botrychium*	†/—/2	Fens, meadows, seeps, marshes, swamps, and mesic sites in fields, shrubby slopes, shady forests, and riparian areas (1,000–6,000 feet).	N/A	**May be Present.** Project sites are likely to contain suitable habitat for this taxon. Thus, it may occur at any of the project sites.
Mountain lady's-slipper *Cypripedium montanum*	*†/—/4	Variety of soil types and often associated with streams in mixed conifer, oak, and broad-leaved forests (1,300–6,000 feet).	March–August	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Nile's harmonia *Harmonia doris-nilesiae*	*†/—/1B	Dry, stony serpentine openings in mixed-conifer-oak forest on ridgetops and moderate to steep slopes (2,100–5,500 feet).	May–July	**Absent.** Not expected to occur at any of the project sites. Sites do not contain ultramafic soils.
Northern adder's-tongue fern *Ophioglossum pusillum*	†/—/1B	Marshes, swamps, and other mesic sites in valley and foothill grassland (3,280–6,560 feet).	July	**May be Present.** Project sites are likely to contain suitable habitat for this taxon. Thus, it may occur at any of the project sites.
Northern clarkia *Clarkia borealis* ssp. *borealis*	*†/—/1B	Chaparral, cismontane woodland, and lower montane coniferous forest (1,310–4,395 feet).	June–September	**May be Present.** Project sites are likely to contain suitable habitat for this taxon. Thus, it may occur at any of the project sites.
Oregon willow herb *Epilobium oreganum*	*†/—/1B	Generally on ultramafic soils of wet, gently sloping stream banks, meadows and fens in lower and upper montane coniferous forests (500–7,800 feet).	June–September	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.

Table 4.7-1. Special-Status Plant Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Peanut sandwort *Minuartia rosei*	†/—/4	Gravelly serpentine barrens and openings in Jeffrey pine/ mixed conifer forest (2,500–5,800 feet).	May–July	**Absent**. Not expected to occur at any of the project sites because they do not contain ultramafic soils.
Pickering's ivesia *Ivesia pickeringii*	*†/—/1B	Lower montane conifer forests; seasonally wet meadows, swales, and rocky ephemeral stream beds on ultramafic soils (2,500–4,500 feet).	June–August	**Absent.** Not expected to occur at any of the project sites because they not contain ultramafic soils.
Regel's rush *Juncus regelii*	—/—/2	Meadows and wet places in upper montane coniferous forest habitat (2,500–6,230 feet).	August	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Scott Mountain fawn lily *Erythronium citrinum* var. *roderickii*	*†/—/1B	Montane forests on soils derived from serpentine or granitic parent material (2,900–4,000 feet).	March–April	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Scott Mountain bedstraw *Galium serpenticum* ssp. *scotticum*	*/—/1B	Steep serpentine talus slopes in lower montane coniferous forest (3,280–6,810 feet).	May–August	**Absent.** Not expected to occur at any of the project areas because they do not contain ultramafic soils.
Serpentine goldenbush *Ericameria ophitidis* (= *Haplopappus ophitidis*)	†/—/4	Serpentine semi-barrens or openings in Jeffrey pine and incense-cedar woodland (2,600–5,600 feet).	June–August	**Absent.** Not expected to occur at any of the project sites because they do not contain ultramafic soils.
Shasta chaenactis *Chaenactis suffrutescens*	*†/—/1B	Rocky open slopes, cobbly river terraces, and occasionally on road cuts, on serpentine soils or glacial till with ultramafics included (2,600–6,900 feet).	May–September	**Absent.** Not expected to occur at any of the project sites because they do not contain ultramafic soils.
Showy raillardella *Raillardella pringlei*	*†/—/1B	Fens, meadows, seeps, and mesic sites in upper montane coniferous forest on ultramafic soils (4,000–7,500 feet).	July–September	**Absent.** Not expected to occur at any of the project sites because they do not contain ultramafic soils.

Table 4.7-1. Special-Status Plant Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Stebbins' harmonia *Harmonia stebbinsii*	*†/—/1B	Shallow, rocky, ultramafic substrates; edges between timber and brush, roadsides on gently south-facing slopes (1,300–5,200 feet).	May–July	**Absent.** Not expected to occur at any of the project sites because they do not contain ultramafic soils.
Tedoc Mountain linanthus *Leptosiphon nuttallii* ssp. *howellii* (= *Linanthus n.* ssp. *h.*)	*†/—/1B	Openings in Jeffrey pine and incense-cedar woodland or chaparral, usually on ultramafic soils (4,000–9,190 feet).	May–July	**Absent.** Not expected to occur at any of the project sites because they do not contain ultramafic soils.
Thread-leaved beardtongue *Penstemon filiformis*	*†/—/1B	Rocky openings in lower montane woodlands and coniferous forests on ultramafic substrates (1,475–6,005 feet).	June–July	**Absent.** Not expected to occur at any of the project because they do not contain ultramafic soils.
Tracy's eriastrum *Eriastrum tracyi*	†/R/1B	Dry gravelly to loamy soils on flats and benches; closed cone pine forests or chaparral of the North Coast Ranges (1,000–4,300 feet).	June–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Veiny arnica *Arnica venosa*	†/—/4	Often on ridge tops and in disturbed areas, such as on old road cuts, in mixed conifer or conifer/oak forest in Trinity and Shasta counties (2,000–5,200 feet).	May–July	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
Wolf's evening primrose *Oenothera wolfii*	—/—/1B	Coastal habitats and lower montane coniferous forests, usually on sandy, mesic substrates (9–2,625 feet).	May–October	**May be Present.** Project sites may contain suitable habitat for this species. Thus, it may occur at any of the project sites.
White beaked-rush *Rhynchospora alba*	—/—/2	Bogs, fens, meadows, marshes, and swamps (freshwater) (197–6,693 feet).	July–August	**May be Present.** Project sites are likely to contain suitable habitat for this taxon. Thus, it may occur at any of the project sites.

[1]Status Codes
Federal and State Codes:
E = Endangered; T = Threatened;
† = USFS Sensitive or Endemic
* = BLM Sensitive

CNPS Codes:
List 1B = Rare, Threatened or Endangered in CA and elsewhere
List 2 = Rare, Threatened, or Endangered in CA but common elsewhere
List 3 = More information is needed
List 4 = Limited distribution

Table 4.7-2. Special-Status Wildlife Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat	Comments
Federally or State Listed Species			
Trinity bristle snail *Monadenia setosa*	—/T	Riparian corridors and canyon slopes with dense deciduous understory in Trinity County.	**Absent.** Species not detected during surveys of potential Trinity River restoration sites
California red-legged frog *Rana aurora draytonii*	T/SC	Requires aquatic habitat for breeding; also uses a variety of other habitat types, including riparian and upland areas.	**Absent.** Sites are not within the current or historic range of this species.
American peregrine falcon *Falco peregrinus anatum*	D/E, FP	Forages in many habitats; requires cliffs for nesting.	**Absent as breeder.** Project sites lack suitable nesting habitat, but the species may occur as a forager.
Bald eagle *Haliaeetus leucocephalus*	D/E	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.
Northern spotted owl *Strix occidentalis caurina*	T/—	In northern California, resides in large stands of old growth, multi-layered, mixed conifer, redwood, and Douglas-fir habitats	**Absent.** No suitable habitat occurs within project boundaries.
Bank swallow *Riparia riparia*	—/T	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.
Marbled murrelet *Brachyramphus marmoratus*	T/E	Marine subtidal and pelagic habitats; requires dense, mature forests of redwood and Douglas-fir for breeding.	**Absent.** Suitable habitat is not present along the portion of the Trinity River being analyzed, and the area is not within the known range of the species.
Little willow flycatcher *Empidonax traillii brewsteri*	†/E	Rare summer resident in wet meadow and montane riparian habitats at 2,000 to 8,000 feet elevation.	**May be Present.** The montane riparian community in the region provides suitable habitat and the species has been observed along the Trinity River corridor (Wilson 1995; Miller et al. 2003; Herrera 2006).

Table 4.7-2. Special-Status Wildlife Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat	Comments
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C†/E	Occurs in cottonwood/willow riparian forest.	**Absent.** Sites are not within the currently known range of the species.
California wolverine *Gulo gulo luteus*	†/T, FP	A variety of habitats at elevations between 1,600 and 14,200 feet. Most commonly inhabits open terrain above timberline.	**Absent.** Sites are not within the currently known range of the species.
Pacific fisher *Martes pennanti pacifica*	C*†/SC	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.	**Absent as breeder.** This species is not expected to breed on the sites, but may use the Trinity River as a travel corridor.
Other Special-Status Species			
Tailed frog *Ascaphus truei*	—/SC	Clear, rocky, swift, cool perennial streams in densely forested habitats.	**Absent.** Suitable habitat is not present.
Foothill yellow-legged frog *Rana boylii*	*†/SC	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 (California Department of Fish and Game 2003).
Cascades frog *Rana cascadae*	—/SC†	Open coniferous forests along the sunny, rocky banks of ponds, lakes, streams, and meadow potholes. From 2,600 to 9,000 feet elevation in Cascades and Trinity mountains.	**Absent.** The project sites are below the known elevational range of this species.
Western pond turtle *Actinemys marmorata*	†/SC	Slow water aquatic habitat with available basking sites. Require an upland oviposition (egg laying) site near the aquatic site.	**May be present.** Riverine and riparian habitats along the Trinity River provide suitable habitat.
Black swift *Cypseloides niger*	—/SC	Nests in moist crevices or caves or sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons; forages widely over many habitats.	**Absent as breeder.** The project area does not provide suitable breeding habitat; however, the species may forage over the sites while migrating.

Table 4.7-2. Special-Status Wildlife Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat	Comments
California yellow warbler *Dendroica petechia brewsteri*	—/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	**May be present.** Montane riparian habitat along the Trinity River in the project area provides suitable nesting and foraging habitats.
Golden eagle *Aquila chrysaetos*	—/SC, FP	Breeds on cliffs or in large trees or electrical towers, forages in open areas.	**Absent as breeder.** Suitable nesting habitat is absent from the sites; however, the species may occur as a forager.
Northern goshawk *Accipiter gentiles*	†/SC	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.
Vaux's swift *Chaetura vauxi*	—/SC	Prefers redwood and Douglas-fir habitats; nests in hollow trees and snags or, occasionally, in chimneys; forages aerially.	**May be present.** Suitable habitat is present in the project area.
Yellow-breasted chat *Icteria virens*	—/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**May be present.** Montane riparian habitat along the Trinity River in the project area provides suitable nesting and foraging habitats.
Fringed myotis *Myotis thysanodes*	*/—	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 *Myotis evotis*	*/—	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.

Table 4.7-2. Special-Status Wildlife Species Considered for Analysis

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat	Comments
Oregon snowshoe hare *Lepus americanus klamathensis*	—/SC	In California, primarily found in montane riparian habitats and in stands of young conifers interspersed with chaparral. Dense cover is preferred. Primarily occurs in areas with relatively deep winter snow accumulation that persists for several months (Ellsworth and Reynolds 2006).	**Absent.** Suitable habitat is not present in the project area.
Pallid bat *Antrozous pallidus*	*†/SC	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.
Ring-tailed cat *Bassariscus astutus*	—/FP	Occurs in riparian habitats and brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, and woodrat nests.	**May be present.** Montane riparian habitat along the Trinity River in the project area provides breeding and foraging habitat.
Townsend's western big-eared bat *Corynorhinus townsendii*	*†/SC	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 in the project area.
American marten *Martes americana*	†/—	Mixed evergreen forests with abundant cavities for denning and nesting and open areas for foraging.	**Absent.** Elevation at the project sites is below that required by the species.
Yuma myotis *Myotis yumanensis*	*/—	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 in the project area.

[1]Status Codes:
Federal and State Codes: E = Endangered; T = Threatened; D = Delisted; C = Candidate; SC = Species of Special Concern (State);
FP = California Fully Protected species
* = BLM Sensitive † = USFS Sensitive

Survey and Manage

Joe Molter, botanist for BLM, surveyed selected sites involving federal lands associated with the project area for vascular plant species included in the Survey and Manage Standards of the Northwest Forest Plan. A list of vascular plant species with the potential to occur was compiled by performing an Interagency Species Management System (ISMS) Database search and reviewing the Survey Protocols for the species listed in Table 1-1 of the amended ROD for the Northwest Forest Plan (U.S. Department of Agriculture and U.S. Department of Interior 2001) and the 2001 Survey and Manage Annual Species Review (USDA Forest Service and Bureau of Land Management 2002). This list included two species with the potential to occur in the project area: clustered lady's slipper (*Cypripedium fasciculatum*) and mountain lady's slipper (*Cypripedium montanum*). Neither species was observed during surveys in 2002.

Jeanne McFarland, botanist for BLM's Arcata Field Office, conducted pre-disturbance surveys in the project area for nonvascular plants and fungi, collectively known as cryptogams, in compliance with the Northwest Forest Plan ROD. The surveys, which were conducted during the summer of 2002, consisted of a close inspection of all suitable substrates for the fungus *Bridgeoporus nobilissimus* (the only pre-disturbance Survey and Manage fungus). No Survey and Manage cryptogamic species were present within the study limits, and no appropriate habitat for these species was identified within the study limits on public lands.

The Watershed Research and Training Center conducted mollusk surveys at proposed TRRP channel rehabilitation sites during the spring and fall of 2002. No Survey and Manage mollusk species were located at any of the sites. Many of the site boundaries were underwater (and therefore unsuitable for mollusk habitat) during May 2002 reservoir releases of 6,000 cfs. Based on this inundation and site-specific habitat quality, the majority of the surveyed lands were determined to be unsuitable habitat for Survey and Manage mollusk species.

Non-Native and Invasive Plant Species

Non-native and invasive plant species occur throughout the Trinity River corridor, particularly in areas that have been subject to ground-disturbing activities (e.g., roads and recreation sites). Reclamation acknowledges that such species have the potential to inhibit the TRRP's ability to restore the functions and values associated with riparian and upland vegetation along the Trinity River. As part of the overall TRRP program, Reclamation funded an effort to map the pre-restoration distribution and abundance of non-native species along the mainstem Trinity River corridor to the North Fork Trinity River. Ongoing monitoring will measure the response of these non-native species to the removal of existing vegetation and modification of the river's flow regime. In association with the mapping effort, species-specific management recommendations were developed to provide Reclamation with recommendations for applied control and management of invasive species to ensure that channel rehabilitation projects do not introduce or further spread non-native plants along the mainstem Trinity River.

Weed Management Areas (WMAs) are local organizations that bring together landowners and managers (private, city, county, state, and federal) in a county, multi-county, or other geographical area to coordinate efforts and expertise against common invasive (noxious) weed species. The WMAs function

under the authority of a mutually developed memorandum of understanding (MOU) and are subject to statutory and regulatory weed control requirements. The lead agency for the WMAs is the California Department of Food and Agriculture (CDFA).

The Trinity County Weed Management Cooperative (TCWMC) acts as the local Trinity County WMA. TCWMC cooperators include the Trinity County Department of Agriculture, Trinity County Planning Department, USDA Natural Resources Conservation Service (NRCS), STNF, and the Trinity County Resource Conservation District (TCRCD). Trinity County has weed eradication programs in place for spotted knapweed (*Centaurea maculosa*), diffuse knapweed (*Centaurea diffusa*), dalmatian toadflax, and plumeless thistle (*Carduus acanthoides*). Other invasive species known to occur near the proposed sites include scotch broom (*Cytisus scoparius*), tree of heaven (*Ailanthus altissima*), Himalayan blackberry, and Dyer's woad (*Isatis tinctorius*).

Trinity County has several policies that discourage the use of synthetic herbicides for weed control. The Board of Supervisors has passed the following resolutions declaring forest herbicides a public nuisance:

- Resolution # 45-91 – April 2, 1991: Declares that the application of forestry herbicides in Trinity County is a public nuisance and that alternatives to forestry herbicides are available that create jobs. The resolution proclaims Trinity County timberlands an herbicide-free zone and requests forest managers not use herbicides on Trinity County timberlands.

- Resolution re-declaring the application of forest herbicides in Trinity County a public nuisance – April 7, 1997: This resolution identifies dangers associated with herbicide use and declares their use a public nuisance.

- Resolution # 2004-066 – July 20, 2004: This resolution acknowledges Trinity County's history of concerns about spraying herbicides and reaffirms its stance that herbicides are a public nuisance and that Trinity County is an herbicide-free zone.

Over the past 20 years, the lands adjacent to SR 299 and the Trinity River corridor have been subjected to substantial infestations of tree of heaven, scotch broom, and Himalayan blackberry. Several factors have influenced these infestations, including a lack of historical awareness of the need to manage these species and Trinity County guidance that strongly recommends against the application of herbicides within the county boundaries.

Jurisdictional Waters (Including Wetlands)

The U.S. Army Corps of Engineers (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 Clean Water Act (CWA).

As described in section 4.3, the historic dredging activities that occurred in the area substantially modified the character and function of the wetlands along the Trinity River. An assessment of the geomorphic features at previous rehabilitation sites along the Trinity River suggests that prior to dredging activities

the floodplain of the Trinity River was much larger than what has developed in association with the construction and operation of the TRD. Based on this assumption, jurisdictional waters (jurisdictional waters are waters under the jurisdiction of the USACE and consist of riverine and associated wetland habitats) likely declined following dam construction, in part because reduced flows inundate less of the floodplain. Fringe stands of fresh emergent vegetation, scrub-shrub, and forested wetlands now occur intermittently where a wider belt of wetlands likely existed under pre-dam conditions. The reduction in alternate point bars has also reduced post-dam wetland acreage by curtailing formation of side channels and other meander-related features.

Based on the delineation of jurisdictional waters at previously implemented habitat restoration sites along the Trinity River in the general vicinity of the Remaining Phase 1 and Phase 2 sites, jurisdictional waters, including wetlands are likely to occur within the boundaries of these sites. A wetland verification has been requested from the USACE and is anticipated by the end of May 2009. Features such as riparian wetland, fresh emergent wetland, seasonal wet meadow, seasonal wetland, and jurisdictional waters (i.e., other waters) could occur within project site boundaries. Other waters may include open water, riverine, intermittent stream and, ephemeral creek.

Wetlands

Wetland features likely to occur within the boundaries of the Remaining Phase 1 and Phase 2 sites are described below.

Riparian Wetlands. Riparian wetlands are often associated with the Trinity River corridor. Typical dominant plant species composition is similar to that described above for montane riparian habitat. The differences between montane riparian habitat (a plant community) and a riparian wetland (a jurisdictional type) include positive field indicators of wetland hydrology and hydric soils in riparian wetlands. Riparian wetlands are characterized by a complex of open to dense emergent herbaceous and woody riparian growth. Herbaceous plant species that almost always occur (> 99 percent probability) are designated as obligates (OBL) and herbaceous plant species that usually occur (> 67 percent probability) are designated as facultative wetland species (FACW). These plant species typically include torrent sedge (*Carex nudata* – FACW^{+}), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (*Eleocharis acicularis* – OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinaceae* – OBL).

Fresh Emergent Wetlands. Fresh emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Vegetation, typically perennial, is present for most of the growing season in most years (Cowardin et al. 1979). In the project region, typical dominant plant species include narrow-leaf cattail (*Typha angustifolia* - OBL), Himalayan blackberry (FACW^{+}), perennial ryegrass (FAC), and narrow-leaved willow (OBL).

Seasonal Wet Meadow. Seasonal wet meadow occurs in areas where water does not appear to pond but nevertheless the soil saturates to the surface for sufficient duration to create a wetland habitat. Seasonal wet meadow is typically composed of herbaceous plant species that tolerate long-duration saturation.

Seasonal Wetland. In general, seasonal wetlands often occur in level or low-lying areas that exhibit positive field indicators of long-duration saturation during the growing season.

Other Waters

The following jurisdictional features are designated as "other waters" throughout this section of the document.

Intermittent Pool. Intermittent pools consist of shallow depressions that exhibit seasonal inundation. This jurisdictional type is a non-wetland water of the United States. It supports vegetation adapted to surviving in seasonally saturated and/or inundated conditions.

Riverine (Perennial Stream). The Trinity River is included within each proposed rehabilitation site and is the primary factor influencing wetland features associated with each 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.

Intermittent Stream. Intermittent stream features include natural drainages that intermittently convey waters during the late fall, winter, and spring months, but are usually dry during the summer and early fall months. These features exhibit indicators of scouring and deposition of soil material. Upland plant species often colonize intermittent streams during the summer when no water is present. Water sources may include direct precipitation, runoff from upstream channel reaches, and seepage from surrounding soils (groundwater). Intermittent streams are non-wetland waters of the United States or "other waters."

Ephemeral Creek. Ephemeral creek features include natural drainages that convey water during and briefly after storms. Groundwater discharge does not constitute a portion of the flow. Ephemeral creeks are non-wetland waters of the United States or "other waters."

Vegetated Ditch. Vegetated ditches are excavated, linear features constructed to convey irrigation, road surface runoff, and/or water used for other human purposes. In the project region, typical species occurring in vegetated ditches include dense sedge (*Carex densa* – OBL), Mediterranean beardgrass (*Polypogon maritimus* – OBL), wild mint (*Mentha arvensis* – FACW), and annual hairgrass (*Deschampsia danthonioides* – FACW).

Non-Vegetated Ditch. Non-vegetated ditches generally consist of constructed drainage ditches that exhibit positive indicators for wetland hydrology and soils, but not vegetation.

Open Water. Open water features consist of a deep-water area that exhibits perennial inundation. This jurisdictional type is a non-wetland water of the United States or "other waters."

Other Biological Resources

Migratory birds and raptors (birds of prey) may nest within, or in close proximity to, the project sites. 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 California Fish and Game Code. The communities in the project area provide suitable breeding and foraging habitat for several raptors, such as the red-tailed hawk and great horned owl.

Riparian habitat, which is considered a sensitive natural community by the CDFG, is present in the project area along the Trinity River.

Deer Critical Winter Range

Deer herds in most of California exhibited serious long-term declines during the late 1960s and early 1970s. In response, in 1976 CDFG developed a state-wide plan to address the problem, and in 1977 a Deer Management Policy was adopted by the Fish and Game Commission. CDFG has responsibility for writing and approving deer herd management plans, including designating Critical Winter Range. Critical Winter Range for the Weaverville deer herd occurs in the project area. Critical Winter Range is that portion of a winter range that deer are dependent upon during severe winter weather. Historically, construction of the Trinity and Lewiston dams inundated 17,000 acres of winter range for this herd (Trinity County 1987). As a result, the remaining winter range has been more heavily used, resulting in a reduction in its quality.

4.7.2 Environmental Impacts and Mitigation Measures

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.

Impacts on vegetation would be significant 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 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 if they would result in any of the following:

- substantial adverse effect on any riparian habitat;

- substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- a conflict with any state or local policies or ordinances protecting wetland and/or riparian resources; or
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wetland resources.

Impacts and Mitigation Measures

Table 4.7-3 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 4.7-3. Summary of Vegetation, Wildlife, and Wetland Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.7-1. Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-2. Implementation of the project would result in the loss of upland plant communities.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.7-3. Construction of the project could result in the loss of individuals of a special-status plant species.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-4. Construction activities associated with the project could result in impacts to the state listed little willow flycatcher.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-5. Construction activities associated with the project could result in impacts to foothill yellow-legged frogs.				
No impact	Significant	Significant	Less than significant	Less than significant

Table 4.7-3. Summary of Vegetation, Wildlife, and Wetland Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.7-6. Construction activities associated with the project could result in impacts to western pond turtles.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-7. Construction activities associated with the project could result in impacts to nesting Vaux's swifts, yellow warblers, and yellow-breasted chats.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-8. Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawks.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-9. Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-10. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.7-11. Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.7-12. Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.				
No impact	Less than significant	Less than significant	Not applicable1	Not applicable1
Impact 4.7-13. Implementation of the project could result in the spread of non-native and invasive plant species.				
No impact	Significant	Significant	Less than significant	Less than significant

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

Impact 4.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters, including wetlands. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no loss of jurisdictional waters would occur because the project would not be constructed.

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 3-5 year post-project window. The TRRP would take advantage of opportunities during or after project construction to enhance wetland functions within the project boundaries 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 6,000 cfs 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 at one or more of the Remaining Phase 1 and Phase 2 sites. Temporary impacts to jurisdictional waters at any of these sites would be considered significant.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to those described for the Proposed Project. Although, the maximum area of disturbance to jurisdictional waters would be smaller than under the Proposed Project, impacts would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and minimize impacts to jurisdictional waters, the following mitigation measures will be implemented:

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.

4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.

4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.

Significance after Mitigation

Less than significant

Impact 4.7-2: Implementation of the project would result in the loss of upland plant communities. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to upland plant communities would occur because the project would not be constructed.

Proposed Project and Alternative 1

The Proposed Project and Alternative 1 would result in the temporary disturbance of upland plant communities. While the 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. Over time, these upland areas would be

revegetated to the degree that site conditions allow. A combination of replanting and natural revegetation would occur to ensure that riparian habitat values on the Trinity River meet wildlife needs. The need for revegetation would be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas would be restored to their original condition upon completion of work. Additionally, any affected upland areas would be seeded with native plant species.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.7-3: Construction of the project could result in the loss of individuals of a special-status plant species. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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.

Proposed Project and Alternative 1

No federal or state listed plant species are expected to occur at the project sites. However, implementation of the Proposed Project or Alternative 1 could result in the removal of individuals or habitat for other special-status plant species (see Table 4.7-1). Because these species are considered special-status pursuant to CEQA, removal of individuals or habitat for these species could result in a potentially significant impact.

Mitigation Measures

No-Project Alternative

Since no significant impact was identified, no mitigation is required.

Proposed Project and Alternative 1

The following measures will be implemented to avoid or minimize project-related impacts to special-status plant species:

4.7-3a A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants

species is found within 250 feet of any proposed disturbance, the following measures will be implemented.

4.7-3b Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary.

4.7-3c If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFG staff.

Significance after Mitigation

Less than significant

Impact 4.7-4: Construction activities associated with the project could result in impacts to the state listed little willow flycatcher. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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.

Proposed Project

Suitable montane riparian habitat for the little willow flycatcher may be present at the Proposed Project sites, and the species has previously been detected in the region (Wilson 1995; Miller, Ralph, and Herrera 2003; Herrera 2006). Consequently, little willow flycatchers may nest at the Proposed Project sites. If montane riparian habitat is present, project activities (e.g., grading, vegetation removal) may result in a temporary reduction of foraging habitat for this species. However, implementation of Mitigation Measures 4.7-1a-c will ensure that there is no net loss of riparian habitat and a long-term increase in riparian habitat diversity. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the 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 sites. 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.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to, but less than, those described for the Proposed Project because of the reduced amount of disturbance to montane riparian habitat.

Nevertheless, the potential impact to little willow flycatchers under Alternative 1 would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

The following mitigation measures will be implemented to avoid or minimize potential impacts to the little willow flycatcher:

4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) 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.

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 project 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 will be used to ensure that no nests of this species within or immediately adjacent to the project sites) would be disturbed during project implementation. If an active nest is found, CDFG 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 project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project 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.

Significance after Mitigation

Less than significant

Impact 4.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to the foothill yellow-legged frog would occur.

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 (California Department of Fish and Game 2003). Thus, 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 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.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to, but less than, those described for the Proposed Project because of the reduced disturbance to riverine and riparian habitats. Nevertheless, the potential impact to foothill yellow-legged frogs under Alternative 1 would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and/or minimize impacts to the foothill yellow-legged frog, the following measures will be implemented:

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 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.

4.7-5b In the event that a yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.

4.7-5c Mitigation measures presented in section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.

4.7-5d The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.

Significance after Mitigation

Less than significant

Impact 4.7-6: Construction activities associated with the project could result in impacts to the western pond turtle. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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.

Proposed Project

Riverine and riparian habitats along the Trinity River provide suitable habitat for the western pond turtle. Thus, construction activities associated with the Proposed Project and Alternative 1 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 will improve access to potential upland nesting and overwintering sites, and the creation of side channels and alcoves with large woody debris would provide slow-water basking and foraging habitat.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to, but less than, those described for the Proposed Project because of the reduced disturbance to riverine and riparian habitat. Nevertheless, the potential impact to western pond turtles under Alternative 1 would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and/or minimize impacts to the western pond turtle, the following measures will be implemented:

4.7-6a A minimum of one survey for 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 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.

4.7-6b Prior to construction in open water habitat, a qualified biologist will trap and move turtles out of the construction area to nearby suitable habitats.

4.7-6c During construction, in the event that a pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits.

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-c) will be fully implemented.

Significance after Mitigation

Less than significant

Impact 4.7-7: Construction activities associated with the project could result in impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to nesting yellow warblers, yellow-breasted chats, and Vaux's swifts would occur.

Proposed Project

The riparian community commonly found along the Trinity River in the project region 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-c will 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 on or adjacent to the sites. 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.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to, but less than, those described for the Proposed Project because of the reduced disturbance to suitable habitat for these species. Nevertheless, the potential impact to California yellow warblers, yellow-breasted chats, and Vaux's swifts under Alternative 1 would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and/or minimize impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts, the following measures will be implemented:

4.7-7a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented.

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 August. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.

4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the project site(s) and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be used to ensure that no nests of these species within or immediately adjacent to the project site(s) 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 project 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.

Significance after Mitigation

Less than significant

Impact 4.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawks. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to active bald eagle or northern goshawk nests would occur because the project would not be constructed.

Proposed Project

The hardwood and conifer communities commonly found along the Trinity River in the project region provide suitable nesting and foraging habitat for the bald eagle, designated by the State of California as endangered, and the northern goshawk, designated as a California Species of Special Concern.

The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. However, 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 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.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to, but less than, those described for the Proposed Project because of the reduced disturbance to suitable habitat for these species. Nevertheless, the potential impact to nesting bald eagles and northern goshawks under Alternative 1 would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and/or minimize impacts to nesting bald eagles and northern goshawks, the following measures will be implemented:

4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented.

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 would be expected. If it is not possible to schedule construction during this time, the following mitigation measures will be implemented.

4.7-8c Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald eagle and northern goshawk nests. If an active nest is found within 500 feet of the construction area to be disturbed by these activities, the biologist, in consultation with the CDFG, will determine the extent of a construction-free buffer zone to be established around the nest.

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 project 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.

Significance after Mitigation

Less than significant

Impact 4.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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.

Proposed Project

The Trinity River riparian corridor provides suitable roosting and/or foraging habitat for four bat species: the long-eared myotis, pallid bat, Yuma myotis, and Townsend's western big-eared bat. 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 (species 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 and foothill pine. In addition, suitable roosting habitat for the Townsend's western big-eared bat and Yuma myotis may be present at project sites encompassing or adjacent to bridges or mines.

Noise and visual disturbances associated with construction activities may disrupt bats roosting within and directly adjacent to the project area. Further, removing large trees with cavities could result in the direct loss of colonies, which would be considered a significant impact.

Each of these bat species has the potential to forage in the project area. Foraging habitat typically consists of forested habitats 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 typically found immediately along the river are unlikely to provide suitable denning 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 denning sites. Thus, removal of large trees with cavities or snags could result in the loss of ring-tailed cats, 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.

Alternative 1

Implementation of Alternative 1 would result in impacts similar to, but less than, those described for the Proposed Project because of the reduced disturbance to suitable habitat for these species. Nevertheless, the potential impact to special-status bats and the ring-tailed cat under Alternative 1 would be considered significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and/or minimize impacts to roosting special-status bats and the ring-tailed cat, the following measures will be implemented:

4.7-9a A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would 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. CDFG will also be notified of any active bat nurseries within the disturbance zones.

4.7-9b If an active maternity roost or hibernaculum is found, the project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project 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 the darker hours.

4.7-9c If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that 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, the individuals will be safely evicted under the direction of a qualified biologist. 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.

Significance after Mitigation

Less than significant

Impact 4.7-10: Construction activities associated with the project could result in the temporary loss of non-breeding habitat for special-status birds. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to non-breeding habitat for sensitive species would occur because the project would not be constructed.

Proposed Project and Alternative 1

The Trinity River riparian corridor provides both foraging and perching habitat for golden eagles, American peregrine falcons, and black swifts, but suitable nesting habitat is absent. Construction activities associated with the project could temporarily alter the foraging patterns of these species; however, this impact would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the Proposed Project. No long-term adverse impacts to foraging habitat associated with project implementation are anticipated. The loss of potential perch trees would not affect the abundance of these species or their use of the Trinity River for foraging habitat.

Mitigation

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1 except for the Pacific***

fisher, and less-than-significant impact for the Proposed Project and Alternative 1 for the Pacific fisher.

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.

Proposed Project and Alternative 1

Several of the special-status wildlife species with potential to occur at the sites are designated as 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 (see Table 4.7-2). With the exception of the Pacific fisher, potential impacts to these species are discussed as separate impacts above. The Pacific fisher may use the Trinity River as a travel corridor; however, suitable denning habitat is not present at the sites. Therefore, the impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

Since no significant impacts for the Pacific fisher were identified, no mitigation is required. Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less-than-significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less-than-significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less-than-significant level.

Significance after Mitigation

Not applicable

Impact 4.7-12: Construction activities associated with the project could restrict the movement of terrestrial wildlife through the sites. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, construction-related restriction of terrestrial wildlife movement through the sites would not occur because the project would not be constructed.

Proposed Project and Alternative 1

The Trinity River corridor provides habitat and travel corridors for such species as Pacific fisher, American marten, black-tailed deer, river otter, beaver, common merganser (*Mergus merganser*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), wood duck (*Aix sponsa*),

belted kingfisher, cliff swallow (*Hirundo pyrrhonota*), bank swallow, and raccoon. 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. Black-tailed deer inhabit shrublands, forests, and oak woodlands and use riparian vegetation for cover. Construction noise and activity will not significantly impede the seasonal migration of the Weaverville deer herd from high-elevation summer habitats to lower elevation critical winter ranges in the project vicinity. 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 sites are anticipated as a result of implementing the Proposed Project or Alternative 1. Therefore, this would be a less-than-significant impact.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.7-13: Implementation of the project could result in the spread of non-native and invasive plant species. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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.

Proposed Project and Alternative 1

Project implementation could result in the spread of non-native and invasive plant species (e.g., dalmatian toadflax, yellow star-thistle, Himalayan blackberry, and Klamathweed) during ground-disturbing activities. This would be considered a significant impact. However, further spread of weeds is not anticipated with implementation of the mitigation measures described below.

Mitigation Measures

No-Project Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

In order to avoid and/or minimize the potential introduction and/or spread of noxious weeds, the following measures will be implemented:

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.

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 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.

Significance after Mitigation

Less than significant

SECTION 4.8

Recreation

4.8 Recreation

This section describes the recreation resources known to occur in the Trinity River basin in proximity to the proposed Remaining Phase 1 and Phase 2 rehabilitation sites along the Trinity River. It also evaluates potential impacts to recreation resources that could result from implementation of the Proposed Project and its alternatives, and the project's conformance with the federal and state Wild and Scenic Rivers Acts (WSRAs).

4.8.1 Environmental Setting

Regional Setting

Trinity County has a vast array of recreational resources including rivers, lakes, wilderness areas, and scenic byways. Major rivers in Trinity County are the Trinity River, South Fork Trinity River, North Fork Trinity River, New River, Mad River, Van Duzen River, and North Fork Eel River. These rivers offer recreational opportunities such as fishing, kayaking, rafting, recreational mining, and camping.

The Trinity River was designated as a National Wild and Scenic River in 1981 by the Secretary of the Interior. The designated reach extends from Lewiston Dam downstream to Weitchpec. Three tributaries to the Trinity River are also designated as Wild and Scenic: the New River, South Fork Trinity River, and North Fork Trinity River. The North Fork Trinity River is located at the downstream end of the 40-mile reach of the mainstem Trinity River discussed in this document (Figure 1-1).

The Trinity River Division (TRD) of the CVP includes two impoundments in Trinity County: Trinity Lake and Lewiston Lake. To varying degrees, these lakes provide recreational opportunities such as boating, fishing, and camping. Trinity Lake is situated in northeastern Trinity County and has a shoreline of about 120 miles, encompassing approximately 16,400 acres. It offers a wide variety of flat-water recreation opportunities, primarily during the summer. Lewiston Lake is immediately downstream of Trinity Dam and is operated as a re-regulation facility that discharges flows to the Trinity River and provides water to Whiskeytown Reservoir. The size and operational aspects of Lewiston Lake, coupled with cold water temperatures, limits recreational activities to non-contact activities such as boating, fishing and camping. A third impoundment, Grass Valley Creek Reservoir, is a small water body constructed to capture fine sediment in the upper Grass Valley Creek watershed. A prohibition on vehicular access limits recreational activities at this reservoir, primarily fishing, during certain times of the year.

There is one congressionally designated wilderness area in close proximity to the TRD. The Trinity Alps Wilderness provides recreational opportunities such as hiking, backpacking, horse packing, hunting, and angling. Located in the northern part of Trinity County, this wilderness area is the third largest in California and is a primary component of the Trinity River watershed.

Two scenic byways cross Trinity County: the Trinity Heritage Scenic Byway and the Trinity Scenic Byway. These byways provide scenic travel routes through Trinity County for residents and visitors. The Trinity Heritage Scenic Byway is along State Route (SR) 3. It begins in Weaverville and ends at

Yreka in Siskiyou County. This byway detours from SR 3 at several locations. Seven miles north of Weaverville it leaves SR 3 and turns east onto County Road 204, continuing for 9 miles to the town of Lewiston. The route provides opportunities for sightseeing in historic Lewiston and a side trip to the TRSSH. The byway then heads north on County Road 105 (Trinity Dam Boulevard) paralleling Lewiston Lake to Trinity Dam before rejoining SR 3 near Rush Creek Campground. It continues north on SR 3 to Guy Covington Drive and the historic Bowerman Barn. The Trinity Heritage Scenic Byway continues north, passing through the communities of Trinity Center, Carrville, and Coffee Creek. Ten miles north of Coffee Creek at the base of Scott Mountain the byway jogs northeast along Parks Creek Road and the upper Trinity River. The route continues another 40 miles from the Parks Creek Road before intersecting with I-5 in Yreka.

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. The Shasta-Trinity National Forest (STNF) manages the Trinity unit of the Whiskeytown Shasta-Trinity National Recreation Area (NRA), including the lands surrounding Trinity and Lewiston lakes as well as the reach of the Trinity River between the TRSSH and the confluence of Deadwood Creek. The STNF is the primary federal land manager between the confluence of the North Fork Trinity River and the mainstem Trinity River and the confluence of the New River and the Trinity River. The Six Rivers National Forest manages federal lands located between the New River and the Hoopa Valley Indian Reservation. The HVT manages lands within the Hoopa Valley Indian Reservation. The Yurok Tribe manages the reach of the Trinity River between Weitchpec (at the confluence of the Trinity the Klamath rivers) and the mouth of the Klamath River.

The Trinity River provides year-around recreation opportunities. These opportunities include boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, and sightseeing. Fishing for Chinook salmon, steelhead, and rainbow and brown trout are major recreational activities on the Trinity River throughout the year. With the development and implementation of the TRRP, the type, location, and timing of recreational activities continues to evolve.

Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites. Approximately 35 developed recreation sites are located along the Trinity River corridor. Numerous river access sites occur between Lewiston Dam and Weitchpec. Expanded whitewater recreation opportunities created by TRRP post-ROD flows have significantly increased recreational use of the river.

Local Setting

There are a variety of residential subdivisions, commercial enterprises, and public facilities along the Trinity River corridor. Residential developments, commercial developments, and public facilities are scattered within and immediately adjacent to many of the Remaining Phase 1 and Phase 2 sites. River access and recreational development is concentrated around the communities of Lewiston, Douglas City, and Junction City. Table 4.8-1 provides a summary of the recreational developments that occur within, or

in close proximity, to the Remaining Phase 1 and Phase 2 sites. Figure 4.8-1 illustrates the location of these developments relative to the sites.

Table 4.8-1. Recreational Development along the Trinity River

Developed Recreation	
Old Lewiston Bridge RV Resort	Privately owned facility that provides overnight accommodations (i.e., RV and tent camping), restrooms, laundry, phone, and recreation area as well as river access.
Old Lewiston Bridge River Access	CDFG-owned river access point.
Trinity River Resort and RV Park	Privately owned facility that provides overnight accommodations (RV and tent camping), restrooms, laundry, convenience store, phone, and recreation area as well as river access and boat launch ramp.
Rush Creek River Access	BLM-managed river access point that provides public restrooms and trash receptacles.
Bucktail Hole River Access	BLM river access point that provides public restrooms and trash receptacles.
Steel Bridge Campground and River Access Site	BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site.
Indian Creek River Access	BLM managed river access point
Franks Trinity River Mobile Home and RV Park	Privately owned facility that provides overnight accommodations upstream of the RC site.
Trinity Island Resort	Privately owned facility that provides overnight accommodations (i.e., RV and tent camping).
Douglas City River Access	BLM-managed river access point that provides public restrooms and trash receptacles within the boundary of the Douglas City Campground.
Douglas City Campground	BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site.
Steiner Flat Camping Area	BLM-managed campsite that offers primitive tent camping and river access.
Junction City Campground	BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site.
Big Foot Campground	Privately owned facility that provides overnight accommodations, river access sites, and a primitive boat launch site.
Dispersed Recreation	
River access sites	There are numerous undeveloped river access sites located within the project boundaries. Situated on both private and public lands, these sites provide fishing access and primitive boat launch sites for rafts, canoes, kayaks, and other watercraft that can be carried to the Trinity River's edge.

4.8.2 Environmental Impacts and Mitigation Measures

Methodology

The analysis of the potential effect on recreation resources as a result of the Proposed Project or Alternative 1 consists of identifying recreational resources (e.g., parks and recreation facilities) in or near the boundaries of the rehabilitation sites and determining whether implementation of either action alternative would have an impact on these resources. This analysis is qualitative.

In addition to evaluating the impacts on recreational resources, an evaluation was made of the 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 is included as Appendix B.

Significance Criteria

Impacts associated with recreational uses would be significant if the project would

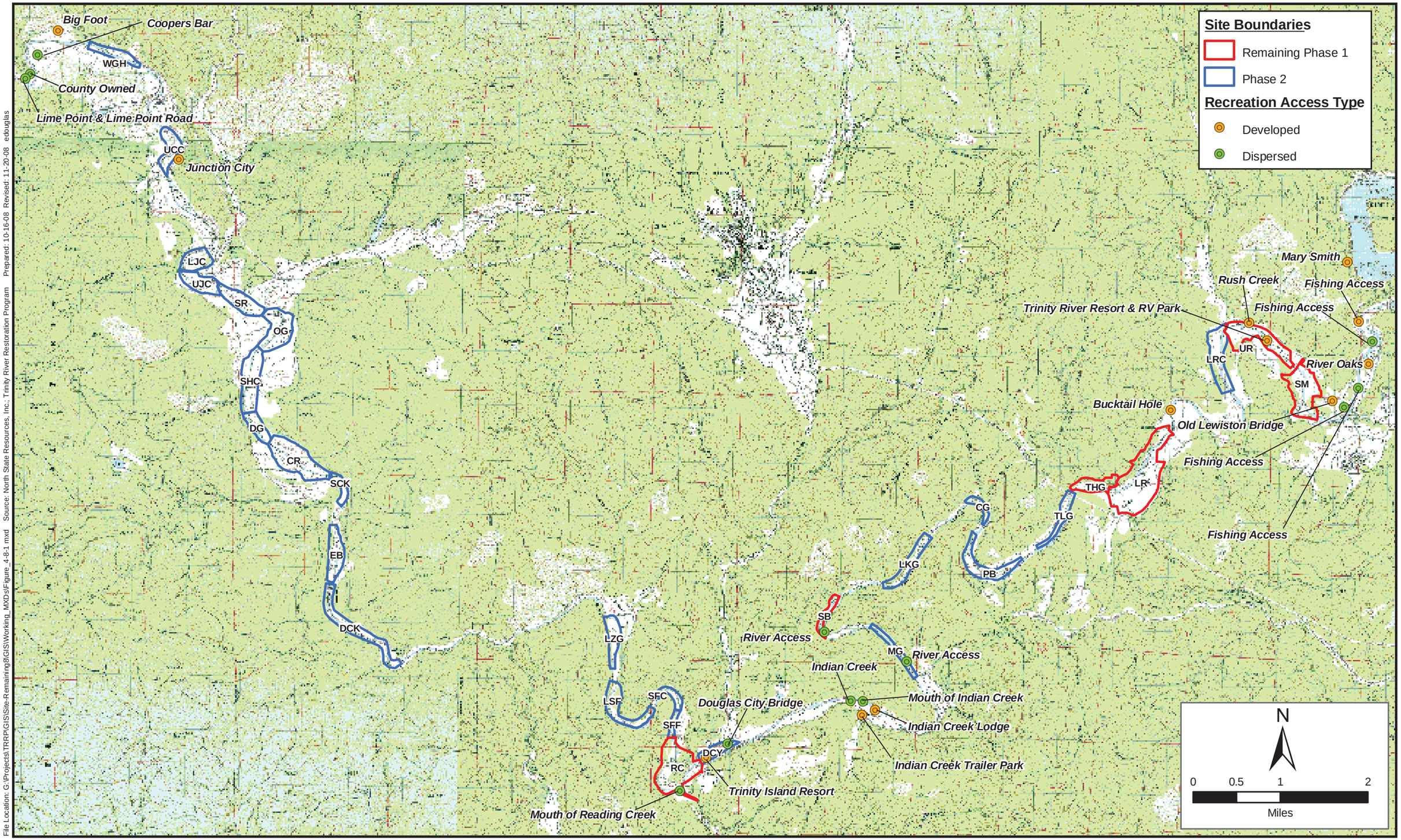
- conflict with established or planned recreational uses within the project boundary;
- substantially affect existing recreational opportunities; or
- result in an increase in the use of the existing neighborhood, regional parks, public lands in general, or other recreational facilities such that substantial deterioration of these facilities would occur or be accelerated.

The following criteria were used to determine if project impacts to riverine recreation would be significant:

- 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
- non-compliance with Trinity County recreation resource objectives

Impacts and Mitigation Measures

Table 4.8-2 summarizes the potential impacts to recreation resources that could result from implementation of the Proposed Project or its alternatives.



File Location: G:\Projects\TRRP\GIS\Site-Remaining\8\GIS\Working_MXDs\Figure_4-8-1.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-16-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 and Phase 2 Sites

Figure 4.8-1
Recreation Areas

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Table 4.8-2. Summary of Recreation Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.8-1. Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.8-2. 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	Significant	Less than significant	Less than significant
Impact 4.8-3. Construction activities associated with the project could lower the Trinity River's aesthetic value for recreationists by increasing its turbidity levels.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.8-4. Implementation of the project could affect Wild and Scenic River values.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 4.8-1: Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no disruption of recreation activities such as boating, fishing, and swimming in the Trinity River because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

As previously discussed, the Trinity River supports instream recreational uses, primarily whitewater recreation and fishing. Various instream recreational activities occur throughout the year, but 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. Although public use is restricted at most private river access points, public agencies, including BLM, STNF, CDFG, and 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.

During implementation of the Proposed Project, 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. Project activities at a majority of the rehabilitation sites would include vegetation removal and grading. Overall, treatments proposed within the activity areas described in Chapter 2 could result in temporary interruptions of public access and use in the immediate vicinity of the activity areas. However, river access would continue to be available at a number of locations within and adjacent to the project boundaries. After project implementation, access to river recreation opportunities would be substantially increased on public lands managed by federal, state, and local agencies.

Although potential disruptions to recreational activities within the project boundaries would be temporary, this impact would be significant.

Alternative 1

Alternative 1 would reduce the extent of rehabilitation activities proposed for any given project site in comparison to those associated with the Proposed Project. Although activities associated with Alternative 1 would be implemented to the degree necessary to accommodate post-ROD flows (e.g., by increasing channel sinuosity, thereby initiating a meander sequence appropriately scaled to ROD flows), the location, number, and magnitude of rehabilitation activities would decrease. Similar to the Proposed Project, Alternative 1 would have a significant, but temporary impact on recreational use; however, the extent of such an impact on a given rehabilitation site would be reduced.

Although potential disruptions to recreational activities within the project boundaries would be temporary, this impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM, STNF, and DFG (e.g., Bucktail River Access, Steel Bridge Campground, Douglas City Campground, Indian Creek River Access, and Junction City Campground). Additionally, public notification of proposed project construction activities and

associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction.

4.8-1b Reclamation will repair and/or replace any facilities associated with Remaining Phase 1 or Phase 2 sites that are impacted by project activities. This measure would include installation of interpretive signage consistent with the requirements of the STNF and 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.

Significance after Mitigation

Less than significant

Impact 4.8-2: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no safety risks to recreational users or resource damage to recreational lands within the project boundaries 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 low-flow (450 cfs) channel of the Trinity River. Activities associated with in-channel treatments would require work within the river channel for a short period (anticipated to be approximately 1-2 weeks per rehabilitation site). Low water river crossings proposed at some rehabilitation sites would be maintained for the duration of construction at that particular site. These crossings would consist of a gravel pad wide enough to accommodate construction equipment and vehicles moving from one side of the river to the other. Crossings would be constructed approximately 18 inches below the low flow water surface (under flows of approximately 300 to 600 cubic feet per second (cfs)) to allow enough freeboard for the safe passage of drift boats and rafts. Vehicular access to activity areas, including both uplands and in-channel, would be limited to authorized personnel. Upon completion of construction activities, the pad would be modified to prevent any further use as a vehicle crossing; fluctuations in river flows would serve to disperse the gravel downstream over time.

Although 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 boundary. Potential hazards to recreationists include the operation of construction equipment and vehicles in and around project sites, changes in the river's subsurface movement as a result of the in-channel addition or removal of gravel, the addition of large woody debris 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 the 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 will be evaluated by Reclamation in conjunction with land managers and owners 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 boundaries.

Alternative 1

The potential effects of Alternative 1 on recreational users and resources occurring on recreational lands within the project boundaries are similar to those described under the Proposed Project. However, the reduced scope of activities proposed under Alternative 1, including the reduction in-channel crossings, decreases the potential safety hazard associated with the this alternative. Nevertheless, in-channel construction activities and the movement of construction equipment and vehicles throughout the project area during the construction of Alternative 1 would continue to pose a safety threat to recreational users. These impacts would be temporary, but significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.8-2 Implementation of Mitigation Measure 4.8-1a above would reduce this impact to less than significant.

Significance after Mitigation

Less than significant

Impact 4.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity levels. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Implementation of either the Proposed Project or Alternative 1 could increase turbidity in the Trinity River for some distance downstream. The level of this increase would largely be dependent on the flow regime at the time of the discharge. 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 affects beneficial uses (e.g., recreation).

The Regional Water Board's Basin Plan (North Coast Regional Water Quality Control Board 2007) 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.

- 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 either the Proposed Project or Alternative 1 would increase the potential for turbidity and total suspended solids during construction activities. However, the Proposed Project involves substantially more in-channel work than Alternative 1, particularly the excavation of floodplain features and the requirement for numerous in-channel crossings. 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) and could adversely affect anadromous fish species that are known to occur in the Trinity River (refer to section 4.6, Fisheries Resources), and could have a noticeable affect on the river's aesthetics. Increases in turbidity would be a significant impact.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.8-3a 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 2007), is summarized below.

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

- 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 would 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.

4.8-3b To ensure that turbidity levels do not exceed the thresholds described above (4.8-3a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and

when activities commence that are likely to increase turbidity levels above any previously monitored levels.

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

4.8-3c 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.

4.8-3d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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.

4.8-3e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:

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

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

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

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

Significance after Mitigation

Less than significant

Impact 4.8-4: Implementation of the project could affect Wild and Scenic River values. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Construction and implementation of the Proposed Project or Alternative 1 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 on scenic values 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 4.8-3 and in section 4.12 (Aesthetics).

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.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 4.9

Socioeconomics, Population, and Housing

4.9 Socioeconomics, Population, and Housing

This section describes the regional and local socioeconomic conditions, population, and housing resources in the Trinity River basin and evaluates potential impacts to these resources from implementation of the Proposed Project and its alternatives. A detailed discussion of poverty rates and population by race and ethnicity is included in section 7.18, Environmental Justice.

Under CEQA, the "[e]conomic or social impacts of a project shall not be treated as significant impacts on the environment" (CEQA Guidelines Section 15131). Consequently, this section addresses CEQA issues only to the extent that potential social or economic impacts of the project either would have a direct impact or would result in reasonably foreseeable indirect impacts on the physical environment.

4.9.1 Environmental Setting

Regional Setting

Regional Labor Market

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.

Data concerning the labor force, employment, and unemployment were obtained from the California Employment Development Department (EDD), which estimates labor force and employment statistics for all counties in California, and the Center for Economic Development, which compiles data from local, state, and federal sources. Data for employment by industry was compiled by the Center for Economic Development, which used data from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) Regional Economic Information System (REIS). Differences in calculation methods and differences regarding what is considered employment may account for minor differences in EDD and REIS employment data (Center for Economic Development 2007).

Labor Force

Labor force refers to the total civilian labor force and is the number of non-institutionalized people age 16 and older who are working or looking for work and who are not in the military. Total labor force includes wage and salary workers, proprietors, and household workers. Annual average labor force is the 12-month average labor force for a given year. The average total labor force in Trinity County between the years of 1991 and 2006 was 5,250 people (California Employment Development Department 2008a; 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 2008a; Center for Economic Development 2007). The majority of Trinity County's labor force is concentrated in Weaverville and Hayfork. The primary communities within Trinity County are discussed in section 4.2, Land Use, and are shown on Figure 4.2-2.

Employment

Employment refers to total civilian employment as calculated by the EDD. Total civilian employment is the number of people employed in both the private sector and the non-military public sector. Employment includes wage and salary workers, proprietors, and household workers.

Trinity County employment rates fluctuated between 1990 and 2007. After a decline in the 1990s, employment rates rose in 2000 to 4,900 as a result of increased opportunities for tourism- and transportation-related job growth (California Employment Development Department 2008a; Center for Economic Development 2007). However, the current employment rate, 4,400, is the same as in 1990 (California Employment Development Department 2008a; Center for Economic Development). A decline in the timber industry and associated jobs accounted for some of this decline. Despite the closure of a mill in Hayfork, this community, along with Weaverville, continues to be one of the county's largest employment centers. Current unemployment rates are attributed to an economic recession.

Unemployment

Unemployment refers to the annual average civilian unemployment rate and represents the percentage of the total civilian labor force that is not employed. Trinity County's unemployment rate has been consistently higher than the California average. From 1990 to 2007, unemployment within the county was high, averaging 12.5 percent compared to the statewide average of 6.7 percent (California Employment Development Department 2008a, 2008b). However, the unemployment rate in Trinity County appears to be decreasing. Prior to 2000, the county's unemployment rate averaged 14.4 percent; however, since 2000, the average unemployment rate in the county fell to 10.2 percent (California Employment Development Department 2008a, 2008b).

The county's labor market depends on such factors as distance to SR 299 and distance to Weaverville, the county's business center and largest labor market. Ruth/Mad River, Hayfork, Zenia/Kettenpom, and Hyampom are rural communities that do not have ready access to SR 299 or Weaverville. Consequently, these communities have fewer job opportunities and a larger unemployment rate. In contrast, communities located on SR 299, such as Lewiston, Junction City, and Douglas City, from which Weaverville or Redding can be accessed directly, have lower unemployment rates.

Employment by Industry

In this section, industries are defined using the Standard Industrial Classification Manual, published by the Executive Office of the President, U.S. Office of Management and Budget (U.S. Office of Management and Budget 1987). The measurement of employment by industry is based on the type of industry and the annual average number of full-time and part-time jobs for a given industry in a particular year.

The industrial employment trend in Trinity County is a function of the county's ample recreational opportunities and tourism. Consequently, service industries, including hotels and lodging, recreation services, museums, auto repair, and engineering and management services, continue to experience

growth. The industry with the highest earnings is government and public administration (Center for Economic Development 2007).

Income

Per Capita Income

Data compiled by the Center for Economic Development from the U.S. Bureau of the Census (Census) and the BEA show that per capita income levels in Trinity County tend to be significantly below state levels. Per capita income is the average income computed for every man, woman, and child in a particular group. The Census derives per capita income by dividing the total income of a particular group by the total population in that group (excluding patients or inmates in institutional quarters). Per capita income data for Trinity County and California are shown in Table 4.9-1.

Table 4.9-1. Per Capita Income, Trinity County and California

Year	Trinity County	California
1990	$14,248	$21,638
1991	$14,619	$21,750
1992	$15,443	$22,492
1993	$15,730	$22,635
1994	$15,784	$23,203
1995	$16,293	$24,161
1996	$17,001	$25,312
1997	$17,699	$26,490
1998	$18,276	$28,374
1999	$19,183	$29,828
2000	$19,930	$32,462
2001	$21,554	$32,883
2002	$21,827	$32,826
2003	$22,244	$33,554
2004	$23,710	$35,440
2005	$23,312	$37,462
2006	$24,318	$39,626

Source: Center for Economic Development (2007)

The data in Table 4.9-1, compiled by the Center for Economic Development using the U.S. Department of Commerce, Bureau of Economic Analysis database, show that while the per capita income of Trinity County and the state are both increasing, Trinity County continues to lag far behind the state, with its per capita income as much as 38 percent below that of the state in 2006.

Median Household Income

Median household income is the midpoint of the distribution of household incomes. Half of all households have incomes above this level, and half have incomes below this level. Median household income in Trinity County, though increasing, is lower than the state median household income. From 1999 to 2004, it increased by 16.5 percent, compared to the 26 percent increase in median household income for the state measured over the same period (Center for Economic Development 2007; U.S. Census Bureau 2008). Median household income in Trinity County continues to lag behind the state median by approximately 36 percent (based on 2005 data). This represents an average of $24,000 less available for each household in the county than for the state as a whole.

Regional Population

The population of Trinity County is generally characterized by stagnant growth, with higher proportions 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 fact that approximately 75 percent of its land is federally owned and 10 percent is in private industrial timber production, much of which is restricted from development by Timber Production Zone zoning (Trinity County 2003). Thus, only 15 percent of the county is private land usable for development purposes. The county's rugged terrain and remote location also influence its demographics by limiting the developable area. 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).

Total Population/Population Density

Population estimates are based on the number of people who were residing within the county boundaries, either permanently or temporarily, on January 1 of a given year. Total population includes foreign and domestic migrant workers. 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). Between 2000 and 2006, the county experienced a 9 percent increase in population compared to an estimated 8 percent increase in California's population during the same period (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.

Trinity County has a population density well below the population density of California as a whole. The population density of the county in 2000 was estimated at 4.1 persons per square mile, while the population density of California was estimated at approximately 217 persons per square mile (Center for Economic Development 2007; U.S. Census Bureau 2008). Most of the population of Trinity County is concentrated in Weaverville, Hayfork, and Lewiston (Figure 4.9-1). The communities with the lowest population concentrations, Coffee Creek and Zenia/Kettenpom, are in some of the most remote areas of the county (Figure 4.9-1).

Housing

Each year, the California Department of Finance, Demographic Research Unit, estimates the number of housing units located in each county and incorporated entity, as well as in California as a whole. Housing units are estimated by adding new construction and units included in annexations and subtracting demolitions from the Census benchmark. The total number of housing units in Trinity County in 2006 is estimated at 8,251 (U.S. Census Bureau 2008). The total number of occupied housing units is 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 2008a).

Local Setting

The community of Lewiston offers only limited services, including several commercial enterprises, a U.S. Post Office, and Lewiston Elementary School. The community also has several recreation-based businesses within, or in close proximity to, the proposed rehabilitation sites, including the Trinity River Resort and RV Park, the Old Lewiston Bridge RV Resort, and the River Oaks Resort. These businesses provide economic benefits to the local community and the county, however, the Lewiston community is primarily residential. Existing land uses in the general vicinity of the rehabilitation sites are primarily rural residential or lands managed by federal or state agencies.

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 within, or in close proximity to, the proposed rehabilitation sites, 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 sites are primarily rural residential or lands managed by federal or state agencies.

The community of Junction City offers limited services, including several commercial enterprises, a USFS work station, a U.S. Post Office, and Junction City Elementary School. This community has two commercial sand and gravel operations, as well as several recreation-based businesses, which include RV parks, lodges, and rafting and fishing guides that operate along the Trinity River between Lewiston and Big Bar. These businesses provide economic benefits to the local community and the county; however, the Junction City community is primarily residential.

Planned Developments in the Project Vicinity

There is little likelihood that parcels in the vicinity of the rehabilitation sites will be further subdivided because of their locations in the floodplain, zoning restrictions, soils conditions, and minimal county services (e.g., community water service). Zoning designations within the communities of Lewiston, Douglas City, and Junction 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.

Public lands in and adjacent to the rehabilitation sites 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.

4.9.2 Environmental Impacts and Mitigation Measures

Methodology

The following section provides a brief overview of the analytic methods used to assess the potential socioeconomic impacts of the Proposed Project and associated alternatives. 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 the purpose of this assessment, Trinity County is considered to be the area of potential socioeconomic impact.

Income generation is one measure of economic activity in a community. Income growth spurs secondary economic impacts that ultimately result in increased employment activities. The duration of income growth, however, is an important consideration in determining the significance of an income change. Little increased long-term economic activity may result from short-term income growth unless such growth is substantial.

Significant increases in population concentration or growth can produce negative socioeconomic impacts, such as a lack of affordable housing, or can result in socioeconomic benefits, such as increased local revenues. The potential for the Proposed Project to result in an increase in population concentration or an increase in population growth has been qualitatively assessed.

The displacement of people (through loss of residences or places of employment) generally results in negative socioeconomic impacts, such as a decrease in the local work force and loss of employment opportunities, in addition to the direct impact to the people concerned. The potential of the Proposed Project to result in the displacement of people has been qualitatively assessed as a potential impact associated with the project.

Significance Criteria

For purposes of CEQA, under which "[e]conomic or social impacts of a project shall not be treated as significant impacts on the environment," project 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, a Proposed Project would have a significant impact on population and housing if it

- induces substantial growth in an area, either directly or indirectly;
- displaces substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; and/or
- displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Impacts and Mitigation Measures

Table 4.9-2 summarizes the potential socioeconomic impacts resulting from construction and operation of the project.

Table 4.9-2. Summary of Socioeconomic Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
4.9-1. Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.				
No impact	Beneficial	Beneficial	Not applicable[1]	Not applicable[1]
4.9-2. Implementation of the project could result in the disruption or displacement of local businesses.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
4.9-3. Implementation of the project would result in an increased demand for housing during construction.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
4.9-4. Implementation of the project would result in concentrated population growth.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 4.9-1: Construction of the project would provide temporary employment opportunities for construction workers in Trinity County. ***No impact for No-Project Alternative; beneficial impact for Proposed Project and Alternative 1.***

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 and Alternative 1

Implementation of either the Proposed Project or Alternative 1 would generate temporary construction-related employment in Trinity County. The generation of employment results in social benefits, even if the employment is short-lived. The number of design, construction, and clerical positions required to complete the Proposed Project is undetermined, but it is expected to add a small percentage to existing local jobs annually for approximately 10 years. However, the duration of employment would be dependent on the length of the contracting and construction period (anticipated to be approximately 6 months per year). Alternative 1 would generate similar types of employment opportunities as the Proposed Project; however the duration and/or extent of these opportunities for Alternative 1 would be less due to the lower amount of construction activity.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.9-2: Implementation of the project could result in the disruption or displacement of local businesses. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no disruption or displacement of local businesses would take place because the project would not occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

A few existing businesses are located within or directly adjacent to the sites associated with the Proposed Project or Alternative 1. However, local businesses in the vicinity of the rehabilitation sites would not be disrupted or displaced by either the Proposed Project or Alternative 1. Construction equipment and vehicle access would not impair access to these local businesses, and business operations would not be impaired. Businesses that operate on the river, such as rafting and fishing guides, would not be able to use certain river access points along the Trinity River during construction activity at specific sites; however, project construction would occur only at several rehabilitation sites annually, which would leave the majority of the river access sites available. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.9-3: Implementation of the project would result in an increased demand for housing during construction. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no increased demand for housing during construction would take place because the Proposed Project would not occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

The area surrounding the communities of Lewiston, Douglas City, and Junction City is primarily a rural residential area. Few rental opportunities exist in these community plan areas. What rental property does occur in adjacent rural residential areas is typically seasonal rental property available for recreational pursuits. 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 either the Proposed Project or Alternative 1 would not result in the displacement of any individual from his or her home. A short-term increase in the demand for housing in Weaverville could occur as a result of construction workers seeking lodging during the project staging and construction period (April through October). However, based on the estimated increase in annual employment generated by the project (approximately 20-30 individuals), this would be a less-than-significant impact, both regionally and locally. In addition to accommodating the short-term demands for housing for previous TRRP rehabilitation projects, the 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 demand for housing compared to that generated by personnel responding to wildland fires and would be a short-term impact. Therefore, the impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.9-4: Implementation of the project would result in concentrated population growth. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no population increases during or after construction because the Proposed Project would not occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

Implementation of either the Proposed Project or Alternative 1 would require about 20-30 individuals at any given rehabilitation site during construction. Any increase in population would likely occur seasonally on an annual basis. Based on current populations in the local communities, the projected number of workers that could move to the project area would result in a localized increase of less than 1 percent on a periodic basis. This amount would not constitute a significant concentration of population growth.

Workers could also be drawn from the local work force, which would further lessen population growth associated with project implementation. Overall, this impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 4.10

Cultural Resources

4.10 Cultural Resources

This section describes the prehistory, ethnography, and history of the Trinity River basin in proximity to the proposed Remaining Phase 1 and Phase 2 sites along the River. The information contained in this section provides a general context for understanding the importance, origin, and types of cultural resources that are located within the boundaries of the Remaining Phase 1 and Phase 2 sites. Because neither the Proposed Project nor Alternative 1 would affect cultural resources outside of the Trinity River basin, the following discussion will address only those cultural resources associated with the Trinity River basin. Specific archaeological details of the Remaining Phase 1 sites are discussed in section 7.10.

4.10.1 Environmental Setting

Regional Archaeology and Ethnography

Five periods of prehistory have been described for California's northwest coastal region, which includes the Trinity River basin. These periods are the Paleo-Indian (10,000–6,000 B.C.), Lower Archaic (6,000–3,000 B.C.), Middle Archaic (3,000–1,000 B.C.), Upper Archaic (1,000 B.C.–A.D. 500), and Emergent (A.D. 500–1800). Periods are characterized by their "pattern," a term that refers to a culture's technology as revealed by the type and sophistication of its tools such as stone or bone projectile points used for hunting, warfare, or fishing; stone metates and manos used to grind seeds; and mortars and pestles used to grind acorns.

At the time of Euro-American contact the Chimariko, Hupa, Tsnungwe, Wintu, and Yurok Indian tribes inhabited the Trinity River region (to the Klamath River confluence) and the area inundated by the TRD facilities. The Wintu are thought to have been the primary inhabitants of lands encompassed by the Remaining Phase 1 and Phase 2 sites.

Chimariko

The Chimariko inhabited a 20-mile reach of the Trinity River extending from approximately Big Bar to the mainstem Trinity River's confluence with the South Fork Trinity River. The Chimariko lived in an area with abundant natural resources. The staples of their diet were salmon and acorns; but deer, elk, bear, pine nuts, seeds, berries, roots, and small mammals were also important food sources.

Little is known of the Chimariko social organization since their culture was destroyed at an early date. The information that remains indicates that the largest social unit was the village. Each village had a headman, which was a hereditary lifelong position passed through the male line. Status in Chimariko society was determined by wealth or a combination of wealth and birth. Only fragmentary data on Chimariko religion and myths exist. Although the Chimariko language no longer exists, it is thought to have been of Hokan stock.

Hupa

The Hupa inhabited the lower reaches of the Trinity River in the region surrounding its confluence with the Klamath River. The Hupa relied heavily on salmon, deer, and acorns as food sources, but also used other fish, nuts, seeds, mushrooms, roots, elk, and fowl.

As with many native groups of northwest California, the highest political entity was the village, but the Hupa had no formal chief or ruling council and were instead ruled by individuals having prestige. Each village had a leader or Headman. The political structure of the tribe beyond village involved ceremony and ceremonial leadership. The villages of the northern half of Hoopa Valley danced with Takimildin; the southern villages with Medildin. The village in the middle, Tsewenaldin, danced with either unless they were in dispute. At the time the Reservation was created, Captain John was Headman of Medildin, Senoxon Hostler was headman of Takimildin, and Tsewenaldin John was the Headman of Tsewenaldin Village

Prestige came from being acknowledged as someone who was trusted to care for the wealth of the family and the village. The headman held in name only the rights to the hunting, gathering, and fishing places of the village and it was his job to ensure that they were not used by others or over harvested by people of his village. He was responsible for the fish dam harvest and the division of the salmon among the people.

Ceremonial items (e.g., regalia, deerskins, and headdresses) handed down for generations and cared for by individuals (the regalia outlives you, you can't own it) has great value and is considered priceless (irreplaceable). Regalia belonged to a family or many families but were 'cared for' by one leader. The headman of the village had 'great wealth' but his wealth was the wealth of the village. If a settlement had to be paid to avert a war with another village, the Headman paid the settlement price.

The Hupa excelled at making bows and arrows, and their skills in basket making (twined basketry) are widely recognized.

The Hupas remained undisturbed until the 1850s, when the discovery of gold in the Trinity River basin attracted would-be miners into the area. In 1864, the Interior Department established the Hoopa Valley Reservation, centered near the confluence of the Trinity and Klamath rivers, followed by establishment of a boarding school in 1893. The community formed a business council in 1933, and that same year a public school was opened on the reservation.

Wintu

At the time of Euro-American contact most of the western side of the Sacramento Valley (north of Suisun Bay) was inhabited by Wintun-speaking people. Early in the anthropological study of the region, Powers had recognized a linguistic and cultural distinction between the southern membership of this large group (i.e., the Patwin) and the people occupying the northern half of the western valley (Powers 1976). Subsequent linguistic analyses resulted in the present division of Wintuan into a southern (Patwin) group, a central (Nomlaki) group, and a northern (Wintu) Wintuan stock. Clearly, however, the central and northern Wintus are very closely related and share numerous cultural traits and attributes.

The Wintu were divided into nine subgroups distributed from Cottonwood Creek in the south, northward through Shasta County and into portions of Trinity and Siskiyou counties, and westward into portions of southern Trinity and northern Tehama counties. Within the general vicinity of the project boundaries, the Wintu inhabited the Trinity River basin upstream of Junction City including the area inundated by the TRD.

Wintu subsistence was based on three main staples: deer, acorns, and salmon. All three of these food sources were abundant along the mainstem Trinity River and its primary tributaries, although acorns and deer were available only seasonally.

The available ethnographic information documents a complex pattern of land use, settlement, and subsistence. The salmon runs, the locations of seasonally available big game (especially deer), and the distribution of acorn-yielding oak trees made it necessary for the Wintu to periodically travel far from their home territory. Although these extended forays were often arduous, they allowed the Wintu an opportunity to collect raw materials such as obsidian and other utilitarian materials that could not be obtained near their home territory or through trade.

The contemporary Wintu community is relatively small in terms of the number of individuals. Currently, there is only one federally recognized group of Northern Wintu, located on the Redding Rancheria; but at least four additional Northern Wintu groups dispersed throughout Shasta and Trinity counties are in various stages of seeking federal recognition.

Yurok

The Yurok inhabited California's northwestern coastline from Little River to Damnation Creek, although their ancestral territory included the Klamath River corridor from the estuary upstream to Slate Creek near present-day Trinity Lake. Food sources included salmon, ocean fish, sturgeon, sea lion, whale, elk, deer, and duck, with acorns, berries, bulbs, and grass seed rounding out the traditional diet.

Yurok life is defined by extended families affiliated with villages and represented by head spokespersons. Ceremonial wealth and rights to subsistence resource areas determine familial standing within Yurok social structure. Yurok are recognized for their highly stylized art forms and their skills in making redwood canoes, weaving fine baskets, hunting, and, especially, riverine salmon fishing. Many ancient traditions are continued through contemporary times.

The Yurok Reservation, which occupies 63,035 acres centered along the Klamath River corridor, is the size of many cities or counties, but does not have the revenue base available to create sustainable economic development on the Reservation.

Regional and Local History

Trinity County was primarily shaped by three economic pursuits: ranching, logging, and mining. Early settlers during the 1840s farmed, logged, and milled lumber primarily to support their personal needs, though as the population increased, surplus products were transported and sold to new immigrants (Colby 1982; Cox 1958; Medin 1998). This lifestyle was disrupted by the discovery of gold in Trinity County in

1848. Mining on the Trinity River was a significant industrial operation that contributed to the economic development of Trinity County beginning in the 1890s and continuing to the 1960s (Bradley, 1941; Jones 1981; Medin 2007).

The region's first recorded European exploration occurred in 1845 when Major Pierson P. Reading encountered and named the Trinity River (the English translation of "Trinidad") when he mistakenly thought that the river emptied into the Pacific Ocean at Trinidad Bay. It is probable that fur traders like Jedediah Smith visited the region prior to 1845, although there is no written documentation available. Major Reading discovered gold near Douglas City on Reading Creek in 1848, the first discovery in Trinity County. The news of this discovery triggered a rush of miners and settlers to Trinity County between 1848 and 1850.

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. The community of Lewiston as shown in the area of potential effect (APE) was also founded as a mining settlement. With the influx of miners in the 1850s, other industries also flourished. Ranches were established along the Trinity River and its major tributaries, supplementing the family farms developed in the vicinity of Trinity Center, Lewiston and Junction City. Lumber mills were also an important local industry in the late 1800s because the mines used large quantities of lumber for flumes, shoring, housing, and general equipment (Colby 1982; Medin 1998). As the population in Trinity County grew, so did the need for food, services, and resources. In fact, there were more people living in the Trinity area in the 1850s than have ever inhabited the area at any one time since. In 1853, it was estimated that close to 2,000 Chinese alone lived and worked in Weaverville. This boom, however, was relatively short lived.

The locations of these early mining areas, homesteads, and their associated roads and trails, established the pattern of development for the towns and transportation routes that exists today. Many place names related to streams, gulches, and towns derive from early settlement and mining along the river. The community of Lewiston, for instance, was built on the old main trail from Shasta to Weaverville where Frank B. Lewis first built a trading post and started a ferry. After the discovery of gold in the 1840s, it became a sizeable mining community with a post office established in 1853 (Jones 1981:53,271,297). The community of Weaverville became a center of gold mining activity after 1849, and later the seat of Trinity County with a post office established in 1851. As mining operations became more organized (e.g., hydraulic and dredging), it was common practice to create small independent communities near these mines. Junction City was established by the Junction City Dredge Company, which built cottages to house employees and their families (Trinity County Historical Society 1974). Highway 299 follows much of the original route connecting Weaverville to Shasta, Redding, and Arcata as well as the smaller communities in between (Jones 1981:271).

One of the early surveyors of the area was William S. Lowden, who purchased 160 acres along the Trinity River west of Lewiston in 1852 near the APEs established for the Lowden Ranch and Trinity House Gulch sites. He became one of the most prominent settlers in the county as he not only maintained a productive ranch, but also worked as an express rider, surveyor, land attorney, and road builder. The Lowden family also pursued mining and logging activities and developed a stage stop and hotel. In 1855,

he built a toll bridge across the river to connect existing pack trails and the first wagon road (Grass Valley or Buckhorn Road) into the county (Jones 1981).

Development of Placer Mining

The development of placer mining technology can be characterized as a progression of techniques that improved upon former methods to increase the volume of gravels that could be processed and the efficiency of mining gold. Improvements in technology required more capital investment. A few entrepreneurs formed companies to develop larger mines. Companies reinvested their profits, which were often not enough to develop a promising load. Speculators encouraged outside investment, usually from San Francisco, but by the 1870s, they were soliciting financial backing from the eastern United States and Europe (Kelley 1959; Medin 1998).

Early miners typically employed hand equipment, including pans, picks and shovels, cradles, sluice boxes, and various combinations thereof. The initial strategy focused on panning stream bed deposits. Gold became difficult to extract by the 1860s as the easily worked deposits along the Trinity River and its tributaries were played out. As the profitability of gold mining decreased by the 1870s, many miners sold their claims to become farmers, selling their meat and produce to miners, pack trains, stage companies, and local restaurants and hotels. The federal census data show that by 1870, only 15 percent of the work force was engaged in mining while 26 percent were farming (Elliot and Moore 1880; Medin 1998; Moore 1970). While many Euro-American miners abandoned their claims, Chinese miners and mining companies continued to mine (Kelly and McAleer 1986).

Ground sluicing became common in the 1850s as a way to access gold deposits in the stream channels and on the land above the river and creeks. By the 1860s, this technique was the dominate method of gold mining (Kelly and McAleer 1986). A ground sluice is a channel or trough in the ground, often hand dug to achieve the correct slope, through which gold bearing gravels are washed. Unlike the previous sluice box and cradle operations, ground sluicing required large quantities of water with which to excavate the ground. This need resulted in the construction of extensive networks of ditches, flumes, and penstocks. The intent was to reach bedrock, since deposits of placer gold are typically richest in the contact zone between the bedrock and overlying gravels.

Unpressurized water was directed via ditches over the margins of stream and river terraces to break down the sediments, which were then washed through a series of sluice structures. Hand tools and a steady stream of water was used to cave in and erode the ground into the prepared channel. The technique of ground sluicing for gold is characterized by a network of shallow ditches and deeper channels excavated into the upper river benches. A distinct “herringbone” pattern often marks the main drainage system of a ground sluice operation. The main trunk drain is intersected by several branch drains, which are flanked by rows of hand-piled rocks extending out at an angle from the main drain (Lindstrom 1988:53). Mining generally began at the base of the drains, closest to the river, and moved toward the water source or ditch (Lindstrom 1988; Kelly and MacAleer 1986). As excavation progressed, the ground sluicing channel in which active mining occurred became a drain, channeling water and tailings toward the river.

Gravels and soil were washed through a series of riffles and material collected from the riffles was subsequently processed through a board sluice or rocker, and eventually the pan. "Sluice forks" and shovels were used along the sluices to loosen and throw out larger cobbles and pebbles. The cobbles were vertically stacked along the edge of already worked ground, forming low walls that served as retaining walls to impound other cobbles and water diversion structures to facilitate cut bank erosion. As the use of ground sluicing expanded, check dams were constructed to impound water that could be released all at once to wash gravels through sluices with greater pressure, a technique call "booming" (Kelly and McAleer 1986; Lindstrom 1988; Medin 1998; Tibbetts 1997; Tordoff 1998; Wilson 1907). The practice of ground sluicing generally declined after about 1900. The method for ground sluicing was the antecedent to hydraulic mining (Kelly and McAleer 1986; Lindstrom 1988; Medin 1998; Ritchie 1981; Tibbetts 1997).

The advent of hydraulic mining was one of the major innovations for placer gold mining. Pressurized water directed by a hose and nozzle system, called a monitor or giant, was used to remove overburden and wash gold-bearing gravels through elaborate systems of sluice boxes. The hydraulic technology created a second boom because it allowed mining to expand to elevated alluvial deposits previously inaccessible due to their distance from water. It also created a small industry in Weaverville focused on manufacturing iron pipe for the mines. Hydraulic mining required greater investment capital and labor than previous mining efforts (Jones 1981; Medin 1998, 2007). Small groups of miners pooled their resources to construct ditches and holding ponds, and they conducted most of the hydraulic mines in Trinity County during the 1870s through the 1920s. Larger companies, exemplified by the La Grange Mine, consolidated many individual holdings with the assistance of outside investment to conduct hydraulic mining. The La Grange Mine, located between Weaverville and Junction City, became the largest placer gold hydraulic mine in California. The mine encompassed over 3,000 acres with 3,000 foot-long sluice boxes, and 27 miles of ditches and flumes. It had its own sawmill, ice plant, and electrical plant, and employed 30 men year-round (Medin 1998).

The nearest hydraulic mining activity to the APE is documented at the historic Paulsen Ranch near the confluence of Rush Creek and the Trinity River, in close proximity to the Sawmill and Upper Rush Creek sites (Trinity County Historical Society 1974:3). The Chamberlain and Red Hill Placer Mine began mining in 1859. Water was brought in from Rush Creek through 7 miles of ditch to one Number 4 monitor. The company operated for 7-month seasons each year "for many years" and averaged $7,000 in gold per year (O'Brien 1965). Reports of the California State Mining Bureau (1922a:207; 1923a:139) indicated that the "American-Italian Mining Company" was operating on Paulsen Ranch in 1923 with 8–10 men.

Hydraulic operations had profound effects upon the landscape throughout the Trinity River basin, leaving complex networks of ditches and canals, enormous excavations (e.g., cut banks, gullies and craters), and tremendous volumes of sediment that was delivered to channels throughout the basin. The peak of hydraulic mining lasted from the 1860s to the 1880s, when the nation's first environmental lawsuits led to its strict regulation and eventual demise (Medin 2007:9-10). The millions of tons of silt, sand, and gravel that washed down from the mines were the industries undoing. The massive volume of debris that

resulted from hydraulic mining clogged streams and rivers from the uplands all the way to the Pacific Ocean, obstructing navigable rivers and reducing their ability to carry flood waters. The lighter silt and sands spread over the river-side farms of the Sacramento Valley and ruined many farms. These downstream impacts of the industry eventually brought on a series of local, then federal, lawsuits, and a series of debates in the California Legislature on how (or if) the problem would be solved. The end of the debate came in 1884, when federal circuit judge Lorenzo Sawyer issued an injunction against all hydraulic mining in the state and ordered an immediate statewide halt to discharging tailings into rivers and streambeds (Kelley 1959).

With the Sawyer injunction, the industry collapsed and the hydraulic mines were abandoned. Over the next ten years, plans for local and regional dams to restrain mining debris were discussed and in 1893, legislation carried forward by Amador County Congressman Anthony Caminetti was signed. The Caminetti Act provided for the USACE to license the operation of individual hydraulic mines once they had demonstrated that their debris would not be discharged to the rivers. However, for most mines it was too late: their ditches and flumes had failed, capital for adequate debris dams was difficult to raise, and their workers had moved on. Sporadic operation of a few hydraulic mines continued into the 1960s (Kelley 1959).

The refinement of placer mining culminated with dredging. Dredges were utilized where large alluvial deposits existed adjacent to rivers, such as the Trinity. Dredge mining was more profitable and less financially risky than most types of mining because exploration methods, such as drilling test holes, had been developed to predict production levels (Medin 2007:9-10; Trinity County Historic Society 1974). Two types of dredges operated in the Trinity River basin and elsewhere in California: the bucket-line and the drag-line dredge.

Bucket-line dredges were in use in California by 1895. Early bucket-line dredges were relatively small, steam driven barges built on a wooden hull. The bucket-line dredge worked by means of an endless chain of buckets, linked one behind the other, rotating around a digging ladder (spud) that is raised and lowered as necessary. The series of buckets (or shovels) move in an endless chain around a solid arm, constantly bringing more and more material up the chain as it moves forward into new ground. The bucket delivers gravel to a hopper at the head of a screen that separates the larger gravel from the smaller material. The material too large to fall through the screen is carried via a mechanical stacker (a conveyor belt-like structure) or flume which moved the material far enough away from the stern of the boat that it would not interfere with dredging operations and allowed the dredge to stay afloat (Beckstead 2001). The tailings piles resulting from mechanical stacker-type dredges are a cluster of continuous arcs of cobble in longs rows, an effect created by the arc of the stacker as the dredge rotates on the spud, digging left, right, and center to clear a path for it to move forward and continue digging (Medin 2007; Trinity County Historic Society 1974; 2001:38). These tailing piles are evident at many locations adjacent to the Trinity River, and to a lesser degree, its tributaries.

One of the first of bucket-line dredges in Trinity County, the Poker Bar Dredge, began operation on the Trinity River after 1898 (Trinity County Historic Society 1974). Dredging operations were sporadic up to the turn of the century. This system for recovering gold was still fairly new and many operations were

unsuccessful. Experimentation and refinement led to more effective gold recovery, and, by 1905, a more efficient system of revolving screens and shaking tables to separate gold from sand and gravels had been invented and used successfully. Dredge mining along the Trinity River boomed during the 1910s and 1920s as dredging became more efficient and a profitable business involving major investors, foreign and domestic (Medin 2007:10; Trinity County Historic Society 1974). With increased efficiency and capital investment, dredges were also built much larger. Such dredges include the Trinity, Gardella, and Gold Bar dredges, which reportedly mined in and adjacent to the APEs established for the Remaining Phase 1 sites.

Developed around the 1930s, drag-line dredges were a smaller type of dredge comprised of a standard drag-line shovel that travels over the ground under its own power, usually by means of caterpillar tracks. The bucket, with a capacity of 1–3 cubic yards, is suspended from a structural steel boom 50 feet or more in length. The gravel is washed in a separate unit whose equipment, the same equipment used on the bucket-line dredges, is on a barge floating in an adjacent pond (Holland 1942). These smaller dredges were more mobile and could access places that the larger bucket-line dredges could not go. Drag-line dredges were operated concurrently with bucket-line dredges along the Trinity River, probably by small scale entrepreneurs, up to about the 1940s. There is evidence of drag-line dredging within the APE established for the Lowden Ranch and Trinity House Gulch sites (Gold Bar). Records maintained by Trinity County indicate that the Poker Bar Placer Mining Company and the Lincoln Gold Dredging Company owned property on Gold Bar in the 1940s.

The hallmark of dredge mining is the tailings piles, which are still visible along the river. Each type of dredge deposited tailings in a different arrangement. Bucket-line dredges produced rounded, parallel rows of cobbles. Drag-line dredges produced conical or rounded piles of cobbles, either in clusters or individual piles, which are associated with a pond. The height of the tailings piles can be generally related to the size of the dredge. After the end of World War I in 1918, larger dredges, powered by electric motors were constructed. These powerful dredges were capable of stacking cobble to small boulder size material much higher than the smaller steam-powered dredges. Drag-line dredges were limited in size relative to the bucket-line dredges and their associated tailings deposits remained markedly smaller in height and proportion.

The comprehensive extent of dredge mining along the Trinity River is illustrated by the 15 minute series quadrangle maps, dated 1950 and 1951. Notations of “tailings” are located at almost every bar on the Trinity River from north of Lewiston downstream to Helena. Additional information regarding the history of mining in Trinity County may be found in a report developed by Reclamation, entitled *The Other California Gold: Trinity County Placer Mining, 1948-1962,* Report #07-NCAO-211, which is on file at the Bureau of Reclamation in Sacramento, California.

Present Environment

Regional Setting

The Trinity River basin remains a culturally significant area for several Native American tribes including the Hoopa Valley, Wintu, Yurok, and descendants of the now extinct Chimariko. Not only do these tribes

have ties to this region that pre-date written history, but substantial numbers of modern-day tribal members continue to maintain many of the traditional uses of the area's natural resources, such as salmon fishing. However, retaining a culture in the wake of the historic mining activities, and more recently the TRD, that was traditionally and inextricably tied to the pre-European river ecology has resulted in conditions that are less than ideal for the continuation of some traditional practices. Changes to native land use practices brought about by the dam, current land uses, and increased population densities define a totally different kind of interaction between the native people and their environment.

A long history of flooding, fire, and vandalism have taken their toll on many potentially historically significant resources in the region. Few commercial mining operations remain and most current mining is recreational. A decline in the timber industry resulting primarily from changes in human values has had a significant effect on the regional economy. Mill closures and a decline in logging-related jobs have created a generally depressed economy in the region. However, some communities such as Weaverville have turned to their historic downtowns and rich mining history to develop a new economic base built on tourism.

Local Setting

Area of Potential Effect

Reclamation negotiated a Programmatic Agreement (PA) with the California State Historic Preservation Offices (SHPO) and the Advisory Council on Historic Preservation in November of 2000 (Appendix D) for Section 106 compliance regarding the Trinity River Main Stem Fishery Restoration Project. By design, the programmatic APE is general in nature and encompasses a larger area than the specific locations identified for rehabilitation in this document. The PA outlines how Reclamation conducts Section 106 compliance as well as provides direction on how to deal with resources identified within the programmatic APE. Specific locations for rehabilitation activities within the programmatic APE are delineated individually. An APE for each of these project specific locations is the subject of Section 106 compliance pursuant to the PA.

Archaeological and Historical Information Sources

A records search for the Trinity River-wide APE was conducted in support of the overall project, and additional records searches were conducted for the Remaining Phase 1 sites using the Northeast Center of the California Historical Resources Information System at Chico State University. Reclamation's records were also reviewed.

Native American Consultation

The Hoopa Valley Tribe (HVT) is a signatory of the PA and was a Co-Lead Agency in the preparation of the Trinity River Restoration Mainstem Fishery Restoration FEIS. This document acknowledges the role of the HVT and Yurok Tribe (YT) as cooperating agencies. In this capacity, these Tribes offer special expertise with respect to the issues addressed in this document (i.e., Fisheries, Wildlife, Tribal Trust, and Cultural Resources). The HVT and YT are represented on the TMC and have a long history working with agencies involved in restoring the fishery on the Trinity River. The HVT and YT were notified of the

NEPA/CEQA process pursuant to the 36 Code of Federal Regulations (CFR) Part 800 regulations. The Native American Heritage Commission previously identified two federally recognized tribes and four non-federally recognized Indian groups as possibly having cultural resource information applicable to the Remaining Phase 1 or Phase 2 sites.

4.10.2 Environmental Impacts and Mitigation Measures

Methodology

As a programmatic discussion, the APE for the cultural resource inventory and evaluation was established by Reclamation in accordance with the PA discussed in the previous section. This APE encompasses the entire 40-mile reach of the Trinity River below Lewiston Dam, including the rehabilitation sites described in this document. In conjunction with the requirements in the PA, Reclamation Archaeologists will conduct a record search and pedestrian surveys to ensure that any known cultural resources within the general vicinity of specific rehabilitation sites are addressed during the development of the Proposed Project. In some instances, this information has been used to adjust site boundaries and modify the location, type, and intensity of rehabilitation activities proposed within the project boundaries.

Significance Criteria/Determination of Effect

The activities within the rehabilitation sites 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 National Register of Historic Places (NRHP).

For historical resources, the lead agencies have reviewed both the federal NHPA and CEQA in order to determine thresholds of significance. As noted above, 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" (Public Resources Code, 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 Public Resources Code or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, 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 California Register of Historic Places (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 will 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 will be materially impaired.

In addition, based on CEQA Guidelines Section 15064.5 and Appendix G of the CEQA Guidelines, the Proposed Project or Alternative 1 would have significant effects if they would

- cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- disturb any human remains, including those interred outside of formal cemeteries.

Impacts and Mitigation Measures

Table 4.10-1 summarizes the potential cultural resource impacts resulting from construction and operation of the project.

Table 4.10-1. Summary of Cultural Resources Impacts for the No-Project Alternative, the Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.10-1: Implementation of the project could cause a substantial adverse change in the significance of a known cultural resource.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.10-2: Implementation of the project could potentially result in disturbance of undiscovered prehistoric or historic resources.				
No impact	Potentially significant	Potentially significant	Less than significant	Less than significant

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

Impact 4.10-1: Implementation of the project could cause a substantial adverse change in the significance of a known cultural resource. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no effects on cultural resources because the project would not be constructed.

Proposed Project and Alternative 1

Reclamation Archaeologists will evaluate any cultural resources within a specific rehabilitation site to determine if they are eligible for listing on the NRHP and subsequently determine if there will be adverse effects to historic properties, if present, pursuant to the PA. Any adverse impacts will be moderated by the conditions established in the PA following the criteria used to establish the boundaries and activities at the Remaining Phase 1 and Phase 2 sites. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.10-2: Implementation of the project could potentially result in disturbance of undiscovered prehistoric or historic resources. ***No impact for No-Project Alternative; potentially significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no effects on prehistoric or historic resources because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Given the prehistory and history of the Trinity Basin, TRRP rehabilitation activities have the potential to affect unknown cultural resources that may be present in any one of the project sites. This impact would be potentially significant.

Mitigation Measures

No-Project Alternative

No impacts have been identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural resources, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist shall be consulted. Once the find has been identified, Reclamation shall be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA.

4.10-2b 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 shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC shall 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 U.S.C. 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 shall be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.

Significance after Mitigation

Less than significant

SECTION 4.11

Air Quality

4.11 Air Quality

This section describes air quality standards and conditions in the project region, and evaluates air quality impacts associated with implementation of activities at the rehabilitation sites. Air emissions from project construction are measured against standards provided by the North Coast Unified Air Quality Management District (NCUAQMD).

4.11.1 Environmental Setting

Climate and Topography

According to the Soil Survey of Trinity County, California Weaverville Area (U.S. Department of Agriculture 1998), Trinity County has a climate characterized by hot, dry summers and cold, moderately wet winters. Local climate patterns are influenced by the varying topography of deeply dissected mountains and narrow river valleys. 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 dominantly rainfall, with occasional snow in the winter. Dense morning fog typically occurs in the valleys of the Trinity River basin during the winter and occasionally throughout the rest of the year (North Coast Unified Air Quality Management District 1995).

Trinity County has an average summer high temperature of 93.9 °F, and an average winter low temperature of 27.3 ºF. The average annual precipitation for Trinity County ranges from 30 inches at the lower elevations to 70 inches at the higher elevations. The climate along the 40-mile reach of the mainstem Trinity River below Lewiston Dam in the project vicinity is typical of other low elevations (1,400–2,000 feet) in Trinity County: mild, wet winters and hot, dry summers. Table 4.11-1 provides a summary of climate data recorded at the TRSSH Weather Station in Lewiston, California, which is approximately 7 river miles upstream of the SM site.

Table 4.11-1. Climatological Data For Trinity County (1974–2007)

Weather Parameter	Measurement
Average annual temperature	54.8 ºF
Average high temperature in January	47.9 ºF
Average low temperature in January	31.8 ºF
Average high temperature in July	92.5 ºF
Average low temperature in July	52.6 ºF
Highest recorded temperature	113 ºF
Lowest recorded temperature	4 ºF
Average annual precipitation	32.8 inches
Average days of precipitation per year	91 days
Average annual snowfall	6.5 inches
Highest recorded annual snowfall	29.9 inches

Source: Western Regional Climate Center 2008

Air Quality Standards

Federal Requirements

The 1977 federal Clean Air Act (CAA) requires the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the following "criteria [1]" air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), suspended particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

Pursuant to the 1990 CAA amendments, the EPA has classified air basins (or portions thereof) as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. Trinity County is part of the North Coast Air Basin, and is under the jurisdiction of the NCUAQMD (Figure 4.11-1).

State Requirements

Similar to federal requirements, the 1988 California Clean Air Act (CCAA) outlines a program to attain the California Ambient Air Quality Standards (CAAQS). The CAAQS are more stringent than the federal standards for the criteria air pollutants. Under the CCAA, areas in California have been designated as attainment or non-attainment with respect to the state ambient air quality standards. Trinity County is currently designated as non-attainment for the state standard for particulate matter less than 10 microns in diameter (PM_{10}).

When daily or annual pollutant levels are above the allowable state criteria, the area is considered to be in "non-attainment" for that particular pollutant; and that means the pollutant concentration exceeds public health and safety standards (North Coast Unified Air Quality Management District 1995). Table 4.11-2 summarizes both federal and state ambient standards for the criteria air pollutants.

Table 4.11-2. Federal and State Criteria Pollutant Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	State Standard
O_3	1-hour 8-hour	0.12 ppm 0.18 ppm	0.09 ppm —
CO	8-hour 1-hour	9 ppm 35 ppm	9 ppm 20 ppm
NO_2	Annual arithmetic mean	0.053 ppm	—
	1-hour	—	0.25 ppm
SO_2	Annual arithmetic mean	0.030 ppm	—
	24-hour	0.14 ppm	0.04 ppm

[1]Termed "criteria" pollutants because EPA publishes criteria documents to justify the choice of standards.

Table 4.11-2. Federal and State Criteria Pollutant Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	State Standard
	3-hour	—	—
	1-hour	—	0.25 ppm
Fine particulate matter (PM2.5)	24-hour	65 µg/m^3	65 µg/m^3
	Annual arithmetic mean	15 µg/m^3	12 µg/m^3
Respirable particulate matter (PM10)	24-hour	150 µg/m^3	50 µg/m^3
	Annual arithmetic mean	50 µg/m^3	20 µg/m^3
Pb	30-day average	—	1.5 µg/m^3
	Calendar quarter	1.5 µg/m^3	—

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter
Source: California Air Resources Board 2008a

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 CARB regulates local air quality indirectly by establishing state ambient air quality standards and vehicle emission standards.

As of August 2007, CEQA lead agencies are required by law to analyze the potential of a Proposed Project to produce greenhouse gas (GHG) emissions, which consist primarily of carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4) (Public Resources Code Section 21083.05). This legislation also requires the Governor's Office of Planning and Research (OPR) to prepare and submit guidelines to the Resources Agency for the mitigation of GHG emissions and their effects by July 1, 2009. To date, OPR, local air boards, and local agencies have not developed specific GHG thresholds for use in determining the potential significance of project impacts. However, OPR released a Technical Advisory in June 2008 (California Office of Planning and Research 2008) that provides guidance for addressing CEQA GHG environmental impacts. In the absence of established standards, Lead Agencies have been directed by OPR to apply the technical guidance provided by the state. The recommended approach includes identifying GHG emissions generated by a project. In particular, "Lead agencies should make a good faith effort, based on available information, to calculate, model, or estimate the amount of CO_2 and other GHG emissions associated with vehicular traffic, energy consumption, water usage and construction activities" (California Office of Planning and Research 2008). The Technical Advisory recommends that Lead Agencies provide documentation of the available information and analysis used for significance determinations, and it recommends mitigation measures that may be appropriate.

The following GHGs are now regulated by the state: CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code 38505(g)). In an effort to reduce GHGs, the CARB has adopted vehicle emission standards to reduce GHGs that result from gas combustions (e.g., CO_2). Implementation of these new standards is set to become effective for vehicles manufactured in 2009; however, prior to enforcing the state law, the EPA must grant a waiver to the state

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North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 and Phase 2 Sites

Figure 4.11-1
California Air Basins

allowing stricter air quality standards than the CAA provides. The state has not yet obtained the necessary EPA approval. In addition to regulating GHG via vehicle emissions, the state's Climate Action Team, headed by CalEPA, set state-wide targets for reductions in CO_2 emissions. By 2020, the state aims to reduce current CO_2 emissions by 59 million tons.

Local Requirements

The North Coast Air Basin (NCAB) is comprised of five counties in northwest California: Del Norte, Humboldt, Trinity, Mendocino, and a portion of Sonoma County. Figure 4.11-1 illustrates the NCAB in relation to all air basins in California. NCUAQMD is responsible for monitoring and reporting air quality for three of these counties (i.e., Humboldt, Del Norte, and Trinity counties). The NCUAQMD, located in the far northwestern portion of California, encompasses approximately 7,134 square miles. Its western border is the Pacific Ocean, extending south from the Oregon border approximately 140 miles to the Mendocino County line. The basin varies in width from the coast, extending 30 to 100 miles inland.

The NCUAQMD has established air quality emission thresholds for stationary sources in the entire NCAB, which can be used to assess impacts to air quality in Trinity County. Air quality emission significance thresholds (the potential of a new or modified stationary source to emit air contaminants that would equal or exceed significant emission rates in tons per year) for stationary sources are presented in Table 4.11-3.

Table 4.11-3. Air Quality Emission Significance Thresholds, North Coast Unified Air Quality Management District

Air Contaminant	Significant Emission Rate (tons per year)
Carbon monoxide	100
Nitrogen oxides	40
Sulfur dioxide	40
Particulate matter	25
PM_{10}	16
Ozone	40 (as volatile organic compounds)
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Mercury	0.1
Vinyl chloride	1
Fluorides	3
Sulfuric acid mist	7
Hydrogen sulfide (H_2S)	10
Total reduced sulfur (including H_2S)	10
Reduced sulfur compounds (incl H_2S)	10

Source: North Coast Unified Air Quality Management District 2005

As part of its overall strategy to meet the state's health-based standard for PM_{10}, the NCUAQMD adopted a PM_{10} Attainment Plan (North Coast Unified Air Quality Management District 1995). Included in the plan are measures to reduce PM_{10} emissions from mobile sources, as well as from woodstoves and other combustion sources. The program funds reductions in nitrogen oxide (NO_x) emissions, PM_{10}, and toxic compounds contained in diesel exhaust.

Ambient Air Quality Conditions

The CARB maintains air quality monitoring sites throughout the NCAB that provide information on ambient concentrations of criteria air pollutants. The nearest monitoring station to the Remaining Phase 1 and Phase 2 sites is located at the Trinity County Courthouse, 101 Court Street in Weaverville, which is between the communities of Douglas City and Junction City.

Air quality measured at the Weaverville station may not be a precise representation of ambient air quality in the immediate vicinity of the project due to localized influences on air quality from the Trinity River corridor. However, this monitoring station does provide a good indication of air quality in the general vicinity.

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. 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 (PM_{10}) standards.

Air quality in Trinity County is influenced by a number of factors, including stationary sources such as residential wood heating, non-stationary sources such as motor vehicle exhaust, forest management (i.e., prescribed fire), wildland fires, and the meteorology of a given area. The NCUAQMD has defined the following general source categories for air pollution (North Coast Unified Air Quality Management District 1995):

- industrial (e.g., sawmills, power plants, gravel plants, and other heavy industry);
- commercial (e.g., gas stations, body shops, restaurants, and dry cleaners);
- residential (e.g., home heating, backyard burning, and paint and solvent use);
- mobile (e.g., cars, planes, trains, and other transportation sources); and
- agricultural: forest management burning, field burning, herbicide use, etc.

Particulate Matter

Particulate matter consists of fine mineral, metal, soot, smoke, and dust particles suspended in the air. For health reasons, particulate matter that is less than 10 microns in diameter (PM_{10}) is monitored throughout the state. Trinity County identified the following pollutant sources as primary contributors to PM_{10}: wood stoves, wind-blown dust from dirt roads and agriculture, and open burning from backyard burn piles and prescribed forest fires. Wildland fires also result in increased levels of particulate matter. Some

of these sources contribute to increases in local PM_{10} concentrations, while others, such as vehicle traffic and periodic wildland fires, have an impact on regional PM_{10} concentrations.

PM_{10} sampling showed that woodstove emissions during the winter months are the primary cause of high PM_{10} values in the NCUAQMD. PM_{10} sampling in Weaverville alone showed that, for samples over 50 $\mu g/m^3$, woodstove emissions contributed approximately 55 percent of PM_{10} measured (24-hour state standard) during high PM_{10} episodes, and approximately 30 percent on average of PM_{10} measured for all samples collected over a year (North Coast Unified Air Quality Management District 1995). High PM_{10} levels in Trinity County also correlate with wildland fire events.

Table 4.11-4 shows PM_{10} concentrations in Weaverville over a 10-year period. In 1999, PM_{10} concentrations (24-hour average) exceeded the state standards for more than 30 days. This relatively high PM_{10} level was attributed to an unusually large number of wildland fires in the vicinity of the Weaverville basin during the late summer months.

Table 4.11-4. PM_{10} Monitoring Data for Weaverville (1995–2007)

Criteria	Year	Estimated Days Over National Standard	Estimated Days Over State Standard	High 24-Hour Average	
				National	State
24-Hour Average	2007	0.0	3.9	51.2	51.8
	2006	—	—	160.6	153.9
	2005	—	—	32.3	32.4
	2004	—	—	42.4	42.5
	2003	—	—	56.5	53.9
	2002	—	—	52.3	52.5
	2001	0.0	—	72.6	72.0
	2000	0.0	6.6	50.8	51.1
	1999	0.0	35.8	99.6	94.9
	1998	0.0	0.0	46.2	46.5
	1997	0.0	17.8	54.0	54.0
	1996	0.0	—	72.0	63.0
	1995	0.0	—	41.0	—

Source: California Air Resources Board 2008a

Ozone

The NCUAQMD identifies O_3 as a concern in the NCAB. Ozone is an invisible pollutant formed when sunlight triggers chemical reactions between nitrogen oxides and hydrocarbons. The primary contributors to the formation of O_3 include vehicle emissions, industrial plant emissions, fossil fuel combustion, and evaporation of paints and solvents. However, O_3 levels in Trinity County are below the state and federal standards (California Air Resources Board 2005; North Coast Unified Air Quality Management District 2008).

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 GHG emissions in the atmosphere. Generally speaking, these gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Human activities that contribute GHGs include the combustion of fossil fuels (i.e., fuels containing carbon, such as wood, coal, gasoline, and diesel) (California Office of Planning and Research 2008).

The most common GHG that results from human activity is CO_2, followed by CH_4 and N_2O. According to the CalEPA Climate Action Team, transportation accounts for 38 percent of human caused GHGs in California, industrial activities account for 20 percent, electricity accounts for 23 percent, commercial and residential account for 9 percent, agriculture and forestry practice contribute 6 percent, and the remainder comes from other miscellaneous sources (California Environmental Protection Agency 2006). In 2004, fossil fuel combustion accounted for 98 percent of the carbon dioxide emissions in California, and measured 398 million metric tons. The CARB reports that California is the 15th largest source of climate change emissions in the world, exceeding most nations (California Air Resources Board 2008b). State efforts to minimize GHG emissions have not yet translated into monitoring for these gases in Trinity County.

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 is not located near a hospital or senior housing. However, portions of the project would be located near elementary schools, adjacent to residential areas, and adjacent to outdoor recreation areas.

Project activities that could generate fugitive dust and Toxic Air Contaminant (TAC) would be located approximately 300 feet from the Junction City Elementary School, less than a quarter mile from the Douglas City Elementary School, and about a half mile from the Lewiston Elementary School. Residential and recreational areas occur in and adjacent to Remaining Phase 1 and Phase 2 sites in Lewiston, Douglas City, and Junction City.

4.11.2 Environmental Impacts and Mitigation Measures

Methodology

Data for the impacts analysis were taken from the following reports on local and regional air quality: Particulate Matter Attainment Plan (North Coast Unified Air Quality Management District 1995), California Air quality data statistics (California Air Resources Board 2008a), North Coast Rules and Regulations (North Coast Unified Air Quality Management District 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. The results are compared to local and national ambient air quality emissions and concentrations standards to determine the significance of the impacts.

Significance Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have an adverse impact on air quality if it would

- violate any ambient air quality standard;
- contribute substantially to an existing or projected air quality violation;
- conflict with or obstruct implementation of any applicable air quality plan;
- result in a cumulatively considerable net increase of any criteria pollutant (e.g., PM_{10}) for which the region is in non-attainment under an applicable state ambient air quality standard;
- expose sensitive receptors to substantial pollutant concentrations;
- result in substantial air emissions or deterioration of air quality;
- create objectionable odors;
- alter air movement, moisture, or temperature, or result in any change in climate, either locally or regionally;
- produce toxic air contaminant emissions that exceed the air pollution control district's threshold level for health risk; or
- result in a substantial increase or cumulatively considerable net increase in GHG emissions (e.g., CO_2).

Since the first two criteria include violation of either federal or state air quality standards, these criteria will 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 CO, NO_x, PM_{10}, and SO_2, but does use the significant emission rates listed in Table 4.11-3 as a baseline when evaluating a project's potential impacts to air quality.

Impacts and Mitigation Measures

Table 4.11-5 summarizes the potential air quality impacts resulting from implementation of the project.

Table 4.11-5. Summary of Potential Air Quality Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
4.11-1. 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	Significant	Less than significant	Less than significant
4.11-2. Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.				
No impact	Significant	Significant	Less than significant	Less than significant
4.11-3. Construction activities and removal of vegetation associated with the project could result in vegetative materials that managers will decide to burn.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.11-4. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.11-5. 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	Significant	Less than significant	Less than significant

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

The potential for impacts on air quality from implementation of the project is discussed below.

Impact 4.11-1: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 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 and gravel injection. As discussed previously, these sources of fugitive dust are associated with PM_{10}, a criteria pollutant, for which the air basin is in non-attainment.

High levels of PM_{10} in Trinity County generally coincide with regional wildland fire events during the dry summer months, and with periods of cool, wet weather when localized woodstove use and brush burning activities contribute particulate matter to the air. Fugitive dust resulting from project activities would occur during the dry summer and early fall months, when PM_{10} levels may be elevated by wood stove use, brush burning, or wildland fires.

As described in Chapter 2, the project incorporates measures required by the NCUAQMD to minimize fugitive dust in and adjacent to the rehabilitation sites. These measures are summarized in section 2.6 Description of Construction Criteria and Methods.

Once rehabilitation activities cease at a specific 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 rehabilitation).

Alternative 1

Alternative 1 would generate fugitive dust and particulate matter levels associated with project rehabilitation activities. However, Alternative 1 would generate less fugitive dust than the Proposed Project because it would implement significantly less channel rehabilitation measures and, therefore, would involve less earthwork, which translates to less fugitive dust. There would also be less vegetation removal under Alternative 1, which would decrease the amount of vegetation that could be burned. To the extent possible, revegetation would be coordinated with construction so that the amount of bare ground is limited. Revegetation would not commence until plants are dormant and fall wet conditions have returned. While the impact would be less under Alternative 1 than under the Proposed Project, it would nonetheless be significant because the air basin is in non-attainment for particulate matter.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate:

- Inactive construction areas will be watered as needed to ensure dust control.
- Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1–2 feet vertical distance between top of load and the trailer).
- Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in section 4.3, Geology, Fluvial Geomorphology, and Soils, and section 4.5, 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.

Significance after Mitigation

Less than significant

Impact 4.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no increase in construction vehicle exhaust emissions because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Construction associated with either the Proposed Project or Alternative 1 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 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 identified as 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.

Construction vehicle exhaust emissions associated with Alternative 1 would be less than under the Proposed Project because there would be less construction associated with channel rehabilitation and, therefore, less vehicle exhaust resulting from construction work and transportation. However, even though there would be fewer hours of construction equipment operation associated with Alternative 1, it would have a significant impact on air quality.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.11-2a Reclamation will comply with NCUAQMD Rule 104 (3.0) 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).

Significance after Mitigation

Less than significant

Impact 4.11-3: Construction activities and removal of vegetation associated with the project could result in vegetative materials that managers will decide to burn. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

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

Proposed Project and Alternative 1

Implementation of either the Proposed Project or Alternative 1 would include vegetation removal resulting in vegetative material that would be buried, piled to create wildlife habitat, chipped, or burned. 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 USFS, BLM, and Cal Fire requirements. Burning vegetation in the fall/winter period (November–April) would eliminate effects to nesting birds. 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 in is non-attainment. Therefore, the impact would be significant.

Implementation of Alternative 1 would result in less vegetative debris, and could result in less vegetative burning than the Proposed Project. Nonetheless, Alternative 1 activities associated with burning vegetation would be significant. Burning vegetation would contribute particulate matter to the air, a criteria pollutant for which the basin in is non-attainment.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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.

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:

- 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 ºF).
- 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.

- 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.

Significance after Mitigation

Less than significant

Impact 4.11-4: Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no construction or transportation activities because the project would not be implemented. There would be no increase in GHG emissions that would contribute to global climate change.

Proposed Project and Alternative 1

Transportation and construction activity associated with project implementation would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. Burning vegetation would also emit CO_2, which is a GHG. A number of measures are identified in Chapter 2 that are intended to reduce the impacts relative to climate and GHGs. These measures are incorporated into the Proposed Project and Alternative 1. Additionally, the following measures will be used to enhance the awareness of global warming in conjunction with either action alternative:

- 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 then plastic bottled water;

- Provide incentives for contractors to hire locally;
- Require re-useable batteries for equipment that can use them.

As discussed above, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the combustion of fossil fuels. Use of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 38 percent of the total GHG emissions in the state. A byproduct of fossil fuel combustion is CO_2.

In order to determine the significance of the impact, a "carbon foot-print" was estimated based on the Proposed Project's generation of GHGs (primarily CO_2). Project activities that would offset potential impacts were weighed into the equation. The following quantities of combustible fuel and vegetation disturbance were used to determine the carbon footprint for the Proposed Project: an average of 285 gallons/day of diesel fuel would be used by construction equipment[2] and an average of 35 acres of vegetation could be removed per site[3]. It would take approximately 676 days to complete construction activities for the Proposed Project.[4]

Based on these estimates, the Proposed Project would produce approximately 3 metric tons of CO_2 per day over the life of the project. Total GHG emissions resulting from the proposed activities would be approximately 2,050 metric tons of CO_2 [5] Vegetation replanting and natural re-seeding within the existing riparian area would offset the total project GHG emissions by approximately 20 metric tons of CO_2 over a five-year period. Additionally, project activities may result in opportunities to increase the amount of riparian and upland vegetation.

Based on the above calculations, which estimate the project's carbon emission, the Proposed Project 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 the project's GHG emissions associated with the use of heavy equipment would be measurable over the course of the project, GHG emissions and any effects on global climate change would not be cumulatively significant considering the amount of GHG emissions generated by the Proposed Project and the current local air quality conditions. While Reclamation activities may result in some opportunities to increase the amount of riparian and upland vegetation that could be established and/or enhanced, overall, the impacts of the Proposed Project with respect to GHG would be less than significant.

[2] The amount of fuel used by the project is based on operating three of the six pieces of heavy equipment, which have an average fuel consumption of 95 gallons per day. Types of heavy equipment used for construction activities would include a 321 excavator, D7 dozer, 325 off road dump truck, 627 scraper, 966 loader, and 160H motor grader.
[3] The amount of vegetation disturbance is based on Wildlife Habitat Relationship acreage that would be disturbed by the Remaining Phase 1 sites.
[4] This timeframe was based on the average number of days it would take to complete each site based on Remaining Phase 1 projections.
[5] The mobile combustion CO_2 Emissions Calculation Tool was used to calculate GHG emissions for combust ble fuel (Greehhouse 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 associated with Alternative 1 would be less than the amount of emissions generated by the Proposed Project because less construction activity would occur and, therefore, less combustion associated with engines, possibly less vegetation burning, and less project generated transportation. The following quantities of combustible fuel and vegetation disturbance were used to determine the carbon footprint for Alternative 1: an average of 285 gallons/day of diesel fuel would be used by construction equipment, and an average of 29 acres of vegetation could be removed per site. It would take approximately 580 days to complete construction activities for Alternative 1.

Based on the above estimates, Alternative 1 would produce approximately 85 percent of the GHG emissions produced by the Proposed Project. Total GHG emissions resulting from Alternative 1 would be approximately 1,754 metric tons of CO_2. Vegetation replanting and natural re-seeding would offset the total project GHG emissions by approximately 14.5 metric tons of CO_2. Based on the above calculations, which estimate the project's carbon emission, Alternative 1 would not generate significant increases in GHG or an ongoing increase in the demand for off-site energy production because there would be no new facilities constructed. Similar to the Proposed Project, the impact of Alternative 1 relative to GHG and effects on climate change would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.11-5: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no construction or transportation activities because the project would not be implemented. Therefore, there would be no impact.

Proposed Project and Alternative 1

Construction activity associated with the Remaining Phase 1 and Phase 2 sites would generate fugitive dust, gas, and diesel emissions and the project could generate smoke from vegetation burn piles; all of which could expose a substantial number of adjacent residents and three nearby elementary schools to air pollutants. Schools and residences are considered sensitive receptors. Therefore, this would be a significant impact.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.11-5a Construction activity occurring within 300 feet of the Lewiston or Douglas City elementary schools will be limited to the period when school is not in session.

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 Remaining Phase 1 and Phase 2 and project activity and the Lewiston, Douglas City, and Junction City elementary schools will be notified of construction activity located near the schools prior to site construction activities.

4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation sites, which contains a phone number for the public to contact for concerns related to air quality.

Significance after Mitigation

Less than significant

SECTION 4.12

Aesthetics

4.12 Aesthetics

This section describes the aesthetic values and visual resources known to occur in the Trinity River basin in close proximity to the proposed Remaining Phase 1 and Phase 2 sites. It also evaluates potential impacts to aesthetic values and visual resources from implementation of the Proposed Project and its alternatives.

4.12.1 Environmental Setting

Regional Setting

The Trinity River provides aesthetic values and visual resources for residents of and visitors to Trinity County. The scenic quality of the river is vital to the county's communities and residential areas and contributes significantly to the recreational allure of the county. As part of the federal Wild and Scenic River System, the Trinity River below Lewiston Dam to its confluence with the Klamath River has been designated as "recreational."

Two scenic highways cross Trinity County, the Siskiyou-Trinity Scenic Byway (SR 3) and the Trinity Scenic Byway (SR 299). The Siskiyou-Trinity Scenic Byway, formerly known as the Trinity Heritage Scenic Byway, includes 120 miles of road beginning south of Hayfork and continuing north past Trinity Lake to Edgewood at I-5. The Trinity Scenic Byway follows SR 299 between Redding and Arcata, California. This byway is approximately 140 miles long and bisects Trinity County as it parallels the Trinity River.

Since the construction of the TRD, the flow regime of the Trinity River has been significantly changed (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). Prior to the 2000 ROD, flows in the Trinity River were maintained at relatively constant levels, although influenced to some degree by carryover storage and high run-off events on a periodic basis. The alteration of natural flow patterns resultant from TRD operations prior to the 2000 ROD resulted in substantial changes in the ecology and landscape features in the channel and floodplain downstream of the TRD facilities. Subsequent to the 2000 ROD, the TRRP has modified the controlled releases from the TRD to meet the overall objectives of the TRRP as described in Chapter 2 of this document.

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 (Federal Highway Administration 1983). The dominance of each of these components on the landscape serves to form the viewer's impression of the area. A viewer's impression directly corresponds to the aesthetic value of the

landscape. The aesthetic value of an area is a measure of its visual character and scenic quality combined with the viewer response.

Visual Sensitivity and Viewer Response

The overall response of a viewer to the quality of a view is based on a combination of viewer exposure and viewer sensitivity. Viewer exposure refers to the visibility of resources in the landscape, the proximity of the vantage point to the view, the elevation of the viewer relative to the view, the frequency and duration of the viewing, the number of observers, and preconceived expectations of individual viewers or groups. Viewer sensitivity relates to the extent of the public's concern for particular landscapes. Judgments of visual quality and viewer response should be based on the regional frame of reference (U.S. Soil Conservation Service 1978). The geographical setting and nature of the visual resource will significantly influence the degree of visual quality and sensitivity experienced by the viewer. For example, the presence of a small hill in an otherwise flat landscape may be viewed as a significant visual element, but the hill may have very little significance when located in mountainous terrain.

Within the 40-mile reach of the Trinity River below Lewiston Dam, the Trinity River corridor is a dominant component of the visual environment. Gravel bars, riparian vegetation, and constructed features throughout the corridor contribute to the visual character of the existing landscape.

Viewshed

The Federal Highway Administration (1983) defines a viewshed as all of the surface area visible from a particular location (e.g., a highway pull-out) or sequence of locations (e.g., a highway or trail). Viewsheds are referred to as visual assessment units (VAU) throughout this section of the document. The VAUs were established to represent views of visually sensitive resources observed from various locations surrounding homes, public access areas, or roads in the project vicinity.

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 floodplain of the Trinity River.

Viewer Groups

The perceptions of viewers are influenced by their location, specific activities in which they are engaged, personal degree of awareness, and individual values and goals. The three distinct viewer groups that could be affected by the activities described in Chapter 2 are motorists, residents, and recreationists.

Motorists

Motorists are those persons who would view the Remaining Phase 1 or Phase 2 sites from a moving vehicle. Motorists may be drivers or passengers. This user group typically consists of commuters, local

residents, business travelers, and tourists. Tourists are often acutely aware of viewshed opportunities and aesthetics associated with the project area when viewed from roadways. Business travelers, commuters, and local residents who travel the same routes frequently may be acclimated to the general view, but are more likely to be aware of visual changes than the occasional passersby. In general, views of the river corridor from roadways are somewhat limited and of short-duration for motorists.

Residents

Residents are people whose homes and/or property are in close proximity to, and have a view of, a rehabilitation site or a portion of a site. The existing landscape features associated with the Remaining Phase 1 and Phase 2 sites offer a variety of visual experiences that reflect various land use practices and natural processes. The individual sensitivity of residents to aesthetics and changes within a viewshed is highly variable. The sensitivity of residents to changes in the viewshed should also be considered in the context of view point location and the length of time that the view may be altered (e.g., temporary or permanent changes to topography or vegetation as a result of construction activities and future adjustments to the morphology of the river).

Recreationists

Recreationists are members of the community or the general public who use the recreational resources available within or adjacent to the Remaining Phase 1 and Phase 2 sites. Like residents, 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.

Historically (since the TRD was constructed), the primary recreational activities along the reach of the Trinity River in the vicinity of the Remaining Phase 1 and Phase 2 have been those associated with warm summer temperatures (Memorial Day to Labor Day), and fishing for anadromous salmonids throughout the year. The post-ROD flow regime described in section 4.4 (Water Resources) has resulted in a substantial increase in use by whitewater enthusiasts during the spring and early summer (April to July). The Trinity River, particularly the reach below Lewiston Dam, provides a myriad of recreational opportunities that are discussed in section 4.8 (Recreation).

Visual Assessment Units and Key Observation Points

VAUs, areas of distinct visual character within the viewshed, provide a framework for comparing the visual effects of a proposed project. Within each VAU, key observation points[1] (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 project sites. However, the programmatic nature of this section precludes the use of VAUs and KOPs.

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

4.12.2 Environmental Impacts and Mitigation Measures

Methodology

Analysis of potential impacts to aesthetic resources relative to the Remaining Phase 1 and Phase 2 sites 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 VAUs that are selected to characterize the aesthetic values and visual resources. From a programmatic perspective, this section of the document provides a general discussion of the type and magnitude of impacts that could occur as a result of the project. All assessments are qualitative, evaluating potential impacts of the Proposed Project and its associated alternatives on viewsheds in the context of the Trinity River corridor. A review of the consistency of the Proposed Project and its alternatives with federal and state Wild and Scenic River designations is presented in Appendix B.

Significance Criteria

The project would have a significant impact 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 project site and its surroundings;
- introduces physical features that are substantially out of character with adjacent residential areas;
- alters the site so that the scale or degree of change appears as a substantial, obvious, and disharmonious modification of the overall scene (to the extent that it clearly dominates 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 site;
- is inconsistent with the policies of the Trinity County and local general plans relating to aesthetics; or

- is inconsistent with the goals and objectives of either the federal or state WSRA with regards to the Trinity River.

Impacts and Mitigation Measures

Table 4.12-1 summarizes the potential aesthetic impacts resulting from construction and operation of the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 4.12-1. Summary of Aesthetic Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.12-1. Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.				
No Impact	Significant	Significant	Less than Significant	Less than Significant
Impact 4.12-2. Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.				
No impact	No impact	No impact	No impact	No impact
Impact 4.12-3. The project may be inconsistent with federal and state Wild and Scenic River Act or Scenic Byway requirements.				
No Impact	Less than Significant	Less than Significant	Not applicable[1]	Not applicable[1]
Impact 4.12-4. The project could generate increased daytime glare and/or nighttime lighting.				
No Impact	Less than Significant	Less than Significant	Not applicable[1]	Not applicable[1]

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

Impact 4.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the degradation and/or obstruction of a scenic view from key observation areas would not occur because the project would not be constructed. While a number of restoration and rehabilitation activities that have influenced the scenic view or character of the Trinity River corridor have been implemented, or are ongoing, these are considered as part of the environmental baseline for this analysis. There would be no impact under this alternative.

Proposed Project and Alternative 1

As previously discussed, the Remaining Phase 1 and Phase 2 sites are located along the Trinity River corridor between Lewiston and the North Fork Trinity River, near Helena California. Potential impacts of either the Proposed Project or Alternative 1 within certain VAUs associated with one or more of these sites would include changes brought about by the removal of vegetation, construction of inundated surfaces, new access roads, the creation of staging and gravel processing areas, and sediment management activities. These various 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 these 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 will persist for some period. Therefore, this impact is significant.

Mitigation Measures

No-Project Alternative

No significant impacts have been identified. Therefore, no mitigation is required.

Proposed Project and Alternative 1

In order to minimize impacts to visual resources resulting from the removal of vegetation in the project area, mitigation measures 4.7-1a through 1c, as described in section 4.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable for either alternative.

Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) will be mitigated through the implementation of mitigation measures 4.8-3a through 3f, as described in section 4.8 (Recreation). These measures will be implemented where applicable for either alternative.

Significance after Mitigation

Less than significant

Impact 4.12-2: Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no changes would occur to the character or harmony of aesthetic features and existing land uses because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Activities associated with either the Proposed Project or Alternative 1 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 various rehabilitation sites. Overall, either alternative incorporates the project area's diversity of landscapes and vegetation types to define the location, character, and magnitude of the rehabilitation activities at these sites. For example, under either alternative, 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 existing dredge tailing piles while not changing the nominal heights of the piles. 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 process necessary to enhance the alluvial attributes of the river channel and floodplain over time, particularly those attributes that are flow dependent. Although either alternative varies in the degree to which the channel and floodplain would be affected, over time, either alternative would produce gradual, ever-improving changes in the aesthetic quality of this reach of the Trinity River, while maintaining the character of the surrounding land uses. Because changes associated with either the Proposed Project or Alternative 1 would retain the character of existing land uses and features, selection of either of these alternatives would result in a less-than-significant impact on aesthetic resources.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified. Therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.12-3: The project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no changes would occur that would be inconsistent with the federal or state WSRA or Scenic Byway requirements because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

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. Implementation of either the Proposed Project or Alternative 1 would be consistent with these values because the activities would not be considered

substantially out of character with the current aesthetic conditions. Implementation of either of the action alternatives would result in a less-than-significant impact to WSRA and Scenic Byway requirements.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified. Therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.12-4: The project could generate increased daytime glare and/or nighttime lighting. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no changes in daytime glare or nighttime lighting would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Under either the Proposed Project or Alternative 1, significant increases in daytime glare and/or nighttime lighting are not anticipated to occur. Construction activities would not take place during nighttime hours; therefore, nearby homes and motorists traveling on roads adjacent to the river corridor would not be subjected to the headlights of construction equipment or stationary spotlights. Material removed from the floodplain and deposited at various activity areas is generally not reflective and would not increase the level of daytime glare observable to the viewer. Some changes may occur in the locations and amounts of glare produced by water over the constructed inundation surfaces, but, overall, these changes would be short-lived and variable by day, as well as season. The impacts of these changes would therefore be less than significant.

The most likely viewer group to be affected by daytime glare would be residents, but this would affect only a few residences at any one time. Occurrences of daytime glare produced by the sun reflecting off the water or construction equipment would be of short duration, or in the case of the latter, temporary. Such an impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified. Therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 4.13

Hazards and Hazardous Materials

4.13 Hazards and Hazardous Materials

This section evaluates hazards and hazardous materials that may currently be present in the Trinity River basin in proximity to the Remaining Phase 1 and Phase 2 sites. In addition, this section assesses potential health hazards that could result from implementation of the Proposed Project or its alternatives.

4.13.1 Environmental Setting

Regional Setting

Federal, state, and local agencies regulate hazardous materials and hazardous waste. In part, these agencies direct the proper disposal or recycling of such materials and 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, SR 3, Lewiston Road, Rush Creek Road, Trinity Dam Boulevard, Brown's Mountain Road, Goose Ranch Road, Steiner Flat Road, Steel Bridge Road, and Red Hill Road are frequently used to transport hazardous materials throughout Trinity County. Under the California Code of Regulations (CCR), Title 13, Section 1150-1194, and CFR, Title 49, 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 (CCR Section 2450-2453b).

When a spill involving a hazardous material or hazardous waste occurs on public land, it is the respective land management agency's responsibility to initiate and direct cleanup, to initiate investigation and direct enforcement, and to contact the necessary personnel for performing these functions. When a hazardous material or waste spill occurs on private lands, the property owner is responsible for cleanup. For spills on private lands, Trinity County Environmental Health Department (TCEHD) acts to contact the proper personnel and ensures that cleanup is conducted according to federal, state, and local regulations.

Title 27 of the California Health and Safety Code (Article 1, Section 15100) established a unified program to deal with hazardous waste and materials in California (California Environmental Protection Agency 2007). The program consolidated six state environmental programs into one program under the authority of a Certified Unified Program Agency (CUPA). Programs that have been consolidated consist of the Hazardous Materials Business Plan/Emergency Response Plan, Hazardous Waste, Tiered Permitting, Underground Storage Tanks, Aboveground Storage Tanks (Spill Prevention Control and Countermeasure only), and the Uniform Fire Code Hazardous Materials Management Plan. The CUPA is typically a local agency that is certified by the California Environmental Protection Agency (CalEPA) to implement the state's six environmental programs.

In Trinity County, a local agency has not yet taken on the role of the CUPA lead. Thus, CalEPA has designated the Department of Toxic Substances Control as the acting CUPA (California Environmental Protection Agency 2008). While larger, more urban areas can benefit greatly from the formation of a local CUPA, the overwhelming costs and training required for rural areas, such as Trinity County, to

implement this program at a local level can impede its formation. Specifically, Trinity County has not formed a local CUPA because

- no significant public or environmental health benefit has been identified for implementing these programs in rural areas that do not have an industrial base;
- the CalEPA incentive funding, allotted in 2001, to the non-CUPA authority is not guaranteed and is dependent on the annual California budget (eligibility for such funding requires a full commitment from the County to participate as a CUPA);
- the program requires annual reporting and periodic state audits that would require approximately 100 hours of staff time annually, without any direct benefit to public health;
- there would be a substantial increase in the County's liability as a result of its accepting the responsibility for hazardous materials law enforcement; and
- inspector proficiency would be extremely challenging due to the complexity of the hazardous material laws and the lack of local inspector opportunities (Trinity County 2003). Establishing and maintaining staff proficiency would be a problem and would increase County liability (Trinity County 2003).

Although the CalEPA is responsible for administering CUPA programs in Trinity County, there is one exception. The TCEHD has administered the County's Underground Tank Program for more than a decade. The County adopted this program as a proactive measure directed at stemming the occurrence of groundwater contamination caused by leaky underground fuel storage tanks. To ensure operator compliance and to protect the county's groundwater and drinking water supplies, this program requires that the TCEHD permit and conduct annual inspections of all in-county underground fuel tanks.

Uncontrolled or abandoned places throughout the nation where hazardous waste poses a possible threat to local ecosystems or people are referred to as "Superfund" hazardous waste sites by the EPA, and are included in the EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database. A search for occurrences of Superfund sites in Trinity County yielded three locations within less than 20 miles of some rehabilitation sites. Table 4.13-1 lists these Superfund sites and their general locations and proximity to the nearest rehabilitation site. Although these locations are Superfund sites, they are not included on the National Priorities List, which consists of those sites known or likely to release hazardous substances, pollutants, or contaminants.

Table 4.13-1. Hazardous Waste Locations Recorded in Trinity County, California

Site Name	Status	Location	Approximate Distance from Nearest Rehabilitation Site
Cheek Skyline Logging	Active	South of Highway 3 Douglas City, CA	<0.5 miles
Kingsbury Creek Mine Lab	Active	Shasta Trinity NF Hayfork, CA	15 miles
USFS Drinkwater Gulch Mine	Active	T31N, R12W, Section 6 Hayfork, CA	17 miles

Source: U.S. Environmental Protection Agency 2007

Toxins

Toxicity concerns in the Trinity River focus on polluted runoff from abandoned mines and mining activities, sediment released from subdivision development, land uses (e.g., road use and timber management) in areas susceptible to surface erosion and mass wasting, septic tank use, aboveground and underground tanks, and lumber mills. The accumulation of the toxin mercury in aquatic biota is well documented throughout the Trinity River basin. Under EPA's California Toxics Rule, the total allowable concentration of measured mercury in unfiltered water should not exceed 0.050 parts per billion (ppb). Mercury levels above this concentration could result in adverse health effects to humans and aquatic life. Overall, the USGS's recent assessments of site-specific methylation data from several channel rehabilitation sites (e.g., Hocker Flat and Indian Creek unpublished data) suggest that the bioavailability of mercury in the Trinity River floodplain is not presently high and will not be increased by broad-scale project implementation. These toxins are addressed in section 4.5, Water Quality. Based on USGS's assessment of environmental conditions and monitoring data from the Hocker Flat and Canyon Creek sites (and limited sampling at Indian Creek, Dark Gulch, and Lowden Channel rehabilitation sites, USGS unpublished data), conditions are not generally present that would result in methylation of mercury, creating methylmercury, which is bioavailable for uptake through the food web. Consequently, disturbance of gravels or sediments at the channel rehabilitation sites resulting from activities described in Chapter 2 would not be expected to result in a measurable increase in current background mercury or methylmercury concentrations in the environment.

Flooding

Water level fluctuations, particularly those that occur rapidly, pose a distinct hazard to residents and visitors along the waterways in Trinity County. The flood season in the Trinity River basin typically occurs between October and April, when over 90 percent of the annual precipitation falls. To some extent, the TRD controls floods on the mainstem Trinity River, but substantial flood events have occurred as recently as 2005. Section 4.4 provides a detailed discussion of water resources, including the types and variability of flood flows on the Trinity River.

Seismic Events

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.

Landslides are a common occurrence along roads in Trinity County, although the road prism typically intercepts the slide material and it rarely reaches the waterways. Downstream of the North Fork Trinity River, the potential for slope failures during seismic events increases due to very steep slopes and unstable geologic materials. While unlikely, a large landslide could result in a short-term dam, resulting in a phenomenon known as a dam-break flood. This type of event could have wide-ranging repercussions downstream of the rehabilitation sites. Section 4.3 provides a detailed discussion of geologic hazards that could be associated with the Remaining Phase 1 or Phase 2 sites.

Roadways

Due to topography, coupled with the distribution and density of the communities in the Trinity River basin, there are relatively few options for road alignments in Trinity County. Therefore, equestrians, pedestrians, bicyclists, and motor vehicles commonly use the same roadways. While generally well maintained, the County's roads often follow the narrow, winding corridor of the Trinity River and its tributaries. Three 2-lane, state highways—SR 299, SR 3, and SR 36—pass through Trinity County. In addition, a number of county roads provide access to the communities and neighborhoods described in section 4.2. Typically, these roads are paved with at least two lanes and minimal shoulders. Section 4.16 provides additional details regarding transportation and traffic.

One notable characteristic of Trinity County's roadway system is the lack of any traffic signals (LSC Transportation Consultants 2005). In 2006, there were 106 automobile accidents in the unincorporated areas of Trinity County that resulted in injury; six of these accidents resulted in fatalities (State of California Department of Highway Patrol 2008). The CHP patrols state highways, while the Trinity County Sheriff's Department (TCSD) patrols both state highways and county roads.

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. Concentrated runoff discharged over a short period can result in increased flood hazards. Exposed soils and increased runoff can lead to an increased risk of landslides.

Trinity County fire protection needs are met by 16 volunteer fire departments dispersed throughout the county, Cal Fire, and the USFS. By law, 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 federal National Forest lands. However, Cal Fire also contracts with the BLM to provide wildland fire protection on its public lands. Both Cal Fire and the USFS fire stations are staffed only during the summer fire season, which normally lasts from May to November.

The volunteer fire departments are responsible for structural fire protection and rescue services in Trinity County throughout the year. The Lewiston Volunteer Fire Department (VFD), the Douglas City VFD, and the Junction City VFD provide services within their respective general plan areas; however, each department also routinely responds to calls outside of its legal boundaries if it is dispatched by the County's 911 Center, which is maintained by the TCSD (Trinity County 2003).

Evacuation Routes

The Safety Element of the Trinity County General Plan (Trinity County 2003) identifies specific major evacuation routes in the event of an emergency. Steep topography, the Trinity River, and the sizable Trinity Alps Wilderness substantially limit evacuation options in the part of Trinity County in which the Remaining Phase 1 and Phase 2 sites are located. In general, SR 299, which extends east/west through the county, and SR 3, which extends generally north/south through the County, are the primary evacuation routes for the region (Figure 4.13-1).

Local Setting

A number of structures, homes, commercial buildings, and recreational facilities occur within or in close proximity to the Remaining Phase 1 and Phase 2 sites. The 40-mile reach of the Trinity River below Lewiston Dam is also popular for recreational uses such as rafting, swimming, and angling. In the past two years, only four hazardous materials spills have been recorded in the vicinity of Lewiston, Douglas City, or Junction City (The Governor's Office of Emergency Services 2008). Three of these involved petroleum byproduct spills (i.e., diesel, gasoline and hydraulic fluid), only one of which discharged a hazardous substance (gasoline) into a waterway, and all of which were contained. The fourth reported spill involved a report of contaminated drinking water at a mobile home park in Lewiston. Hazardous materials spill reports filed with the Governor's Office of Emergency Services indicate that none of these spills involved greater than 100 gallons of hazardous materials (The Governor's Office of Emergency Services 2008).

Toxins

The potential hazards posed by latent mercury are addressed in section 4.5, Water Quality. Elevated levels of mercury may occur in placer tailings piles, alluvial deposits of fine sediments (bed and bank), and wetland features associated with dredge tailings and gravel mining pits (e.g., ponds).

Wildland Fire

Since 1911, when documentation of fire start locations and causes (human versus natural) began in California, a pattern of human-caused fires has emerged along the SR 299 corridor (Trinity County

Planning Department 2002). Concentrated development in the Lewiston, Douglas City, and Junction City areas significantly increases the potential for human-caused fire starts when compared to the rest of Trinity County. The forested uplands in the Trinity River corridor are at a greater risk of damage from wildfire than lands within the boundaries of the Remaining Phase 1 and Phase 2 sites due to the proximity of the river and the type and amount of riparian vegetation. These types of alluvial landscapes are not as prone to wildland fires as forested uplands, although wildland fires often affect these types of landscapes, particularly when subjected to high intensity fires. To ensure that construction work at rehabilitation sites does not introduce fire, fire prevention measures will be included during project implementation (Chapter 2 – construction methods)

Evacuation Routes

Many of the Remaining Phase 1 and Phase 2 sites are in relatively close proximity to SR 299 and, to a lesser degree, SR 3, which are the primary evacuation routes in Trinity County. Project sites not immediately adjacent to these highways are generally in close proximity to major secondary arterial routes including Rush Creek Road, Lewiston Road, Goose Ranch Road, and Trinity Dam Boulevard.

4.13.2 Environmental Impacts and Mitigation Measures

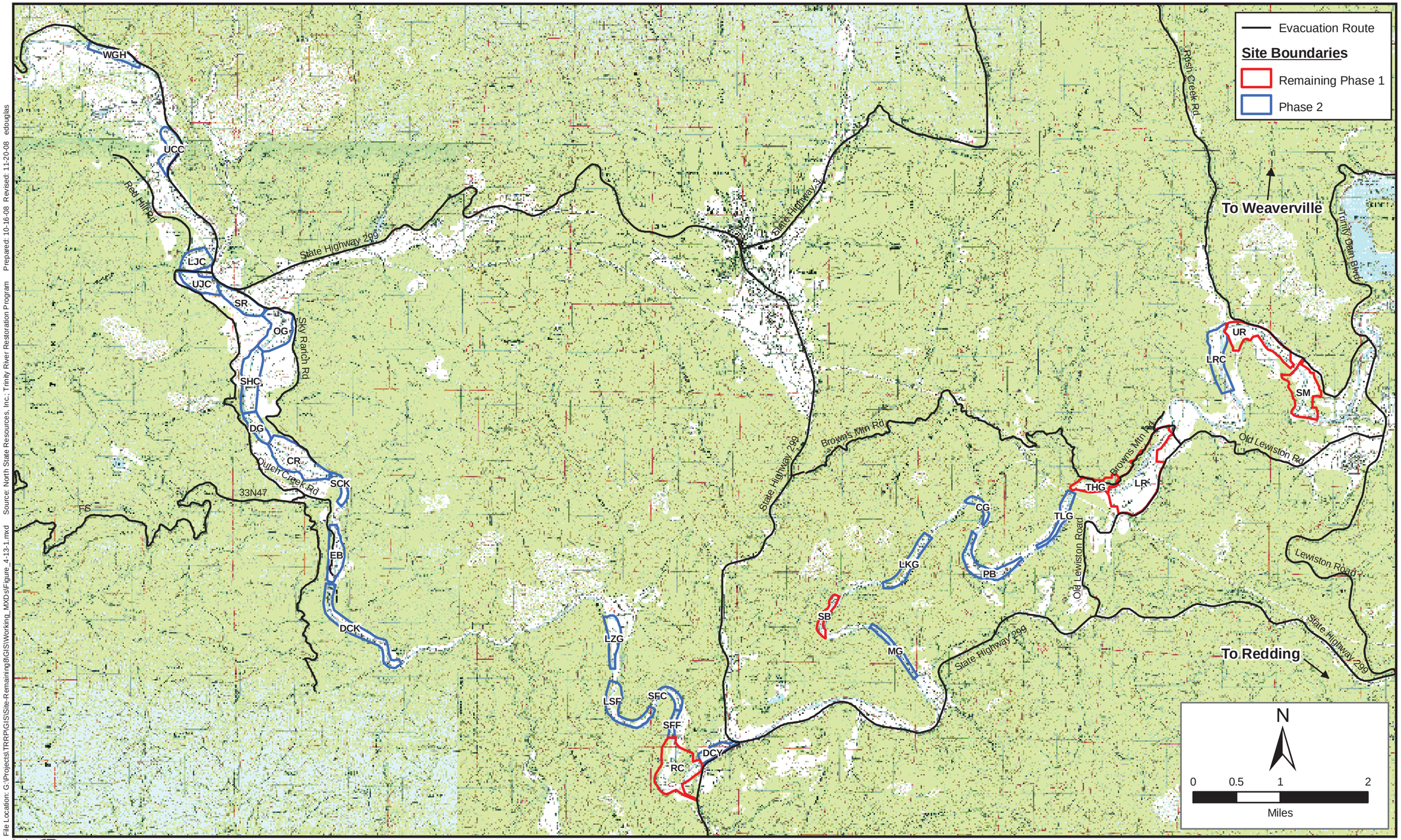
Methodology

Hazards and hazardous materials associated with the rehabilitation sites were assessed in the field by TRRP staff. In addition, Trinity County Planning Department and Environmental Health Department staff were consulted regarding the potential for hazardous substances to occur in the general vicinity of the project boundaries.

Significance Criteria

An impact related to hazards and hazardous materials would be significant 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);



File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_4-13-1.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-16-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 and Phase 2 Sites

Figure 4.13-1
Major Evacuation Routes

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- be located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; or
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Impacts and Mitigation Measures

Table 4.13-2 summarizes the potential hazards and hazardous materials impacts that could result from construction of the project.

Table 4.13-2. Summary of Hazards and Hazardous Materials Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.13-1. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.13-2. Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.13-3. Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.13-4. Implementation of the project may contribute to an increased risk of landslides and flooding.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 4.13-1: 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 for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

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 and Alternative 1

Activities associated with either the Proposed Project or Alternative 1 would utilize potentially hazardous materials (e.g., oil and fuels) associated with the operation of vehicles and construction equipment during project construction. 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. Given the temporary nature of construction and the distance from residences, schools, and frequently used recreation areas, implementation of BMPs would minimize the potential for any project-related hazardous materials becoming a public hazard.

The potential for construction activities associated with the Proposed Project to result in the significant exposure of the public and the environment to the adverse effects of hazardous substances (e.g., oil, gas, and diesel) would be greater than those associated with Alternative 1 due to the decrease in magnitude and duration of the construction activities associated with Alternative 1. Under either alternative, this impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.13.2: Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

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 constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Under either the Proposed Project or Alternative 1, construction traffic would include the mobilization and demobilization of construction equipment (e.g., scrapers, excavators, and bulldozers) to and from the Remaining Phase 1 and Phase 2 sites over the course of the next five to ten years. Once the equipment is on the 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.

Under the Proposed Project, the potential to interfere with emergency response and evacuation plans would be greater than that of Alternative 1 due to the larger magnitude of the Proposed Project. However, the impacts created by either alternative would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.13.3: Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, implementation of the project would have no impact on wildland fire potential or catastrophic fire behavior because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Under either the Proposed Project or Alternative 1, most of the 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 Remaining Phase 1 and Phase 2 sites (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 either action 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). Either the Proposed Project or Alternative 1 would have a less-than-significant impact on wildland fire potential and behavior.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.13.4: Implementation of the project may contribute to an increased risk of landslides or flooding. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

The No-Project Alternative would have no impact on the potential for landslides or flooding because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Under either the Proposed Project or Alternative 1, most of the activities described In Chapter 2 would take place in the river channel or floodplain, both of which have relatively flat topography. Furthermore, neither action alternative involves alteration of toe-slopes adjacent to any geologically unstable areas (e.g., landslides).

Implementation of either the Proposed Project or Alternative 1 would result in either no change to the base flood elevation (BFE) or a reduction of the BFE, since stockpiled excavated material would be stored in the adjacent uplands. This would be a less-than-significant impact.

The potential for flooding would not be increased under either the Proposed Project or Alternative 1. Although Alternative 1 would require more constructed floodplain than the Proposed Project, the risk of flooding would be similar. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 4.14

Noise

4.14 Noise

This section evaluates the potential noise impacts associated with implementation of proposed activities at the Remaining Phase 1 and Phase 2 sites. The following evaluation is based on a review of local land use plans and policies pertaining to noise and field reconnaissance to identify potential sensitive receptors within and adjacent to the project boundaries.

4.14.1 Environmental Setting

Existing Noise Levels

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 10dBA is at the low threshold of hearing and 120–140dBA is the threshold of pain). Human responses to noise are subjective and can vary. The effects of noise on people can be placed in the following three categories:

- subjective effects of annoyance, nuisance, and dissatisfaction;
- interference with activities such as speech, sleep, and learning; and
- physiological effects such as hearing loss or sudden startling (Trinity County Department of Transportation and Hughes Environmental Consultants 2003).

Environmental noise typically falls into one or both of the first two categories while workers in industrial plants typically experience noise in the last category. 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 lists examples of dBA levels for a range of noises.

Table 4.14-1. Noise Levels and Associated Effects for a Variety of Noise Types

Noise Source at a Given Distance	A-Weighted Sound Level in Decibels[a,b]	Noise Environments	Subjective Impression
Civil defense siren (100 feet)	140–130		Pain threshold
Jet takeoff (200 feet)	120		
	110	Rock music concert	Very loud
Pile driver (50 feet)	100		
Ambulance siren (100 feet)	90	Boiler room	
Freight cars (50 feet) Pneumatic drill (50 feet)	80	Printing press Kitchen garbage disposal	Loud
Freeway (100 feet)	70		Moderately loud
Vacuum cleaner (100 feet)	60	Data processing center Department store/office	

Table 4.14-1. Noise Levels and Associated Effects for a Variety of Noise Types

Noise Source at a Given Distance	A-Weighted Sound Level in Decibels[a,b]	Noise Environments	Subjective Impression
Light traffic (100 feet)	50	Private business office	Quiet
Large transformer (200 feet)	40		
Soft whisper (5 feet)	30	Quiet bedroom	
	20	Recording studio	
	0-10		Threshold of hearing

[a]A-Weighted Sound Level, dBA = The A-weighted filter de-emphasizes very low and very high frequency components of sound similar to the response of the human ear.

Noise measurements are usually taken over time to capture daily or hourly variances in noise levels. Noise levels taken over time are often reported in energy-equivalent noise level (Leq), the day-night average noise level (Ldn), and the community noise equivalent level (CNEL). Leq is an hourly average, while Ldn and CNEL are 24-hour weighted averages.

Table 4.14-2 lists the U.S. General Services Administration maximum noise levels allowed for government contract construction activities.

Table 4.14-2. U.S. General Services Administration Maximum Noise Levels Allowable for Government Contracts

Equipment	Sound Level (dBA) at 50 feet
Earthmoving	
Front loader	75
Backhoe	75
Dozer	75
Tractor	75
Scraper	80
Grader	75
Truck	75
Paver	80
Impact	
Pile driver	95
Jack hammer	75
Rock drill	80
Pneumatic drill	80

Table 4.14-2. U.S. General Services Administration Maximum Noise Levels Allowable for Government Contracts

Equipment	Sound Level (dBA) at 50 feet
Materials Handling	
Concrete mixer	75
Concrete pump	75
Crane	75
Derrick	75
Stationary	
Pump	75
Generator	75
Compressor	75
Other	
Saw	75
Impactor	75

Source: Sincero and Sincero 1996

Typical construction noise levels are shown in Table 4.14-3. The noise levels shown in this table assume the operation of various types of construction equipment, as shown in Table 4.14-4.

Table 4.14-3. Typical Construction Noise Levels

Construction Stage	Noise Level (dBA, L_{eq})[1]
Ground clearing	84
Excavation	89
Hauling	88
Revegetation	65

[1] Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction stage. Noise levels correspond to public works projects (50 dBA ambient environments) (Bolt et al. 1971).

Table 4.14-4. Construction Equipment Noise

Type of Equipment	Maximum Level (dBA at 50 feet)
Truck	75
Scrapers	80
Bulldozers	75
Backhoe	75
Pneumatic tools	80

Source: Sincero and Sincero 1996

Noise is not considered a problem in Trinity County. Primary sources of noise in Trinity County include the following:

- highway traffic, especially commercial trucks (e.g., logging trucks, and tankers)
- sawmills
- airports (e.g., light planes and helicopters)
- mining (e.g., sand and gravel excavation)
- miscellaneous residential, commercial, and industrial sources

Noise in the general vicinity of the rehabilitation sites is primarily the result of local residential and commercial vehicle traffic and miscellaneous ambient sources such as river flow, river recreationists, overhead aircraft, barking dogs, and children at play. Several county arterial and secondary roads run parallel and adjacent to many of the project site boundaries.

While several of the Phase 2 sites are located in close proximity to SR 299 or SR 3, none of these sites are used for commercial or residential purposes. With the possible exceptions of the UR and LR sites, none of the Remaining Phase 1 or Phase 2 sites are subject to frequent noise generated by area roadways.

Residential and commercial development occurs along much of the Trinity River within and adjacent to various Remaining Phase 1 or Phase 2 sites. Numerous public and private river access areas also occur along the river, including the public access areas described in section 4.8, Recreation. Use of these areas typically involves non-motorized recreational activities, which generally involve low noise levels.

To varying degrees, construction vehicles entering and leaving the sites would temporarily increase traffic levels and, thus, ambient noise levels along secondary arterial and collector roads. Homes and commercial developments along these roads may experience some increased ambient noise levels during construction, but in general, noise levels would be buffered somewhat by topography and vegetation.

Currently, ambient noises such as river flow and those generated as a result of recreational use are the primary sources of noise encountered at these sites. Lands adjacent to most of the sites are largely undeveloped and the majority of nearby roads are less traveled than the region's state routes and larger arterial roadways. Noise generated by vehicle use on these roads is generally the result of resident and recreational traffic (e.g., OHVs, fishermen, and rafter access).

A community noise survey was conducted in Trinity County in 2002 (Brown-Buntin 2002) as part of the update currently in progress for the noise element of the County's General Plan. The two survey points established in Lewiston were located at (1) 307 2nd Avenue (approximately 0.5 mile east of the Trinity River) and (2) Lewiston Road (approximately 1.2 miles south of the Bucktail River Access). The community noise survey results indicate that typical noise levels in noise-sensitive areas range from approximately 44 to 52 dB Ldn[1]. These are low noise levels and are representative of small communities

[1] dB L_{dn} = The average equivalent sound level during a 24-hour day, obtained after addition of 10 A-weighted decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m. A-weighted decibels, abbreviated dBA, or dBa, or dB(a), are an expression of the relative loudness of sounds in air as perceived by the human ear.

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.

Sensitive Noise Receptors

Sensitive receptors are specific geographic points, such as schools, residences, commercial areas, or parks, where people could be exposed to unacceptable levels of noise. Noise-sensitive receptors that have been identified in the general vicinity of the project site boundaries include private residential areas; commercial enterprises; persons, primarily recreationists (e.g., hikers, picnickers, anglers, and rafters); and wildlife that use the Trinity River corridor. Noise tolerance levels for these groups are subjective, varying widely between individuals.

Stationary sensitive receptors are located throughout the river corridor, including a number of the rehabilitation sites. Residential areas scattered along both banks of the Trinity River are subjected to varying degrees of ambient noise levels from the river (including recreationists) and intermittent traffic using county arterial and secondary roads in the project vicinity. However, distance, topography, and vegetation often serve as noise buffers for these sensitive receptors.

Wildlife that use the project sites are also considered sensitive noise receptors. Bear, deer, foxes, and raccoons are among the common terrestrial species known to forage and hunt along the banks of the Trinity River. Bats may be present in nearby structures, including residences, trees, and bridges, and avian species such as bald eagles and migratory birds have been observed foraging, roosting, and nesting in or adjacent to the river corridor. The presence of salmonids in the Trinity River is an integral part of Trinity County's economy. Land- and/or water-based noise sources influence the habitation and travel behaviors of terrestrial and aquatic wildlife.

4.14.2 Environmental Impacts and Mitigation Measures

Methodology

Since the Proposed Project or Alternative 1 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. Noise levels of individual types of equipment as described in Table 4.14-4 are based on industry averages. 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.

Significance Criteria

Based on Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008) the Proposed Project and Alternative 1 would have a significant direct noise impact if they 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.

Impacts and Mitigation Measures

Table 4.14-5 summarizes the potential noise impacts resulting from implementation of the No-Project Alternative, Proposed Project, and Alternative 1.

Table 4.14-5. Summary of Noise Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.14-1. Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.				
No impact	Significant	Significant	Less than significant	Less than significant

Impact 4.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors. ***No impact for No-Project Alternative; significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no change in ambient noise levels would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

During the construction phase of the project, noise from construction activities would temporarily dominate the noise environment in the immediate area. As shown in Table 4.14-3, 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 over 5–10 years, primarily between the months of July and December. However, coarse sediment management activities may occur as early as February. There would be no permanent noise impacts resulting from implementation of either action alternative.

Residences and commercial enterprises are scattered along both sides of the river throughout the river corridor and would be subjected to varying degrees of construction noise under either action alternative.

Both the Proposed Project and Alternative 1 would make use of existing access roads, although some rehabilitation sites may require the construction of new access roads to allow equipment access into proposed activity areas.

Recreational users in the general vicinity of the Remaining Phase 1 or Phase 2 sites 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.

Under either of the action alternatives, it is not anticipated that ground vibration created by project activities would be detectable at any sensitive receptor location and would not result in any structural damage. Although the activities allocated with either alternative would be short-lived and occur periodically, this impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.14-1a Construction activities near residential areas would 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.

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).

Significance after Mitigation

Less than significant

SECTION 4.15

Public Services and Utilities/Energy

4.15 Public Services and Utilities/Energy

This section describes the public services and utilities in Trinity County and evaluates potential impacts on these resources from implementation of the Proposed Project and its alternatives at the Remaining Phase 1 and Phase 2 sites.

4.15.1 Environmental Setting

Regional Setting

Water Supply and Distribution

Community service districts provide service to several communities in Trinity County, including Weaverville, Lewiston, and Hayfork. In some instances, local service districts provide water service to small residential areas. Outside these communities, a large portion of the county's population is served by onsite water developments. These developments include wells, springs, and surface intake facilities along the Trinity River and its tributaries.

Surface Water

Surface water is provided by pumps and stilling wells in the Trinity River and its tributaries, and by developed springs throughout the area. Surface water is primarily used for domestic purposes, including incidental use for gardens, livestock, and fire protection.

Groundwater

Recent alluvium formations are the predominant fresh water-yielding formation along the Trinity River. These formations underlie the rehabilitation sites at varying depths. Water quality is highly variable and depends on local geologic features. The most common potential hazards to groundwater quality in Trinity County involve concentration of nitrates and dissolved solids from agricultural practices and septic tank failures. Ground water is primarily used for domestic purposes, including incidental use for gardens, livestock, and fire protection. Additional information on this subject is provided in sections 4.3, Geology and 4.4, Water Resources.

Water Treatment Facilities

Water treatment facilities vary widely throughout the county. Water treatment facilities serve portions of the Lewiston, Douglas City, Weaverville, and Hayfork communities, and operate in accordance with established EPA guidelines. The Weaverville Community Services District (WCSD) and Lewiston Mutual Water Company use water obtained through subsurface infiltration mechanisms on the Trinity River near the confluence of Weaver Creek and Deadwood Creek respectively. Water supplies that serve small subdivisions and private residences often have filtration and treatment systems that are used to address local water quality concerns.

Wastewater Collection and Treatment

Trinity County has very limited wastewater collection and treatment facilities. Community wastewater collection and treatment facilities serve portions of Weaverville, Hayfork, and Lewiston. Individual, on-site septic tanks and drainage fields are used throughout most of the county. The ability of the land to accommodate on-site sewage disposal systems varies considerably throughout the county. Problem sites generally have one or more of the following constraints: high groundwater, steep slopes, shallow soils, mine tailings, or high clay content.

Gas Supply and Distribution

Natural gas providers do not serve Trinity County. Liquefied propane gas and kerosene fuels are provided to residents on a case-by-case basis through distributors based in Weaverville, Hayfork, and Redding.

Solid Waste Collection and Disposal

Trinity County does not operate a solid waste landfill, but does operate several transfer stations that collect residential, commercial, and industrial refuse; green waste; recyclables; and household hazardous waste. All materials collected at the county transfer stations are transported to the Anderson-Cottonwood Disposal Service landfill in Anderson, California. Several independent private companies provide subscription garbage collection service to residents of Trinity County.

Law Enforcement

The Trinity County Sheriff's Department (TCSD) provides law enforcement for the entire county. The TCSD headquarter is located in Weaverville, and a substation is located in Hayfork. Resident officers are stationed throughout the county and serve as the primary contact point for local communities.

The California Highway Patrol (CHP) operates from an office in Weaverville and serves as the primary law enforcement agency for state facilities and transportation corridors. The CHP works closely with the TCSD to provide law enforcement coverage to Trinity County.

The BLM and the USFS provide law enforcement in association with their land management activities. Although the focus of BLM and USFS officers is actions on public lands, they work closely with other agencies to provide law enforcement support throughout Trinity County. In addition, the CDFG has wardens in Trinity County who also provide law enforcement coverage in association with their fish and wildlife protection responsibilities.

Fire Protection/Emergency Services

Sixteen volunteer fire departments are located throughout Trinity County. These departments work closely with the Cal Fire and the USFS to meet Trinity County fire protection needs. The volunteer fire departments are responsible for structural fire protection and rescue services in Trinity County throughout the year. They are located in the communities of Douglas City, Post Mountain, Hayfork, Wildwood, Junction City, Hyampom, Lewiston, Trinity Center, Coffee Creek, Salyer, Hawkins Bar, Weaverville, Southern Trinity, Downriver, Barker Valley, and Kettenpom-Zenia. These departments currently have a

membership of approximately 200 to 225 volunteers. The Trinity Center, Hayfork, Lewiston, and Weaverville departments receive tax revenues to support their organizations, although these revenues are limited. These departments routinely respond outside of their legal boundaries to any emergency to which they are dispatched by the 911 center maintained by the TCSD.

By law, Cal Fire is responsible for wildland fire protection on all private lands in Trinity County and is responsible to some degree for BLM lands, and the USFS is responsible for wildland fire protection on all National Forest lands. Cal Fire and USFS fire stations are staffed only during the summer fire season, which normally lasts from May to late October. The STNF maintains work stations with seasonal fire staff in Weaverville on SR 299 across from the County courthouse, in Junction City directly across from the Junction City Volunteer Fire Department, in Big Bar on SR 299, in Hayfork; and in other rural communities throughout the county. Cal Fire maintains a work station with seasonal fire staff in Weaverville just north of the Weaverville Airport on SR 3.

During the summer fire season, all fire agencies in the county respond to any reported fire, regardless of legal jurisdiction. Cal Fire and USFS are legally and financially responsible for managing wildland fires within their jurisdiction; however, the volunteer fire departments are often the first to respond to wildfires or other incidents, such as traffic accidents. Cal Fire and USFS depend on the volunteer fire departments to provide the initial attack on wildfires, and both agencies have agreements with the volunteer fire departments to reimburse the departments for their assistance.

Medical Services

Medical Services in Trinity County are available at limited locations. Two health clinics run by Trinity County Public Health Department are located in Weaverville and Hayfork. In addition, Mountain Community Medical Services (formerly Trinity Hospital) in Weaverville provides 24-hour emergency services. Trinity Life Support Ambulance and Southern Trinity Area Rescue (STAR) provide ambulance services, while the TCSD maintains a search and rescue team. Due to the limited medical services available in Trinity County, many residents travel west to Humboldt County and east to Shasta County for medical care.

Telephone Service

Trinity County residents receive telephone service through AT&T [formerly SBC] and Happy Valley Phone Company; cellular telephone service is provided primarily by Verizon Wireless and Cal North Cellular. At present, cellular telephone service is limited to select areas (e.g., portions of Lewiston, Douglas City, Weaverville, and Junction City). In some remote areas, satellite service is the only communication option available to customers. Velocity Technology, Inc. provides wireless internet service in the Weaverville Basin, Junction City, Lewiston, Deerlick Springs, Hayfork, and parts of Douglas City. In addition, Humboldt State University in partnership with Redwood Coast Rural Action has created Redwood Coast Connect, a pilot project aimed at making broadband available to rural communities in Trinity, Del Norte, Humboldt, and Mendocino counties.

Electrical Service

Trinity Public Utilities District serves most of the Trinity County population, including residents and businesses in the general vicinity of the rehabilitation sites. Pacific Gas and Electric serves portions of southern Trinity County. Some development in the county is served by individual on-site systems, such as solar power or small hydro-electric systems.

Local Setting

Water Supply and Distribution

Mutual and private water systems, wells, springs, and river intake systems serve development in the Lewiston community. Lewiston has two small water companies that serve the community core area, the Lewiston Park Mutual Water Company and the Lewiston Valley Water Company. Bucktail Mutual Water Company is a community system that serves the entire Bucktail subdivision. Development outside of the Lewiston community core area and Bucktail subdivision relies primarily on individual and shared wells, springs, and river intake systems; several small community well systems are also maintained.

Community and private water systems serve development in the Douglas City community. The WCSD 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 WCSD water. The private water systems consist of individual and shared wells, springs, and river intakes. Surface water, which tends to be less expensive to develop, is more frequently used in this area for domestic purposes than deep wells. A large portion of the Douglas City community (primarily Browns Creek Watershed, Weaver Creek Watershed, and the upper Indian Creek Watershed) falls under a proposal to incorporate Critical Watershed Overlay Zoning to ensure that future land divisions in these areas must develop individual wells. This is to ensure adequate surface water for a variety of existing uses.

Mutual and private water systems serve the Junction City community. No community water systems exist in Junction City. The private water systems consist of individual and shared wells, springs, and river intakes. BLM operates a water system that provides potable water to the Junction City Campground.

Surface Water

The Trinity River and its tributaries are the primary surface water features in the project area. The Trinity River, which bisects the project area, is subject to dramatic changes in flow on a reoccurring basis. A number of residents use water from the Trinity River, either through direct intakes or stilling wells that intercept shallow subsurface flow adjacent to the river. These developed sources are typically located in the active channel or floodplain and require a collection system, pump, and distribution system to service individual residences. The TRRP has been working with land owners along the Trinity River to relocate surface intake systems to preclude impacts related to post-ROD flows and other TRRP activities. To date, the agency has assisted 75 landowners and has another 40 enrolled for upcoming assistance under the

auspices of the TRRP Water and Sewage assistance program (*http://www.trrp.net/implementation/infrastructure.htm#ap*).

Groundwater

Groundwater wells provide water for domestic and commercial purposes adjacent to the project area. Due to the location and nature of the terrain, groundwater levels respond generally to river stage. As noted above, geologic investigations conducted for the project suggest that groundwater levels fluctuate seasonally with river flows. Some local domestic water sources collect water via infiltration of surface (river) water rather than tapping underground aquifers. Other domestic water sources collect groundwater from deep wells. All activity areas established within the Remaining Phase 1 and Phase 2 sites were located to avoid surface intakes and other water developments.

Wastewater Treatment and Collection

No public wastewater collection and treatment systems are available to residents in the area encompassed by the various sites. Two private community wastewater collection and treatment systems, located in the Lewiston community core area, serve residents living near the SM site.

Individual and on-site septic tanks and drain fields are the primary methods of wastewater treatment and collection near the Remaining Phase 1 and Phase 2 sites. This method generally provides adequate treatment at a local scale. The ability of the land to accommodate on-site sewage disposal systems varies considerably throughout the river corridor. The performance of these systems is often constrained by decomposed granite soils, high groundwater, steep slopes, shallow soils, mine tailings, or high clay content soils. Due to the reliance on individual onsite sewage disposal systems and the importance of protecting water quality, densities in these riverbank communities are fairly low.

Of continuing concern to the Trinity County Health Department is development within floodplain areas or on extensively mined areas. Previously created lots located within floodplain areas are often constrained by lack of soils (in mined areas), high groundwater, and insufficient area to allow for proper sanitary setbacks from watercourses and wells.

Solid Waste Collection and Disposal

Solid waste collected from the rehabilitation sites and the surrounding areas would be transported by truck either to the Weaverville transfer station or to the landfill located in Anderson, California.

Fire Protection

Cal Fire has identified the lands in the general vicinity of the Trinity River corridor as high fire hazard areas. The rural character of these communities and limited fire station locations result in relatively slow response times, particularly during the winter. During the summer, a USFS helicopter and five-person crew are available during daylight hours. During daylight, Cal Fire also can provide automatic dispatch of a fire retardant bomber and lead plane from Redding. Fire lookouts (Weaver Bally, Hayfork Bally, Bully Choop, and Bonanza King) allow for quick fire detection throughout the plan areas.

The Lewiston Community Services District (LCSD) provides fire protection for the area surrounding the Remaining Phase 1 and Phase 2 sites in the vicinity of Lewiston. LCSD maintains three engines, a rescue vehicle, and an ambulance at its Texas Street station and responds to fires and aid calls year-round. The station has a 23-person volunteer crew and chief. LCSD crews respond to approximately four structure fires (not including flue fires) and 10 wildland fires a year.

The Douglas City Community Volunteer Fire Department (DCCVFD) provides fire protection services for the area surrounding the Remaining Phase 1 and Phase 2 sites in the vicinity of Douglas City. The DCCVFD 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 DCCVFD 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.

The Junction City Volunteer Fire Department (JCVFD) provides fire protection services for the area surrounding the Remaining Phase 1 and Phase 2 sites in the vicinity of Junction City. JCVFD crews are the primary responders to vehicle accidents, structure fires, and wildland fires on a year-round basis. The JCVFD maintains three fire engines, a rescue vehicle, and a water tender.

Cal Fire and USFS provide additional fire protection services throughout Trinity County. Cal Fire is the primary fire protection agency for wildland fires in Lewiston and Douglas City. Its coverage of the community plan areas varies by season. During the winter, Cal Fire responds from Weaverville with one engine, if personnel are present. In the summer, Cal Fire is equipped to provide three engines with 2,250 gallons of water and 12 to 13 fire fighters; two engines respond from Fawn Lodge, and another engine can respond from Weaverville. Minimum response time in these areas is 10 to 15 minutes or longer, depending on access (15 to 20 minutes on average). Half of these responses are typically for structure or flue fires and half are for wildland fires. USFS is the primary fire protection agency for wildland fire in Junction City due to the large amount of USFS land in this community.

Schools

There are three elementary schools (Lewiston Elementary, Douglas City Elementary, and Junction City Elementary) consisting of grades kindergarten through eight in the vicinity of the Remaining Phase 1 and Phase 2 sites. These elementary school districts provide bus services for residents in these communities with the exception of the Junction City Elementary School District. Bus service is also provided throughout these communities for students attending Trinity High School in Weaverville.

4.15.2 Environmental Impacts and Mitigation Measures

Methodology

The analysis addresses potential impacts from implementation of activities at the rehabilitation sites on the following public services and facilities: water supply and distribution; wastewater collection and treatment, law enforcement, solid waste collection and disposal, fire protection, telephone service, electric service, and schools. 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 Remaining Phase 1 and Phase 2 sites, communications with various agencies, and field reconnaissance.

Significance Criteria

A 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 statues, regulations, or standards relating to solid waste;
- interfere with emergency services;
- degrade the level of service of a public service or utility;
- require relocating infrastructure;
- result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios; response times; or other performance objectives for fire protection, police protection, schools, parks, or other public services;
- require substantial improvements to the infrastructure or level of staffing of a public service or utility to maintain its existing level of service;
- require or result in the construction of new water treatment, wastewater treatment, or storm water drainage facilities, or the expansion of such existing facilities, the construction of which could cause significant environmental effects;
- be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs;
- disrupt utilities service to create a public health hazard or extended service disruption; or
- encourage activities that result in the use of large amounts of fuel or energy, or would use fuel or energy in a wasteful manner.

Impacts and Mitigation Measures

Table 4.15-1 summarizes the potential impacts on public services and utilities that could result from implementation of the project.

Table 4.15-1. Summary of Public Services and Utilities Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 4.15-1. Implementation of the project could disrupt existing electrical and phone service during construction activities.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.15-2. Construction of the project could result in the generation of increased solid waste.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 4.15-3. Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 4.15-4. Construction of the project could result in a substantial use of nonrenewable energy resources.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 4.15-1: Implementation of the project could disrupt existing electrical and phone service during construction activities. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Under either the Proposed Project or Alternative 1, no activities would occur to disrupt electrical or telephone service within or adjacent to the Remaining Phase 1 and Phase 2 sites. Utility poles and/or underground lines located in the boundaries of these sites have been identified, and activities described in Chapter 2 have been designed to avoid impacts to these facilities. There are also a number of electrical and phone lines that cross roads used to access the sites. The fire code requires adequate clearance for phone lines and utility lines. These clearances should be adequate to allow access by construction equipment. Therefore, the impacts on utilities associated with these sites as a result of the Proposed Project or Alternative 1 would be less than significant.

Mitigation Measures

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.15-2: Construction of the project could result in the generation of increased solid waste. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Under either the Proposed Project or Alternative 1, 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, cans, buckets, and oil). Vegetative materials (e.g., stumps, roots, and branches) would be disposed of within the site boundaries. Disposal methods would include vegetative chipping to provide mulch, burial, piling to provide wildlife habitat on site, burning, or being left in the floodplain to provide structural habitat for juvenile fish. Solid waste generated by construction activities would either be disposed of at one of the local transfer stations (Weaverville or Junction City) or transported by truck to a landfill located in Anderson, California. The Anderson landfill currently has sufficient capacity and the necessary permits to accommodate non-hazardous construction waste.

The contractor would be responsible for determining appropriate disposal sites for any hazardous waste. Disposal of potentially hazardous waste is evaluated in section 4.15, Hazardous Materials.

Temporary access routes built for project implementation would be closed and/or decommissioned to ensure that the number of access points on public lands would not increase the requirement to provide public services (e.g., solid waste disposal) at locations that are inconsistent with agency guidelines and policies.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significant after Mitigation

Not applicable

Impact 4.15-3: Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Because there would be no construction activities associated with implementation of the No-Project Alternative, there would be no disruption to emergency services, school bus routes, or student travel routes. Therefore, there would be no impact.

Proposed Project and Alternative 1

Activities associated with either the Proposed Project or Alternative 1 would be confined to the site boundaries described in Chapter 2. Traffic control associated with project activities would be minimal and would cause only brief short-tem disruptions. In addition, construction personnel and service vehicles would use designated routes to and from the Remaining Phase 1 and Phase 2 sites. However, access for mobilization and demobilization of heavy equipment may require temporary traffic control for local roadways before, during, and after site construction. Therefore, this would be a significant impact.

No road/bridge closures are planned; however, in the event that it becomes necessary to temporarily close a road or bridge as a result of project activities, the road/bridge closures would be implemented during non-peak hours to avoid traffic circulation impacts associated with emergency services and school bus services. A closure, even during non-peak hours (11:00 p.m. to 6:00 a.m.) could have the potential to increase significantly response time for law enforcement, fire protection, and other emergency services. Therefore, this would be a significant impact.

In the event that road closures would be required during the school year (mid-August through mid-June) the closures could delay students. While the impact would be temporary, it could interfere with student access to bus services and school attendance. Therefore, this impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

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.

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.

Significance after Mitigation

Less than significant

Impact 4.15-4: Construction of the proposed project could result in a substantial use of nonrenewable energy resources. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Energy expenditures associated with construction under either the Proposed Project or Alternative 1 would include both direct and indirect uses of energy. Combustion of the refined petroleum products needed to operate construction equipment would be part of that direct energy use. Indirect energy use typically represents about three-quarters of total construction energy usage, with direct energy use comprising 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 consume fuel and electricity, along with indirect energy for materials used in construction. Fuel would be consumed by both construction equipment and construction-worker vehicle trips. Electricity would be used by construction equipment, such as welding machines, power tools, and pumps. Energy consumed by power equipment during construction would be relatively minimal.

Construction energy consumption would be a short-term impact and would not be an ongoing drain on finite natural resources. Alternative 1 would use less energy than the Proposed Project during construction activities because overall there would be reduction in the location, type, and extent of construction activities. Construction under either the Proposed Project or Alternative 1 would consume energy primarily in the form of fuel and would not have a significant effect on local or regional energy sources.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 4.16

Transportation/Traffic Circulation

4.16 Transportation/Traffic Circulation

This section describes the transportation resources known to occur in the Trinity River basin in proximity to the proposed rehabilitation sites along the Trinity River. It also evaluates potential impacts to transportation resources and traffic circulation from implementation of the Proposed Project and its alternatives.

4.16.1 Environmental Setting

Regional Setting

Regional Roadway Network

The USFS Scenic Byways program was developed to provide alternative uses of national forest lands while meeting the public demand for scenic driving tours on safe, well-maintained roads within or near the boundaries of national forests. Trinity County currently has two Scenic Byways, the Trinity Scenic Byway along SR 299 and the Siskiyou-Trinity Scenic Byway along SR 3 and SR 36. SR 299 was designated the Trinity Scenic Byway in October 1991. It enters Trinity County from the east over Buckhorn Summit, descending toward the Trinity River at Douglas City. Following Weaver Creek to Weaverville and then climbing Oregon Mountain, it rejoins the river at Junction City and follows the Trinity River into Humboldt County. SR 3, historically called the Trinity Heritage Scenic Byway, has recently been renamed the Siskiyou-Trinity Scenic Byway. It extends south from Montague in Siskiyou County through the Scott River Valley and enters Trinity County over Scott Mountain 55 miles north of Weaverville. It bisects the Trinity Alps, past Trinity Lake before continuing on to Weaverville, then south through Hayfork to the end of the highway at its junction with SR 36. This scenic byway continues along SR 36 through Forest Glen before continuing into Humboldt County.

Local Setting

The Lewiston community is a collection of residential and commercial areas accessed by Trinity Dam Boulevard, Lewiston Road, and Rush Creek Road. These roads connect to either SR 3 or SR 299, and provide access from several directions to the area encompassed by the Lewiston Community Plan. Rush Creek Road, Lewiston Road, Browns Mountain Road, and Goose Ranch Road are all located near the Remaining Phase 1 and Phase 2 sites and would provide access to one or more sites located in the general vicinity of Lewiston. Trinity Dam Boulevard, Rush Creek Road, and Brown's Mountain Road provide access to residential areas and federal and private timberlands. Lewiston Road provides access to residential, resource, and commercial areas, and Goose Ranch road provides access to residential areas. These roads are part of the Trinity County road system. The development pattern in the vicinity of Lewiston includes a number of private roads maintained by individuals or associations. Salt Flat Road is an example of a private road that provides access to a number of residences on the right bank of the Trinity River, downstream of Rush Creek. Public access is often restricted by private land owners.

The residential development known as Poker Bar is located between Lewiston and Douglas City. The primary access to this development, Poker Bar Road connects to SR 299 several miles downstream from the junction of Old Lewiston Road and SR 299. In addition to Poker Bar Road, a number of private roads

provide access to residents along the Trinity River. Public access is often restricted by private land owners.

The Douglas City community is a collection of residential and commercial areas connected by SR 299 and SR 3. Steiner Flat Road, Riverview Road, Union Hill Road, and Steel Bridge Road are all located in the vicinity of the Remaining Phase 1 and Phase 2 sites and would provide access to one or more of the sites. Union Hill Road and Steel Bridge Road provide access to residential areas and, to varying degrees, federal and private timberlands. Steiner Flat Road provides access to residential, public services, commercial, recreation, and timberlands. These roads are part of the Trinity County road system. 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.

The Junction City/Helena community is also a collection of residential and commercial areas connected by SR 299. Sky Ranch Road, Dutch Creek Road, Red Hill Road, and Evans Bar Road are all located in the vicinity of the rehabilitation sites and would provide access to one or more of the rehabilitation sites. Dutch Creek Road, Red Hill Road and Evans Bar Road via Dutch Creek, and Sky Ranch Road provide access to residential areas and federal and private timberlands via SR 299. These roads are part of Trinity County's road system. 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.

Table 4.16-1. Roadway Characteristics for Potential Access Roads Serving the Rehabilitation Sites

Road Name	Rehabilitation Site(s)	Owner-ship	Surface Type	Roadway Class	Traffic Counts (ADT)
Trinity Dam Boulevard	Lower Rush Creek (LRC)	County	Paved	Major Collector	441@ Rush Crk; 897 @ 299
Rush Creek Road	Sawmill (SM) Upper Rush Creek (UR) Lower Rush Creek (LRC)	County	Paved	Minor Arterial	409
Lewiston Road	Lowden Ranch (LR)	County	Paved	Major Collector	827
Ponderosa Road	Trinity House Gulch (THG)	Private		Local/ residential	
Goose Ranch Road	Lower Rush Creek (LRC)	County	Paved	Local/ Residential	276

Table 4.16-1. Roadway Characteristics for Potential Access Roads Serving the Rehabilitation Sites

Road Name	Rehabilitation Site(s)	Owner-ship	Surface Type	Roadway Class	Traffic Counts (ADT)
Douglas City Community Plan Area					
Reo Lane	Tom Lang Gulch (TLG)	County	Rock	Local/ Residential	Not Available
Poker Bar Road	Poker Bar (PB) China Gulch (CG)	County/ Private	Paved	Local/ Residential	178
Steel Bridge Road	Steel Bridge Day Use (SB) McIntyre Gulch (MG)	County	Paved	Local/ Residential	177
Union Hill Road	Limekiln Gulch (LKG)	County	Chip seal	Local/ Residential	60
SR 299	Douglas City (DCY)	State	Paved	Highway/ Scenic Byway,	4450
River View Road	Douglas City (DCY) Reading Creek (RC)	County	Paved	Local/ Residential	324
Steiner Flat Road	Reading Creek (RC) Steiner Flat Feather Edge (SFF) Steiner Flat Campground (SFC) Lower Steiner Flat (LSF) Lorenz Gulch (LZG)	County	Paved	Local/ Residential	1290
SR 3	Reading Creek (RC)	State	Paved	Highway	Not Available
Junction City Community Plan Area					
Evans Bar Road	Dutch Creek (DCK) Evan's Bar (EB) Soldier Creek (SCK)	County	Gravel/ chip seal	Local/ Residential	Not available
Sky Ranch Road	Chapman Ranch (CR) Deep Gulch (DG) Sheridan Gulch (SHC) Oregon Gulch (OG) Sky Ranch (SR) Upper Junction City (UJC)	County	Paved	Local/ Residential/ Scenic County Roadway	76

Table 4.16-1. Roadway Characteristics for Potential Access Roads Serving the Rehabilitation Sites

Road Name	Rehabilitation Site(s)	Owner-ship	Surface Type	Roadway Class	Traffic Counts (ADT)
Dutch Creek Road	Evan's Bar (EB) Soldier Creek (SCK) Chapman Ranch (CR) Deep Gulch (DG) Oregon Gulch (OG) Sky Ranch (SR) Upper Junction City (UJC)	County	Paved	Local/ Residential	950@ SR299/ 147@ Red Hill
Red Hill Road	Lower Junction City (LJC) Upper Connor Creek (UCC) Wheel Gulch (WGH)	County	Paved	Minor Collector	822@ Dutch Creek
Hocker Road	Upper Conner Creek (UCC)	Private		Local/ Residential	Not available
SR 299	Sky Ranch (SR) Upper Junction City (UJC) Lower Junction City (LJC) Wheel Gulch (WGH)	State	Paved	Highway/ Scenic Byway	2950 east of Junction City 1900 west of Junction City

Sources: Caltrans Information: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007; Smith, pers. comm. 2008

In addition to using existing roads to access the Remaining Phase 1 and Phase 2 sites, roads within the boundaries of these sites would be used to support various activities. To varying degrees, new roads will be required to provide short-term, and in some instances long-term access for construction and monitoring activities at some sites. The location of the roads (existing and new) associated with the Remaining Phase 1 sites are shown on Figures 2.1a through 2.1f. Details on Phase 2 sites are not available at this stage in the analysis.

Designated Truck Routes

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, including most of the sites in the general vicinity of Douglas City and Junction City. SR 3 will also be used, primarily to access the left bank activity areas at the RC sites. Most of the county and private roads that will be used for access are connected to either SR 299 or SR 3. County roads that would be used to access the Remaining Phase 1 and Phase 2 sites are not designated truck routes.

Public Health

No public health programs or private meals programs for seniors (e.g., Meals on Wheels) or disabled persons currently serve residents in the Lewiston, Douglas City, or Junction City communities.

Bikeways, Pedestrian and Equestrian Circulation

Bicycle, pedestrian, and equestrian circulation is limited in the communities and residential neighborhoods that have developed along the Trinity River below Lewiston Dam. The Lewiston Community Plan contains a goal to provide a pedestrian and bicycle circulation system in the Lewiston community core and Historic District areas. Additionally, a wide shoulder was added to a portion of Rush Creek Road, and is used by pedestrians near the SM and UR sites, including students who walk from connecting roads to bus stops.

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 Steiner Flat Road, Riverview Road, Poker Bar Road, Reo Lane, and Steel Bridge Road.

The Junction City Community Plan also contains a goal to increase bicycle, pedestrian, and equestrian travel and safety by developing bicycle routes, trails, and pedestrian walkways. Red Hill Road runs parallel to the Trinity River along the left bank downstream of Canyon Creek. This road was widened by Trinity County to include a bike lane, primarily to provide alternative transportation between local residences and Junction City Elementary School. Although bike lanes are not available on other roads in the general vicinity of Junction City, bicyclists, pedestrians, and equestrians use these roads for access, exercise, and recreational pursuits. Roads that would be used to access Phase 2 sites include Dutch Creek Road, Red Hill Road, Evans Bar Road, Sky Ranch, and Hocker Flat Road. Pedestrians include students who walk from connecting roads to the bus stops along Red Hill Road and Dutch Creek Road.

Parking

In the Lewiston Community Plan area, public parking is available in the vicinity of the various rehabilitation sites including Bucktail Hole River Access, Cemetery Hole River Access, Rush Creek River Access, and adjacent to the Old Lewiston Bridge. There are also a number of informal parking areas near the river where the public can legally park.

In the Douglas City Community Plan area, there is one designated Caltrans park and ride area on the corner of SR 299 and Steiner Flat Road across from the Douglas City Community Volunteer Fire Department. Public parking is also available at a number of campgrounds and day use areas in the vicinity of the various rehabilitation sites along the river, including Steel Bridge Campground and Day Use areas, Indian Creek River Access, Douglas City Campground, and the Steiner Flat Day Use areas.

In the Junction City Community Plan area, designated public parking areas are limited in the vicinity of the rehabilitation sites. However, public parking is available at the Junction City Campground and River Access, Baghdad River Access, and various turnouts within the SR 299 easement adjacent to the river. While undeveloped, the BLM lands in the vicinity of the Dutch Creek Bridge and Sky Ranch Road are used as public parking areas on a reoccurring basis. Several commercial recreational developments in Junction City also offer parking for their customers.

4.16.2 Environmental Impacts and Mitigation Measures

Methodology

A qualitative assessment of traffic impacts was performed, based on the construction procedures and equipment that will be used, local transportation policies, site review of existing conditions, and traffic levels on key roadways.

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). For the project, significant construction-related impacts would result 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.

Impacts and Mitigation Measures

Table 4.16-2 summarizes the potential transportation/traffic impacts that would result from implementation of the project.

Table 4.16-2. Summary of Transportation Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
4.16-1. Construction activities would reduce/close existing traffic lanes.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
4.16-2. Construction activities would generate short-term increases in vehicle trips.				
No impact	Significant	Significant	Less than significant	Less than significant
4.16-3. Implementation of the project would obstruct access to adjacent land uses.				
No impact	Significant	Significant	Less than significant	Less than significant
4.16-4. Construction activities would increase wear and tear on local roadways.				
No impact	Significant	Significant	Less than significant	Less than significant
4.16-5. Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.				
No impact	Significant	Significant	Less than significant	Less than significant
4.16-6. 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	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 4.16-1: Construction activities would reduce/close existing traffic lanes. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Project construction activities associated with the Proposed Project and Alternative 1 would be managed to ensure that SR 299, SR 3, and local roads remain open to through traffic. Traffic control may be necessary during the mobilization and demobilization of heavy equipment. No road closures are

anticipated; however, in the event that it becomes necessary to close temporarily a road or bridge as a result of project activities, the road/bridge closure would be implemented during non-peak hours to avoid traffic circulation impacts. A closure, even during non-peak hours (i.e., 11:00 p.m. to 6:00 a.m.) could have the potential to significantly increase response times for law enforcement, fire protection, and other emergency services. This impact, for which mitigation is provided, is discussed in sections 4.15, Public Services and 4.13, Hazards and Hazardous Materials. Because traffic control requirements associated with project access roads would be temporary, this impact is considered less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 4.16-2: Construction activities would generate short-term increases in vehicle trips. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1***

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 rehabilitation activities would require a number of truck and worker vehicle trips on area roads leading to and from the rehabilitation sites. Construction equipment (e.g., large trucks, excavators, and back-hoes) would be mobilized to the rehabilitation sites prior to construction and removed upon completion of construction at each site. Therefore, construction equipment trips would be limited and consist of approximately 2–4 trips per year. During the construction period when the greatest number of workers and trucks would be required, up to 20 construction workers and their vehicles would need access to the site daily. These vehicle trips would be added to area roads on a reoccurring basis for the duration of the activities at a specific site. Consistent with the discussion in section 4.11, Reclamation will encourage efforts to reduce the affects of traffic and transportation-related activities on GHG emissions and global warming. Measures such as the use of car-pooling, minimizing the number of truck trips and consideration of fuel efficient construction and service equipment will be encouraged in Reclamation construction contracts related to the Remaining Phase 1 and Phase 2 sites.

Throughout construction, Reclamation would limit the amount of daily construction equipment traffic by staging the construction equipment and vehicles in the project boundary for the duration of work at each site. Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access for 3 to 5 years, depending on the success of natural revegetation. However, as noted

in Chapter 2, the transport of materials within and between rehabilitation sites could occur during project construction activities. In some instances, materials may need to be transported to off-site locations in the event that on-site storage/use is not feasible or is cost prohibitive. If necessary, this activity would occur between August 1 and October 15. These activities could generate the equivalent of up to 36 truck loads of material per day from an individual site, which would be potentially significant.

Post-construction sediment management activities (e.g., gravel injection, fine sediment removal) associated with the Proposed Project could occur at a number of rehabilitation sites, primarily upstream of Indian Creek. These activities could generate a significant amount of short-term vehicle trips. It is difficult to determine precisely the amount of gravel that would be needed for gravel injection purposes because the need for gravel injection is based on factors that are unknown at this time (such as future water-year type and resulting Trinity River flows). However, TRRP estimates that up to 15,000 tons of gravel could be hauled to these rehabilitation sites on a yearly basis. This could amount to approximately 600 truck loads and would equal 1,200 truck trips when accounting for travel to and from the sites (numbers are based on 25 ton double loader trucks). Gravels excavated within rehabilitation sites would be used for gravel injection purposes where available, thereby minimizing the amount of trips needed for hauling gravel. While the use of on-site gravels for these activities would minimize the number of truck trips, the amount of trips that could be generated by post construction sediment management activities (such as gravel injection activities) would still be potentially significant, particularly in the general vicinity of Lewiston and Douglas City.

Local roads that could be affected in the general vicinity of Lewiston include Goose Ranch Road, Lewiston Road, Old Lewiston Road, Rush Creek, and Trinity Dam Boulevard. Local roads that could be affected in the general vicinity of Douglas City include Union Hill Road, Browns Mountain Road, Steel Bridge Road, and Steiner Flat Road. Local roads that could be affected in the general vicinity of Junction City include Dutch Creek Road, Red Hill Road, Evan's Bar Road, Sky Ranch Road, and Hocker Flat Road. Project implementation would also result in vehicle traffic on SR 299, and possibly SR 3. A number of private roads adjacent to the river could also be affected by project generated vehicle traffic with the express permission of the land owners.

The existing traffic volumes along SR 299 and SR 3 are moderate. While the potential increase in traffic generated from construction and post-construction activities would be localized and minimized through project design criteria, off-site gravel hauling and gravel injection activities could result in short-term increases in vehicle trips that would be significant.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would decrease throughout the 40-mile reach of the mainstem Trinity River. To reduce the impacts, this alternative would limit the types of activities to those that simply removed the riparian berms and reestablished functional side-channels at select locations. This reduction or elimination of some rehabilitation activities would translate to an overall reduction in the volume of excavation (cut/fill) within the rehabilitation sites. It would also result in a decrease in the overall number of roads and staging areas; number of in-channel activities, including

crossings; and the overall amount of material that would be transported within or between rehabilitation sites. Although this alternative would result in substantially less vehicle trips relative to the Proposed Project, the impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.16-2a Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.

Significance after Mitigation

Less than significant

Impact 4.16-3: Implementation of the project would obstruct access to adjacent land uses. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

As described in section 4.2, land uses in and adjacent to the rehabilitation sites consist mainly of public and private resource lands and private residential areas. Land uses in the Lewiston Community Plan area that are adjacent to the rehabilitation sites include residential, resource, commercial, recreational, and agriculture. As previously described, activities associated with sites in Lewiston would use primary access points on Rush Creek Road, Goose Ranch Road, Old Lewiston Road, Browns Mountain Road, and various private roads.

Land uses in the Douglas City Community Plan area that are adjacent to the sites include residential, resource, commercial, mineral, and recreational uses. Construction activities associated with sites in Douglas City would use primary access points on SR 299, SR 3, Browns Mountain Road, Union Hill Road, Steel Bridge Road, River View Road, Steiner Flat Road, and various private roads.

Land uses in the Junction City Community Plan area that are adjacent to the sites include residential, resource, commercial, recreation, and mineral. Construction activities associated with sites in Junction City would use primary access points on SR 299, Evans Bar Road, Sky Ranch Road, Dutch Creek Road, Hocker Flat Road, and various private roads.

Access to adjacent public and private lands may be restricted if traffic control measures are being used. This would constitute a significant impact. Recreational access to the Trinity River could be restricted to varying degrees within and adjacent to the sites along the river during the construction activities. However, several public access points would be available throughout the reach during the project implementation period, both upstream and downstream. Impacts related to recreational access and other recreational resources are discussed under section 4.8 Recreation.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

4.16-3a Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River.

4.16-3b During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period.

Significance after Mitigation

Less than significant

Impact 4.16-4: Construction activities would increase wear and tear on local roadways. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no wear and tear on local roadways; therefore, there would be no impact.

Proposed Project

While SR 299 and SR 3 are designated truck routes, the local roads over which the construction equipment must pass are only built to withstand occasional use by heavy equipment and may not be constructed and maintained to support substantial volumes of truck traffic. Numerous local roadways would provide access for construction related activities at the Remaining Phase 1 and Phase 2 sites, including roads owned and maintained by Trinity County, state and federal agencies, and roads under private ownership (See Table 4.16-1 for a summary of local roadways and ownership information). Use

of these roads to move construction material to and from the work sites or to supply fuel for equipment left on-site could increase wear and tear on the local roadways, and could result in adverse affects on the road conditions. The degree to which this impact would occur depends on the design (pavement type and thickness) and the existing condition of the road.

Because SR 299 and SR 3 are 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 these highways.

Construction equipment would be staged on-site during construction. Additional truck travel on local and private roads would be required when excavated material is used to replenish river gravel supplies for fisheries purposes. Project planning to use on-site coarse sediment would minimize heavy equipment use on local roads, which are needed to access the majority of the sites. Additionally, trucks carrying heavy equipment or coarse sediment (i.e., gravel) would operate within the legal weight limits as determined by the state. The number and types of activities could require some level of reconstruction at select sites prior to, or upon completion of, the Proposed Project. The level of construction traffic could also require additional maintenance for some road segments in conjunction with various activities. This impact would be significant.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would decrease throughout the 40-mile reach of the mainstem Trinity River. To reduce the impacts, this alternative would limit the types of activities to those that simply removed the riparian berms and reestablished functional side-channels at select locations. This reduction or elimination of some rehabilitation activities would translate to an overall reduction in the volume of excavation (cut/fill) within Remaining Phase 1 and Phase 2 sites. It would result in a decrease in the overall number of roads and staging areas; the number of in-channel activities, including crossings; and the overall amount of material that would be transported within or between rehabilitation sites. Although this alternative would result in substantially less wear and tear on local roadways relative to the Proposed Project, this would be a significant impact under Alternative1.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

4.16-4a Reclamation will perform a pre-construction survey of local federal, state, and private 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 would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.

Impact 4.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

The No-Project Alternative would not pose a safety hazard to motorists, bicyclists, pedestrians, or equestrians because there would be no construction activities. Therefore, there would be no impact.

Proposed Project and Alternative 1

Traffic safety hazards could arise for motorists, bicyclists, pedestrians, and equestrians in the vicinity of the construction access routes when heavy construction equipment is entering or leaving a rehabilitation site. Access to the Trinity River through each of the Remaining Phase 1 and Phase 2 sites would be limited to identified routes during construction activities to minimize public exposure to construction traffic. Trucks entering and exiting access roads off SR 299 and SR 3 may pose a temporary hazard to motorists and cyclists using the roadway. Bike lanes exist on Red Hill Road, and pedestrians and equestrians use many of the local roads adjacent to the Trinity River for recreation and exercise. Trucks traveling on these routes would pose a safety hazard to these users. This impact would be limited to brief and intermittent periods. Nevertheless, it is considered significant because it poses a safety hazard to motorists, bicyclists, and pedestrians.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

4.16-5a Reclamation will prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities.

Significance after Mitigation

Less than Significant

Impact 4.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties *No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.*

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 and Alternative 1

A number of bridges would be used to access various rehabilitation sites, including bridges over the Trinity River, Indian Creek, and Canyon Creek. The hydraulic model (HEC-RAS) described in 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 project sites. Therefore, this impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

CHAPTER 5

Cumulative Impacts and Other CEQA Considerations

Chapter 5
Cumulative Impacts and Other CEQA Considerations

This chapter addresses certain statutory considerations, including cumulative impacts, that must be evaluated pursuant to CEQA.

5.1 Introduction

As previously explained, Part 1 of this document functions as a Master Draft EIR, as defined under CEQA (CEQA Guidelines Section 15175 et seq.). Like other types of EIRs, a Master EIR must address certain required subjects.

This chapter addresses the following topics:

- cumulative impacts;
- growth-inducing impacts;
- significant effects, including significant unavoidable effects, significant irreversible environmental changes, effects found not to be significant, and potential impacts of anticipated projects under the Master EIR for which sufficient information is not available;
- mitigation measures proposed to minimize the significant effects and the related Mitigation Monitoring and Reporting Plan; and
- the CEQA findings process.

Some of the analyses provided in this chapter are similar to those required under NEPA. The NEPA-required analyses of cumulative effects and other required topics are provided in Chapter 8 at a project-specific level for the Remaining Phase 1 sites.

5.2 Cumulative Impacts

5.2.1 Regulatory Framework

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 a proposed project when added to other closely related past, present, and reasonably foreseeable future projects. These impacts can result from individually minor but collectively significant projects taking place over time.

The CEQA Guidelines require that the cumulative impacts of a proposed project be addressed when they are expected to be significant (14 CCR 15130(a)). When a lead agency is examining a project with an

incremental effect that is not "cumulatively considerable," the lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

5.2.2 Methodology

According to the CEQA Guidelines, the cumulative impacts discussion "should be guided by the standards of practicality and reasonableness." Effects of the project as well as surrounding projects and reasonably foreseeable development in the surrounding area should be considered; however, "[a]n EIR should not discuss impacts which do not result in part from the project evaluated in the EIR" (CEQA Guidelines, Section 15130(a)(1)). When the impacts of a proposed project are beneficial rather than adverse, the EIR need not address adverse effects that might arise due to other projects in the vicinity of the project at issue.

The CEQA Guidelines provides an outline of the necessary elements that constitute an adequate cumulative impacts assessment (Section 15130). Several methodologies are available for assessing cumulative impacts. The assessment in this document uses a modified list method, whereby the impacts of closely related past, current, and reasonably foreseeable future projects and programs are identified and considered on a resource-specific basis, together with the potential impacts of the Proposed Project or Alternative 1. In addition to the non-TRRP projects considered in the cumulative effects analysis in this chapter, it should be noted that the analysis of the effects of the Proposed Project throughout this document is also in some ways a cumulative effects analysis because the Proposed Project is a combination of several individual projects.

The geographic scope of the area examined for cumulative impacts is the Trinity River corridor between Lewiston Dam and the confluence of the North Fork Trinity River at Helena, California, because this is the area designated for river restoration activities under the Trinity River Mainstem Fishery Restoration Project FEIS/EIR (U.S. Department of Interior 2000). Downstream of the North Fork Trinity River, flows in the mainstem Trinity River remain adequate to maintain the alluvial river attributes (see section 4.3 for a description of these attributes) central to restoring the Trinity River fishery. The non-flow measures incorporated into the Flow Evaluation Alternative described in the ROD for the FEIS/EIR are specifically intended to restore the 40-mile reach of the mainstem Trinity River below the TRD.

5.2.3 Related Projects and Programs

This section summarizes the projects and programs that, along with the Proposed Project, could contribute to cumulative environmental impacts in the affected geographic area during the implementation of the Proposed Project or Alternative 1.

Fish Habitat Management

Forty-seven mechanical rehabilitation projects were identified in the FEIS/EIR for the Trinity River Mainstem Fishery Restoration Project (U.S. Department of Interior 2000). The ROD for the FEIS/EIR includes augmentation of coarse sediment, particularly upstream of Weaver Creek, as a critical

component in restoring the alluvial form and function of the Trinity River. The Proposed Project encompasses activities at the Remaining Phase 1 and Phase 2 sites described in Chapter 2 of this document.

The TRRP has two distinct program elements: (1) the Rehabilitation and Implementation Group, which is responsible for project development, engineering, and regulatory compliance, and (2) the Technical Modeling and Analysis Group, which is responsible for project development, monitoring, and integrating activities in an adaptive management framework. A number of federal, state, and local participants are involved at both the policy and project level under the auspices of the TMC. Active participants include Reclamation, USFWS, NMFS, USFS, BLM, DWR, CDFG, Trinity County, and the Hoopa Valley and Yurok Tribes. The Regional Water Board has participated by issuing permits for TRRP channel rehabilitation and coarse sediment augmentation projects and by serving as the CEQA lead agency for the Canyon Creek Suite of Mechanical Channel Rehabilitation Projects and for this Master EIR.

To date, four channel rehabilitation projects have been completed by the TRRP at Phase 1 sites: Hocker Flat, Canyon Creek, Indian Creek, and Lewiston-Dark Gulch. The rehabilitation activities proposed in this Master EIR are similar to those described in the NEPA and CEQA documents for the four completed channel rehabilitation projects.

Since July 2006, the STNF, in partnership with Reclamation, has implemented 2 years of sequential coarse-sediment (gravel) augmentation downstream of the TRSSH. This effort introduced 6,000 cubic yards of coarse sediment into the Trinity River upstream of the Sven Olbertson site near the TRSSH. Consistent with the ROD, gravel augmentation is intended to enhance the development of natural channel complexity and to increase habitat for anadromous salmonids.

In addition to the STNF project, the TRRP has been augmenting coarse sediment in the mainstem Trinity River to enhance alluvial processes and provide juvenile and spawning habitat for anadromous salmonids. Since the summer of 2003, the TRRP has placed nearly 18,000 cubic yards of coarse sediment into the river in conjunction with construction of the initial Phase 1 sites. Since 2008, more than 2,300 cubic yards of coarse sediment has been introduced during spring high flows. High-flow augmentation has occurred at the Sven Olbertson and SM sites using techniques similar to those shown on Figure 2.3j.

Although the quantity of fine sediment removed has decreased over time, annual dredging of the upper Hamilton Pond has occurred in most years since 1990. During summer 2007, the TRRP, in cooperation with the Yurok Tribe, dredged the lower Hamilton Pond at the mouth of Grass Valley Creek. This activity removed about 12,000 cubic yards of fine sediment (sand) and restored the capacity of the lower pond.

Infrastructure improvement projects have also been completed during the past 6 years, including replacement or modification of four bridges over the Trinity River between Lewiston and Douglas City to accommodate future ROD flow releases of up to 11,000 cfs (U.S. Bureau of Reclamation 2003). Other examples of completed infrastructure projects include raising roads at Poker Bar, moving a residence out of the floodplain near downstream of Indian Creek, and relocating pumps and pump houses.

Trinity River Mainstem Fishery Restoration Project

The Trinity River, a major tributary of the Klamath River system, has been subject to extensive water supply and delivery development as part of the CVP. Efforts have been underway since the TRD was constructed to mitigate for the adverse effects of its various elements on salmonid habitat. The 2000 ROD (U.S. Department of Interior 2000) mandated a restoration program consisting of "a combination of managed high flow releases, mechanical riparian berm removal, and gravel augmentation to redirect geomorphic processes so that a more complex channel form will evolve, creating the mosaic of aquatic habitats necessary to enhance freshwater salmonid production."

The Trinity River Mainstem Fishery Restoration Final EIS (FEIS) analyzed a broad range of cumulative impacts, including impacts in the Trinity River basin. The discussion of cumulative impacts in Section 4.1 of the Trinity River Mainstem Fishery Restoration Draft EIS/EIR (DEIS/EIR) focused on the managed flow releases, primarily with regard to water supply and power production outside the Trinity River basin. As a programmatic document, the FEIS satisfied the disclosure requirements under NEPA; however, because Trinity County did not certify the EIR portion of the environmental document, the CEQA component of the document cannot serve as a first-tier EIR. The DEIS/EIR, including Section 4.1, is incorporated by reference into this document. A copy of the DEIS/EIR is available at the TRRP office in Weaverville, California.

The DEIS/EIR included a number of related actions in its discussion of cumulative impacts. These actions include:

- implementation of the Central Valley Project Improvement Act;
- State Water Resources Control Board water rights process and implementation of the CALFED Bay-Delta Program;
- deregulation of the electric industry in California;
- changes in demand for agricultural products;
- changes in fisheries management;
- changes in demand/supply for timber products;
- changes in demand for recreational activities in the Trinity River basin not related to the Trinity River and the TRD; and
- changes in Trinity River basin consumptive water use.

While the purpose of the DEIS/EIR was to evaluate alternative methods to restore the Trinity River fishery, the cumulative impacts section of the DEIS/EIR contained a limited discussion of cumulative impacts specific to the Trinity River basin, particularly with regard to non-flow measures (e.g., mechanical channel rehabilitation). Section 4.1.14 of the DEIS/EIR emphasized the reliance on predictive models that forecast conditions in 2020, typically using projections of state-wide population growth and associated demand for CVP water supplies. This section also identified six specific resource issues and discussed their relationship to the Trinity River basin in terms of cumulative impacts. Table 5-1 summarizes this information.

Table 5-1. Issue-Specific Cumulative Impacts Identified in the Trinity River Mainstem Fishery Restoration DEIS/EIR

Issue	Summary Statement
Fishery resources	Cumulatively beneficial impact to anadromous fish production; also recognized a benefit to recreation.
Agricultural land use	No discussion of impacts to land use within the Trinity River basin. Water supply issues were focused on irrigated lands in the Central Valley of California.
Groundwater resources	No discussion of impacts to land use within the Trinity River basin. Groundwater resource issues were limited to the Central Valley of California.
Water quality	Trinity River water temperatures associated with TRD releases are expected to improve (decrease). Temperatures in Trinity Lake are assumed to degrade (increase) under normal and dry conditions due to assumed increases in CVP demands.
Power resources	Power production from the TRD is an integral component of the CVP. The analysis did not identify any relationship between power production and the non-flow measures described in the FEIS.
Recreation	Beneficial recreation impacts and associated economic benefits are expected to occur as a result of increased fish production in the Trinity River. Potential recreational impacts to various CVP reservoirs (e.g., Trinity Lake) are anticipated to be very minor.

A Biological Opinion issued by NMFS (National Marine Fisheries Service 2000) found that the preferred alternative identified in the ROD "is not likely to jeopardize the continued existence of [SONCC ESU] coho salmon" and "is not likely to destroy or adversely modify critical habitat for the [SONCC ESU] coho salmon." The Biological Opinion concluded "that because the expected outcome of implementation of the Proposed Action is greatly improved fish habitat conditions (including necessary coho salmon habitat), the value of critical habitat for both the survival and recovery of SONCC coho salmon will not be appreciably diminished." Additional information on this Biological Opinion is provided in Chapter 3 of this document.

During the TMC technical team's 2007 annual review of TRRP's planned projects, it was determined that in-river work is clearly consistent with the reasonable and prudent measures identified in the Biological Opinion. Consequently, at the request of Reclamation, NMFS amended its 2000 Biological Opinion to clarify its original intent that in-river work required during channel rehabilitation projects such as the Proposed Project and the coarse sediment augmentation projects are consistent with the 2000 Biological Opinion. A copy of the amended Biological Opinion is on file at the TRRP office in Weaverville, California.

Clean Water Act, Section 303(d) Total Maximum Daily Load Requirements

The Trinity River TMDL for sediment and accompanying source allocation in various reaches and tributaries of the Trinity River have been established to comply with Section 303(d) of the CWA because the State of California has determined that the water quality standards for the Trinity River have been consistently exceeded due to excessive sediment. In 2001, the EPA established the TMDL, with assistance from Regional Water Board staff (U.S. Environmental Protection Agency 2001). The primary

adverse impacts associated with excessive sediment in the Trinity River pertain to the beneficial uses ascribed to anadromous salmonid fish habitat. Sediment delivery in the mainstem Trinity River watershed inherently has considerable annual and seasonal variability. Due to the variability in terms of magnitude, timing, duration, and frequency, the TMDL and load allocation apply to the sources of sediment using a 10-year rolling average.

EPA identified a number of contributing causes for excessive sediment, including historic mining effects, past road-building activities, and timber-harvesting practices. In its recommendations for TMDL implementation, EPA stated that the sediment reduction levels can be achieved through implementing any combination of restoration practices, improved management techniques, and/or reduction in intensity of timber harvesting and road density. The Regional Water Board is actively participating in early implementation of many of the management recommendations related to timber harvesting practices and roads listed in the TMDL. Regional Water Board staff is in the process of updating the federal timber waiver for the USFS, which addresses sediment control from 70 percent of the basin. Similarly, the Regional Water Board continues to participate in private timber harvest review to improve best management practices and other requirements to minimize sediment discharges.

The TMDL also found that the TRD had greatly contributed to the impairment of the mainstem below Lewiston Dam by reducing bed-mobilizing river flows. The reduction in available coarse sediment upstream of Rush Creek and the significant contribution of fine sediment from Grass Valley Creek have severely affected the sediment flux in the river. These effects are observable as far downstream as the North Fork Trinity River but are now being somewhat reduced via implementation of the ROD (e.g., control of fine sediment at the Hamilton ponds and coarse sediments augmentation). EPA includes in its TMDL implementation recommendations the implementation of the ROD, including the flow regime, mainstem/watershed restoration, and adaptive management. "In order for the TMDL to be fully effective in protecting beneficial uses and attaining water quality standards, the ROD flows and restoration program must be implemented. The ROD flows are intended to achieve several attributes of a healthy alluvial river system that sediment allocations through the TMDL cannot achieve alone. For example, the ROD flows include inter- and intraannual flow variations that mimic the natural snowmelt period. These peak flows are critical to support several river functions including the mobilization of channelbed particles, scour pools, create point bars and connect the mainstem to the floodplain. Such conditions are necessary to support habitat elements for spawning, rearing and migration of salmonids.…Another critical condition that affects beneficial uses in the Upper Middle Area is the deficit of coarse sediment in the uppermost reach (just below Lewiston dam). Both Lewiston and Trinity dam block the mainstem supply of coarse sediment which is needed to support spawning fish below the dam.…Consistent with the Trinity River Restoration Program, EPA is recommending the augmentation of clean gravel in appropriate locations of the upper mainstem at appropriate times of the year to further meet the needs of spawning salmonids in that area" (U.S. Environmental Protection Agency 2001).

EPA specifies that the TMDL sediment allocations will be more effective in supporting beneficial uses if implemented in consort with the ROD flows. Similarly, the ROD flows will be more effective in achieving the river health goals when the TMDL load allocations are implemented. The Regional Water

Board's efforts to facilitate the mechanical restoration component of the ROD through the issuance of a general permit, supported by this document, will constitute another early implementation action for the Trinity River TMDL.

California Coastal Salmonid Restoration Program/Five Counties Salmonid Conservation Program

As a result of the proposed listing under the ESA of the SONCC ESU coho salmon, the counties of Humboldt, Trinity, Del Norte, Siskiyou, and Mendocino joined together to assist in the recovery of coho salmon and, more recently, steelhead. The overall goal of the counties is to address and improve anadromous salmonid habitat as well as conservation and restoration within the five-county area such that the listings do not result in massive economic impacts similar to those that occurred when the northern spotted owl was listed. Significant funding has been or is being provided by NFMS, the State Water Board (Proposition 204 Delta Tributary Watershed Program), CDFG's "For the Sake of the Salmon" program (SB 271), and the California Natural Resources Agency.

In 1997, the CDFG established the Salmonid Restoration Program for coastal watersheds. Initiatives included in this program support watershed planning projects at a local level, coastal salmon and anadromous trout habitat restoration, and improved efforts to manage anadromous salmon. The program included a Salmon and Steelhead Trout Restoration Account, which could be expended on a wide range of issues, including watershed planning, on-the-ground habitat restoration projects, and other projects for restoring salmonid populations. This account also financed a Watershed Restoration and Protection Council that oversees state watershed protection and enhancement activities and directs and develops a Watershed Protection Program to provide for anadromous salmonid conservation.

Trinity County is participating in the Salmonid Restoration Program through the Five Counties Salmon Conservation Program (5C Program). The 5C Program, consisting of Trinity, Del Norte, Siskiyou, Humboldt, and Mendocino counties, is coordinating and prioritizing restoration projects and developing standard practices to prevent degradation of salmonid habitat resulting from county road projects.

The 5C Program has inventoried fish passage barriers at county road crossings and sediment delivery sources along county roads. Priority projects were identified to improve fish passage and reduce sediment delivery to both salmonid-bearing and non-salmonid-bearing streams in the Trinity, Klamath, Eel, Mad, Van Duzen, Redwood Creek, Smith, Gualala, and other major coastal watersheds. Fish barriers have been removed at a rate of five to 10 per year for the last 3 years, and future projects are in the planning and design stage pending funding opportunities.

Hoopa Valley Tribe

Beginning in the 1980s, the HVT conducted watershed assessments on each of the major tributary watersheds to the Trinity River within the Hoopa Valley Reservation. With these assessments on the shelf, the HVT was among the first in the northwest to take advantage of Clinton-era Northwest Forest Plan funding for decommissioning of roads (outsloping, removal of stream crossings, replanting of decommissioned road alignments). Examples of assessment/rehabilitation projects fully implemented

prior to 2000 include projects at Mill Creek, Supply Creek, and Tish Tang Creek. The HVT also has an ongoing program involving road and watershed improvement projects that focus on aquatic habitat improvement and sediment source reduction.

Trinity Management Council

An ad hoc committee of the TMC, in conjunction with the TCRCD, identified a list of potential watershed improvement projects for consideration in the TRRP 2009 budget review process. These projects, which are anticipated to be completed by the end of 2010, are intended to decrease sediment delivery to the mainstem Trinity River and are considered from a cumulative perspective:

- Grass Valley and Indian Creek Road upgrade project, TCRCD;
- Dark Gulch sediment basin enlargement, TCRCD;
- Soldier Creek storm-proofing, TCRCD;
- China Gulch-Dutch sediment reduction proposal, TCRCD;
- Junction City fire rehabilitation, TCRCD;
- Democract Gulch Phase II road improvement project, TCRCD;
- Oregon Mt,/Junction Fire riparian treatment, STNF;
- Brown's Mountain Road, Bucktail culvert replacement, Trinity County;
- Upper Union Hill Road storm proofing, TCRCD;
- Grub Gulch erosion control, TCRCD;
- Union Gulch fish passage, TCRCD; and
- Little Browns Creek migration barrier removal project, STNF.

Western Area Power Administration

The Western Area Power Administration (WAPA) has prepared an EIS to support the construction of the Trinity Public Utility District (PUD) Direct Interconnection Project. The ROD was issued on January 28, 2008 (73 FR 5184). This project is intended to supply the PUD with power from the CVP. This project will require construction of several structures (pads/poles) to support an overhead line spanning the Trinity River near the TRSSH.

5.2.4 Observations and Investigations Related to Initial Phase 1 Projects

This section summarizes information on the physical changes and biological responses that have been observed by representatives of the TMC, including TRRP staff, in response to recently completed channel rehabilitation and sediment management activities. This information is relevant with respect to the No-Project Alternative in terms of recent cumulative changes to aquatic habitat in the 40-mile reach below Lewiston Dam. Due to the similarity of past projects to those described for the Proposed Project and Alternative 1, this information also provides a frame of reference for assessing the cumulative impacts at the appropriate scale, namely, the mainstem Trinity River between Lewiston and Helena.

Channel Morphology

As shown in Table 5-2, the TRRP has expanded the potential habitat available for native anadromous fish by about 86 acres since 2005. This equates to more than 23 miles of additional wetted perimeter accessible to fish and other aquatic organisms during spring high flows in the range of 6,000 cfs.

Table 5-2. TRRP Aquatic Habitat Expansion

TRRP Project	Year Built	Habitat Feature	Surface Area Constructed (Acres)	Wetted Edge Constructed (Miles)
Hocker Flat	2005	Riverine	17.14	2.09
Canyon Creek	2006	Riverine	20.16	5.19
Hatchery Gravel	2006	In-Channel	3.49	1.57
Hatchery Gravel	2005	Riverine	1.35	0.69
Indian Creek	2007	Riverine	21.82	6.68
Lewiston	2008	In-Channel	2.52	1.02
Lewiston	2008	Riverine	8.51	3.36
Dark Gulch	2008	In-Channel	2.09	0.69
Dark Gulch	2008	Riverine	9.15	2.33
		Total	**86.24**	**23.61**

In conjunction with these projects, more than 750 pieces of LWD have been incorporated into these projects in the past 3 years: Canyon Creek—158 pieces, Indian Creek—254 pieces, and Lewiston/Dark Gulch—356 pieces. The increased use of LWD for habitat is a function of available material and validation that LWD provides habitat for juvenile salmonids, as shown on Figure 5.1-a, b.

Since 2006, the TRRP's Technical Modeling and Analysis Group has been implementing the ROD's AEAM program through the Integrated Assessment Plan (IAP). As a framework, the IAP provides a multi-faceted approach to monitoring with respect to changes in physical processes and features and, to varying degrees, biological responses. The following discussion provides a summary of some of the biological responses that have been documented since the channel rehabilitation activities have been implemented at the sites named in Table 5-2.

Aquatic Habitat – Anadromous Salmonids

Prior to the construction of any of the Phase 1 channel rehabilitation projects, the TRRP conducted habitat mapping in the reach between Lewiston Dam and Rush Creek to identify existing habitat for coho salmon. The Sawmill side channel was constructed by CDFG to provide off-channel juvenile rearing areas for hatchery-produced salmonids in conjunction with TRSSH operations in the 1980s. A variety of age classes have been observed in the constructed side channel, and there appears to be spawning based on the presence of young-of-year coho (Nina Hemphill, pers. comm. 2009).

a. Juvenile coho using habitat provided by Large Woody Debris placed at the Indian Creek Project.

b. Mountain yellow-legged frog egg clusters in off-channel habitat constructed at the Bucktail Project.

Figure 5.1
Use of Aquatic Habitat at TRRP Phase 1 Sites

Since the initial Phase I projects have been constructed, the TRRP has conducted a pilot study on coho use of constructed riverine features (e.g., side channels, alcoves, and inundated surfaces). Study results indicate that coho (all freshwater life stages) occupy constructed features such as the Sawmill side channel under a wide range of flow conditions throughout the year.

In addition to documentation of coho at the Sawmill side channel, biologists have monitored fish use of constructed riverine features at several Phase 1 sites. Use of the following constructed features has been observed: an alcove and high flow side channel at the Pear Tree site, the floodplain and side channels at the Indian Creek site, the side channel at the Sven Olbertson site, LWD placement along the mainstem in Lewiston and at the Valdor Gulch site, and the side channel at Hoadley Gulch by the Old Lewiston Bridge.

At Valdor Gulch, juvenile salmonids were observed using placed LWD but were not found in adjacent open water habitat during daylight hours. Coho were observed using slow water with overhanging vegetation by the Old Lewiston Bridge during the summer months but were found in the Sawmill side channel during the winter. At the Indian Creek low-flow side channel constructed in summer 2007, biologists monitored juvenile fish use over several months in summer 2008 in conjunction with the controlled releases from the TRD.

At flows of 6,000 cfs in spring 2008, approximately 200 coho fry were counted along a 150-meter segment near the bottom end of the Indian Creek low-flow side channel and adjacent channel surfaces. As the water receded from the annual peak to about 3,000 cfs, the coho fry were observed in low-velocity habitat provided by the alcoves and LWD in the side channel. By July 9, five coho, 159 Chinook, and 46 steelhead juveniles were observed in the lower portion of the side channel. On August 7, one coho, 100 Chinook, 60 steelhead, and 20 brown trout were observed in the lower third of the side channel. On August 27, zero coho, seven Chinook, and nine steelhead were observed in the lower portion of the side channel. In late October, one coho, 232 steelhead, and 148 yearling hatchery Chinook were observed using habitat in the lower portion of the side channel.

As stated earlier in this chapter, more than 20,000 cubic yards of coarse sediment has been introduced into the Trinity River in the past 6 years. Initial monitoring data from 2008 spawning surveys indicate that anadromous salmonids are using the newly created habitat that has developed in response to coarse sediment augmentation efforts in the reach between Lewiston Dam and Rush Creek.

Sediment Regime

The 2000 ROD acknowledges that sediment management in the Trinity River needs to address two size fractions: fine (silt/sand) and coarse (gravel). It also acknowledged the need to manage flows to achieve the desired sediment balance. The following discussion summarizes some preliminary sediment monitoring results and observations provided by technical representatives of the TMC agencies.

Fine sediment loads in the Trinity River have been reduced substantially since the 1980s by watershed restoration activities in the Grass Valley Creek watershed and operation of the Hamilton Ponds at the mouth of Grass Valley Creek. These ponds capture decomposed granite delivered by Grass Valley Creek

and have been periodically dredged to maintain trap efficiency. Between 1985 when they were constructed and 2007, a total of at least 240,000 cubic yards of fine sediment has been dredged from the ponds and prevented from entering the Trinity River. This volume is roughly equivalent to the amount of berm material characterized by the HVT in their 2003 geomorphic characterization of the 40-mile reach below the TRD. While the 1999 TRFE Final Report suggested that up to a million cubic yards of fine sediment was stored in riparian berms along this reach, the HVT efforts refined this estimate downward to approximately 260,000 cubic yards using more detailed mapping techniques and site-specific measurements.

As stated earlier in this chapter, a large number of projects have occurred throughout the watershed to reduce the quantity of fine sediment delivered to the Trinity River from other tributary basins downstream of Lewiston Dam. The net impact on fine sediment delivery rates to the Trinity River is difficult to quantify. However, pebble counts and in-channel geomorphic mapping conducted by TRRP staff and representatives of the TMC in 2006, 2007, and 2008 indicate that the fraction of the bed surface covered by fine sediments is generally small (<10 percent). This is in stark contrast to the conditions in the 1960s and 1970s, when substantial sections of the river were entirely covered with fine sediment.

The high-flow releases mandated by the ROD are designed in part to transport downstream as much or more fine sediments than are delivered to the Trinity River from tributary basins. Sediment transport information collected since 2004 at the Douglas City sediment monitoring station, located about 18 miles downstream from Lewiston Dam, suggests that recent high-flow releases are capable of attaining this transport objective.

To date, the sediment budget developed by the TRRP does not incorporate the timing and volume of fine sediment delivered to the Trinity River from Indian Creek and Weaver Creek upstream from the Douglas City gage. However, a progressive shift in the fine sediment bedload rating curves for the Douglas City gage since the 1980s indicates that the quantity of fine sediment stored in the active channel has declined. Bedload sample data indicate that fine sediment transport rates from 2004 through 2007 were up to an order of magnitude smaller than the transport rates at similar flow levels from 1989 through 1991 and approximately 2 orders of magnitude smaller than transport rates prior to 1987.

In addition to managing fine sediment accumulations within the bed and banks of the Trinity River, the ROD requires replacement of the coarse sediment fraction that was flushed from the reaches downstream of the TRD by post-dam flows and replenishing the coarse sediment that will be transported downstream by future ROD flows. This ongoing effort is necessary to reverse armoring of the streambed that occurred following dam closure and to prevent future armoring that could occur with post-ROD flows. In general, failure to replenish mobile sizes of coarse sediment will cause the particles on the surface of the stream bed to become coarser as more and more of the smaller particles are swept downstream. Without replacement, coarse sediment transport rates will decrease because the remaining large surface particles are more difficult to move, and the dynamic alluvial processes that maintain physical habitat will eventually cease.

The TRRP has adopted a restoration approach based on reestablishing the alluvial processes that create and maintain complex physical habitats, which will in turn be used by fish and wildlife species. The primary management actions undertaken to achieve this objective are additions of coarse sediment to the stream channel and high flow releases from Lewiston Dam. Coarse sediment additions are needed to: 1) continuously replenish gravel that will be transported downstream under the ROD flow regime in the future, and 2) replace the cumulative quantity of gravel that has been transported downstream since the early 1960s when Trinity and Lewiston Dams were completed. High flow releases provide the energy to mobilize and redeposit coarse sediments, thereby rebuilding bar and pool topography and promoting channel migration.

The addition of coarse sediment could raise base flood elevations and have negative effects on holding habitat for adult salmonids. Base flood elevations could respond to changes in grade controls that result from construction of bars or riffles at channel rehabilitation or coarse sediment augmentation sites. To assess potential cumulative changes, base flood elevations are evaluated by the TRRP design team using one-dimensional hydraulic models. Designs for specific activities are adjusted to ensure that any project-related increase in base flood elevations are within the limits imposed by FEMA regulations and consistent with Trinity County's ordinances.

Filling of pool habitats is more likely to occur when additions take the form of high-flow injections or when large quantities of sediment are placed in the channel upstream from a pool. The potential for placed coarse sediments to fill pools is evaluated using hydraulic models and standard sediment entrainment thresholds. For example, TRRP staff used both one- and two-dimensional models to evaluate the likelihood that the 2008 high-flow injections at the pools associated with Lewiston and Sawmill sites would adversely affect the holding habitat (pools) immediately downstream from the injection points. TRRP model results indicated that several thousand tons of coarse sediment with the planned size gradation would pass through the pools during a normal-year release. Subsequent observation and survey data validated these model predictions.

Riparian Habitat – Avian Species

Implementation of rehabilitation projects at various Phase 1 and Phase 2 sites, ROD flows, and cumulative alluvial effects are expected to benefit a wide array of riparian-dependent avian species that are known to occur along the Trinity River corridor. The transformation from extensive monotypic single-age riparian habitat to dynamic, structurally and spatially complex riparian habitat is expected to provide a variety of nesting substrates, cover from predators, and diverse and abundant insect prey, seeds, and vegetative forage for the riparian bird community. It is anticipated that a dynamic river system that results in high-quality riparian habitat equal to the current area of homogenous riparian habitat will meet the needs of target wildlife species for successful survival and reproduction.

5.2.5 Specific Cumulative Impact Analysis

This section identifies potential cumulative impacts that are anticipated as a result of implementing the Proposed Project or Alternative 1 in combination with past, present, and reasonably foreseeable future

projects for each resource area described in Chapter 4. The discussion identifies resource areas in which the impacts of the Proposed Project, when viewed together with other projects, could contribute to an impact that is "cumulatively considerable" within the meaning of CEQA.

Under the No-Project Alternative, the Proposed Project would not be implemented, and the impacts on the resources discussed in Chapter 4 would be similar to those that have occurred since the construction and operation of the TRD as modified by the ROD. No significant cumulative impacts to any resources are anticipated as a result of the No-Project Alternative. Because the rehabilitation and sediment management activities would not be implemented, no incremental impacts would contribute to a larger cumulative effect. The selection of the No-Project Alternative, however, could limit the ability of the TRRP to achieve the overall restoration goals for the Trinity River. River restoration projects on the Trinity River are improving the river channel and ecosystem, and selection of the No-Project Alternative would mean that such beneficial cumulative effects would not include the contributions of river channel rehabilitation and sediment management activities at the Remaining Phase 1 or Phase 2 sites. Though high flow augmentation would continue at limited sites, the river channel could start to degrade again as gravel augmentation activities would not occur during summer in-river work periods.

Potential cumulative impacts within each resource area resulting from implementation of the Proposed Project and Alternative 1 are discussed below.

Land Use

Implementation of the Proposed Project or Alternative 1, in combination with other related projects, would not have a cumulative impact in terms of planning policies, nor would river rehabilitation and sediment management activities result in cumulative effects in terms of local or federal land use planning policies.

Restoration of river habitat to restore and enhance the salmonid fishery in Trinity County and on federally managed lands is consistent with general land use policies and agency management plans. Implementation of the Proposed Project or Alternative 1 would not interfere with management of the river's floodplain by local, state, and federal agencies. Some activities would be in the floodplain of the Trinity River and subject to jurisdiction of the Trinity County Floodplain Management Ordinance; however, no increase in the 100-year flood limits would occur within the site boundaries.

Completed and foreseeable channel rehabilitation and sediment management activities in conjunction with post-ROD flows could result in unanticipated changes to the bed and banks of the Trinity River in a manner that influences land uses, particularly in terms of improvements like wells and in-river diversions. The TRRP has an ongoing program to address these impacts at site-specific locations with the concurrence of land owners. While this program is primarily intended to relocate existing infrastructure, it also acknowledges that in some instances bio-engineering stabilization measures may be considered as an alternative measure to address existing or unforeseen impacts (e.g., bank erosion).

Mechanical river channel rehabilitation, in combination with other similar projects, is generally compatible with land uses on adjacent lands. Project-related, temporary impacts on the availability of

local mineral resources and local access (see sections 4.2 and 4.16) would not be cumulatively considerable. No significant or substantial cumulative land use effects are anticipated to occur under either the Proposed Project or Alternative 1.

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 or Alternative 1. Appropriate implementation of prescribed mitigation measures would reduce potential impacts to a less-than-significant level.

Short-term erosional aspects would be addressed through implementation of the prescribed mitigation measures in conformance with the Trinity River TMDL. As described in section 4.2, Land Use, TRRP activities, including post-ROD flows, could result in site-specific changes to the bed and banks of the Trinity River downstream of discrete project sites. While these changes could result in a short-term increase in erosion and/or sedimentation at discrete sites, this response would be consistent with the dynamic nature of an alluvial river.

Long-term effects would be generally beneficial. The fluvial geomorphic processes embodied in the Healthy River Attributes would be affected at the local level (i.e., the 40-mile reach of the mainstem Trinity River); however, these effects would not be significant at the cumulative scale.

Implementation of either the Proposed Project or Alternative 1 as mitigated would benefit, rather than adversely affect, geology, fluvial geomorphology, and soils in the long term, in combination with the other related programs and projects described in this chapter; the effect would be cumulatively beneficial. Instead of creating adverse impacts that would compound or exacerbate the adverse impacts of other projects, either the Proposed Project or Alternative 1 would contribute to long-term environmental benefits, including progress in meeting the TMDL sediment requirements for the Trinity River.

Water Resources

No significant cumulative impacts to water resources are anticipated from implementation of either the Proposed Project or Alternative 1. Overall, the increased channel capacity provided by either the Proposed Project or Alternative 1 within the 40-mile reach would reduce flow impacts in conjunction with other flow-impact reduction projects (e.g., elevation and maintenance of infrastructure). Implementation of the Proposed Project in combination with other river rehabilitation and sediment management 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 either the Proposed Project or Alternative 1. The TRRP has identified the need to undertake a suite of rehabilitation and sediment management activities throughout the Trinity River basin. Individually, these activities would result in short-term, temporary effects on water quality, as identified in section 4.5, Water

Quality. While some activities may be implemented simultaneously, the intent of the TRRP is to stage these activities, both in terms of timing and locations, in ways that minimize the potential short-term impacts on water quality.

In the event that simultaneous implementation of these activities is required over the course of several years, some level of cumulative degradation of water quality as a result of sedimentation could occur within the Trinity River during the construction and implementation periods. However, implementation of the prescribed mitigation measures, coordinated by the TRRP, would adequately mitigate for potential short-term water quality impacts associated with turbidity, sedimentation, accidental spills, and other potential water quality effects. The cumulative effect of activities proposed under either the Proposed Project or Alternative 1 is considered less than significant because the effects would primarily occur during construction periods and thus would be short-term.

Implementation of either the Proposed Project or Alternative 1 as mitigated would benefit, rather than adversely affect, water quality in the long term, as would most of the other related projects described in this chapter. Instead of creating adverse impacts that would compound or exacerbate the adverse impacts of other projects, either the Proposed Project or Alternative 1 would contribute to long-term water quality benefits.

Fishery Resources

No significant, adverse, cumulative impacts to fisheries resources are anticipated to occur as a result of the implementation of either the Proposed Project or Alternative 1. The Proposed Project is a result of years of legislative direction, legal decisions, scientific study, public involvement, and adaptive management directed toward enhancing and restoring the fishery resources of the Trinity River. 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.

NFMS's 2000 Biological Opinion (National Marine Fisheries Service 2000) acknowledged that simultaneous implementation of these projects and programs may result in short-term loss of aquatic habitat and temporary displacement of aquatic organisms; however, the Biological Opinion stated that the activities would not have a cumulative impact on the SONCC ESU of coho salmon.

Because a primary objective of the TRRP is restoring the form and function of physical processes and riparian communities in the Trinity River basin, the related projects and programs (described above) have a collective purpose of restoring the fishery resources in the Trinity River. Appropriate implementation of prescribed mitigation measures, coordinated by Reclamation and the Regional Water Board, would adequately mitigate for potential short-term impacts associated with removal of vegetation, loss of habitat, effects on wetlands, and short-term degradation of water quality. The cumulative effect of these identified actions within the scope of this analysis is considered less than significant.

Implementation of either the Proposed Project or Alternative 1 as mitigated would benefit, rather than adversely affect, fishery resources of the Trinity River in the long term, as would most of the other related projects and programs described in this chapter. Instead of creating adverse impacts that would

compound or exacerbate the adverse impacts of other projects, either the Proposed Project or Alternative 1 would contribute to long-term fishery resources benefits.

Vegetation, Wildlife, and Wetlands

No significant cumulative impacts to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of either the Proposed Project or Alternative 1 in combination with other related projects. The Proposed Project is the result of years of legislative direction, legal decision, scientific study, public involvement, and adaptive management that were directed at restoring the physical processes and biological resources of the Trinity River. Because a primary objective of the TRRP is restoring the form and function of physical processes and riparian communities in the Trinity River basin, the projects and programs described above have a collective purpose of restoring the mainstem Trinity River. In the long-term, restoration efforts will benefit wildlife by expanding the amount of riparian habitat.

Simultaneous implementation of these projects may result in short-term, temporary loss of upland, wetland, and riverine features, including Waters of the United States. The effects would be short-term and primarily associated with construction-related activities. Appropriate implementation of prescribed mitigation measures, coordinated by Reclamation and the Regional Water Board, would adequately mitigate for potential impacts associated with these activities (e.g., removal of vegetation, loss of habitat, and impacts on wetlands). The cumulative effect of these identified actions within the scope of this analysis is considered less than significant.

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 described in this chapter. Implementation of either the Proposed Project or Alternative 1 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 either the Proposed Project or Alternative 1. The projects and programs described above are intended to benefit the aquatic environment and the Trinity River fishery. Benefits to recreational values may be achieved through the implementation of the TRRP over time.

Implementation of the Proposed Project could temporarily disrupt recreational activities such as boating, fishing, and swimming at specific locations on the Trinity River at the Remaining Phase 1 or Phase 2 sites. If other concurrent projects also disrupt recreational activities in the same geographic area and affect the same user groups, then the effects would be cumulative. Although construction activities for the various restoration projects are not likely to occur simultaneously to a substantial degree, TRRP would coordinate with other entities involved in river restoration activities to ensure that recreational opportunities are not simultaneously affected. Implementation of the Proposed Project or Alternative 1 as mitigated would benefit, rather than adversely affect, river-related recreation in the long term, as would most of the other related projects described in this chapter.

Socioeconomics, Population, and Housing

No significant cumulative impacts to socioeconomics, population, and housing are anticipated to occur as a result of implementation of either the Proposed Project or Alternative 1. The related projects and programs described above are intended to benefit the Trinity River fishery, with moderate projected economic and social benefits to the residents and communities along the Trinity River, including short-term demand for construction labor and a potential for moderately increased long-term recreational uses as the fishery responds to various TRRP restoration activities.

Cultural Resources

No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of either the Proposed Project or Alternative 1. The focus of the related projects and programs described above is on restoration of the channel and riverbanks of the Trinity River. The floodplain of the river is a dynamic area, and the proximity of anticipated restoration activities to the floodplain reduces the likelihood that cultural resources would be encountered. The PA (Appendix D) described in section 4.10, Cultural Resources, was intended to address multiple elements of the TRRP. 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 either the Proposed Project or Alternative 1. The NCUAQMD requirements would be addressed by implementation of prescribed mitigation measures.

As explained in section 4.11, Air Quality, either the Proposed Project or Alternative 1 would generate some temporary air emissions because of grading activities; however, these emissions would be too limited to rise to the level of being “cumulatively considerable.” This result is predicted, in part, because the impacts would be temporary; in addition, the projects and programs described in the preceding section are not generating or are not anticipated to generate any long-term air pollutants. Moreover, construction activities associated with these projects and programs are not likely to occur at the same time, and the locations of the activities themselves are generally far enough apart to allow for considerable dissipation and dispersion of construction-related pollutants.

Either the Proposed Project or Alternative 1, in conjunction with the other projects and programs described in preceding section 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. While the individual contribution to greenhouse gases that are believed to cause global climate change would be extremely small when considered in the context of the Trinity River basin, not to mention emissions at the state, national or global scale, the seriousness of the issue and need for all projects to address these issues leads to the conclusion that this contribution would be cumulatively

considerable. Implementation of the mitigation measures described in section 4.11, Impact 4.11-4, would reduce the cumulative contribution to global climate change to a less-than-significant level.

Aesthetics

No significant cumulative impacts to aesthetics are anticipated to occur as a result of implementation of either the Proposed Project or Alternative 1. The short-term visual effects that would result from the Proposed Project and other restoration and watershed projects in the river corridor are not substantial, and the implementation of the Proposed Project would be consistent with federal and state requirements for Wild and Scenic Rivers and the Trinity County General Plan.

Implementation of the Proposed Project or Alternative 1 would benefit, rather than adversely affect, aesthetics in the long term, as would most of the other related projects described in this chapter. The Proposed Project would enhance vegetative diversity as historic variability in plant species and age class composition is restored. Enhanced vegetative diversity would support the visual objective of maintaining the aesthetic qualities of a free-flowing river within the Wild and Scenic River corridor. Instead of creating adverse impacts, implementation of the Proposed Project or Alternative 1 would contribute to maintaining long-term aesthetic values.

Hazardous Materials

No significant cumulative impacts related to hazardous materials are anticipated as a result of implementing either the Proposed Project or Alternative 1. Grading and sediment management activities associated with the Proposed Project would not involve substantial use, production, or disposal of materials that would pose a hazard to the environment in the affected area of the Trinity River corridor. All activities are intended to minimize potential public health or safety hazards (e.g., fires, accidents) and are specifically designed to ensure that emergency response plans or emergency evacuation plans are not affected.

Noise

No significant cumulative impacts related to noise are anticipated through the implementation of either the Proposed Project or Alternative 1. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.

The noise impacts of the action alternatives would not be cumulatively considerable because the impacts would not compound or exacerbate the noise impacts of the related concurrent or future projects, which are located in areas that are physically separated from the location of the project. Since construction noise is typically a temporary impact, there would not be a cumulative contribution if the project is not constructed simultaneously with other projects. Similarly, because people would not be able to hear noise from more than one of these projects at the same time, the separate noise sources—all of which are temporary—would not contribute to significant, cumulative noise impacts.

Public Services and Utilities/Energy

No significant cumulative impacts related to public services and utilities/energy are anticipated as a result of the implementation of either the Proposed Project or Alternative 1. 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. The Proposed Project (grading and sediment management activities) would not result in the use of substantial amounts of fuel or energy, nor would implementation result in long-term increases in demand for services or use of energy.

Transportation/Traffic Circulation

As explained in section 4.16, Transportation/Traffic, either the Proposed Project or Alternative 1 would generate some temporary construction-related traffic; however, such traffic would not rise to the level of being cumulatively considerable. Traffic increases would be localized and temporary; the related future projects would also tend not to generate any substantial cumulative long-term traffic impacts. Construction activities for all of the various projects are not likely to occur at once, and the locations of the activities themselves are generally far enough apart to make it unlikely that trucks serving one construction location would cross paths with trucks serving a separate location.

No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of either the Proposed Project or Alternative 1. The TRRP will coordinate with appropriate road management agencies to ensure that the mitigation measures prescribed in this document are implemented in a manner that is acceptable to these agencies.

5.3 Growth-Inducing Impacts

This section evaluates the potential for growth that could be induced by implementation of the Proposed Project or Alternative 1 and assesses 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.

Section 15126(g) of the CEQA Guidelines provides definitions and guidance in determining the growth-inducing impacts of a proposed project. Specifically, a project is defined to be growth inducing if it would:

- accelerate the rate of planned growth,
- remove obstacles to population growth,
- tax existing community service facilities, or
- foster, promote, or sustain economic population growth.

5.3.1 Growth and Development Potential

Trinity County Growth Policies

The Trinity County General Plan (Trinity County 2001) does not describe specific growth policies; however, it establishes general goals and policies related to housing and residential land use. Trinity County policies recognize that more than half of its housing is located in remote, rural areas, where residents exhibit a high level of individual self-reliance in meeting infrastructure needs. County policies recognize that a strong tradition exists of non-involvement of local government in the area of housing and residential development.

Population

Trinity County's population is concentrated in and around the communities of Weaverville, Douglas City, Lewiston, and Hayfork (as described in sections 4.2 and 4.9). The population in the county increased significantly between 1970 and 1980 from 7,615 to 11,858 (a 55 percent increase). Although growth has continued sporadically, the rate of increase has been substantially lower. The population growth rate was furthered by an influx of retirees and of people seeking an alternative lifestyle in the mountains of northern California and a reasonable cost of living.

Vacant Land and Projected Buildout

Approximately 14.6 percent of the land in Trinity County is potentially available for private development. The USFS, the BLM, and various timber production companies manage the balance of the lands within the county. The General Plan identifies 5,517 private parcels as unimproved and potentially available for development, but suggests that the actual number may be significantly lower based on requirements for waste disposal, slope, and water sources.

Trinity County's Constraints to Development

The Trinity County General Plan identifies a number of existing or potential factors that could adversely affect future residential and commercial development. A number of state and local permits and fees are typically required for new developments. Building according to construction standards and compliance with CEQA are also required. Development of the necessary infrastructure to support larger scale residential or commercial uses (i.e., water, sanitation, energy, and access) is typically a challenge for developers throughout Trinity County.

Proposed Land Uses

In general, all parcels within the site boundaries described in Chapter 2 have been fully subdivided to the extent legally possible under current zoning designations; therefore, future rural residential development within the site boundaries is unlikely. Development applications on such parcels would in most cases require discretionary approvals from Trinity County decision makers, such as changes in zone classification and amendments to the General Plan. The parcels are all located adjacent to the Trinity River, and many of them are designated as Flood Hazard and Scenic Overlay zones, making approval for further development difficult. On federal lands within the site boundaries, the STNF, BLM, and

Reclamation manage land uses and activities in accordance with their respective agency planning processes.

5.3.2 Growth-Inducing Impact of the Proposed Project

Implementation of channel rehabilitation activities and sediment management activities at the Remaining Phase 1 and Phase 2 sites would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. Several parcels zoned for residential use in the Proposed Project boundaries are currently vacant, and potential development of a single-family residence on such parcels is possible. Such development, however, would not be directly attributable to the Proposed Project. 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.

5.4 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). As noted at the beginning of this chapter, certain statutory considerations must be evaluated pursuant to CEQA; several of these considerations are related to significance. This section addresses several types of potentially significant effects.

Some of these considerations are similar to those required under NEPA, as discussed further in Chapter 8 (Part 2, the EA/EIR for the Remaining Phase 1 sites). NEPA and CEQA are also briefly compared in Part 2 of this document (section 6.1.3). Under NEPA, there are no specific statutes or regulations that explicitly require that all significant project impacts be avoided or mitigated to a less-than-significant level or that mitigation measures developed as part of an EA be “monitored” to ensure that they are implemented.

5.4.1 Significant Environmental Effects of the Proposed Project

Potentially significant effects have been identified in the areas of land use; geology, geomorphology, soils, and minerals; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; cultural resources; air quality; aesthetic resources; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in each resource. As part of the environmental impact assessment for each resource area, mitigation measures have been identified that reduce these impacts to less-than-significant levels.

5.4.2 Significant Unavoidable Effects

CEQA (Pub. Res. Code Section 21100(b)(2)(A) requires that an EIR include a statement that summarizes any significant effects on the environment that cannot be avoided if a proposed project is implemented. CEQA Guidelines Section 15126.2(b) states that such impacts include those that can be mitigated but not reduced to a less-than-significant level. When there are significant impacts that cannot be fully mitigated to a less-than-significant level or minimized by changing the project design, the implications of the impacts and the reasons why the project is being proposed must be described.

The environmental analysis conducted for the Proposed Project and Alternative 1 did not identify any effects that, after mitigation, remained significant and therefore unavoidable. As part of the environmental impact assessment for each resource area, mitigation measures have been identified that reduce all impacts to less-than-significant levels.

5.4.3 Significant Irreversible Environmental Changes

CEQA (Pub. Res. Code Section 21100(b)(2)(B) requires that an EIR include a statement that summarizes any significant effects on the environment that would be irreversible if a proposed project is implemented. Similarly, CEQA Guidelines Section 15126.2(c) requires that an EIR must address the significant irreversible changes which would be involved in the proposed project should it be implemented.

The environmental analysis conducted for the Proposed Project did not identify any significant irreversible effects. The mechanical channel rehabilitation and sediment management activities would occur in a highly dynamic, riverine environment. Mechanical changes in the structure of the river channel and riverbank profile are not irreversible changes, nor are changes in the extent or structure of riparian vegetation. Over time, river flows will modify the rehabilitated structure of the channel and redistribute introduced sediment through natural processes. Changes in channel profile, sediment, and riparian vegetation are not irreversible, and such changes are expected to be significant beneficial effects in terms of restoring the river's complex structure and ecology for the benefit of the river's fisheries.

5.4.4 Effects Found Not to Be Significant

Implementation of the Proposed Project or Alternative 1 would result in potential effects that were determined to be not significant. Effects that are not significant would occur in the following resource areas: water resources; socioeconomics, population, and housing; and hazards and hazardous wastes. These potential effects are discussed in each resource section. Because the effects were determined to be less than significant, mitigation measures are not required.

5.4.5 Potential Impacts of Anticipated Projects for Which Sufficient Information Is Not Available

A Master EIR is by definition intended to be used as the basis of environmental review for subsequent projects. The CEQA Guidelines require that the lead agency address in a Master EIR the potential effects

of anticipated projects for which sufficient information may not be available to support a full assessment of potential effects (Section 15176). While the anticipated projects under the TRRP are anticipated to be similar in purpose, design, and implementation to the sites addressed in this document, the specific locations and areal extent are not fully defined.

The potential impacts are expected to be similar to those identified in this document. On a site-by-site basis, the effects on specific environmental resources may vary. One advantage of a tiered assessment is that it facilitates adaptive management; as rehabilitation projects are conducted along the mainstem Trinity River, agencies and partners participating in the projects can adapt to observed changes in the physical environment and better predict and mitigate environmental effects in subsequent projects.

5.5 Mitigation Measures Proposed to Minimize the Significant Effects

Under CEQA (Pub. Res. Code Section 21081.6(a) and Guidelines Section 15097), lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required to be made in the project and other measures required to mitigate or avoid significant environmental effects; the purpose of the program is to ensure that those project revisions and measures are implemented.

Mitigation measures have been identified for various resource areas in this Master EIR (and, in Part 2, the EA/EIR). These measures are presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by the Regional Water Board as a condition of project approval will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The Draft MMRP is included as Appendix E to this document. The approval of such a program will be part of any action taken by the Regional Water Board with respect to the project. When other regional or state agencies subject to CEQA approve portions of the Proposed Project under their own jurisdiction or regulatory power, these "responsible agencies" will be required to adopt their own MMRPs (CEQA Guidelines, Section 15097(d)).

The MMRP will be used by the Regional Water Board along with Reclamation staff, project contractors, cooperating and participating agencies, and monitoring personnel during project implementation. The intent 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 necessary, on-site identification and correction of potential environmental problems, and proper reporting to Reclamation staff, and as part of TRRP adaptive management.

5.5.1 Responsibilities and Authority

Reclamation will have the primary responsibility for the MMRP. Reclamation and the Regional Water Board will be responsible for the following tasks:

- ensuring that the MMRP is incorporated into the construction bid documents,
- coordinating monitoring activities,

- directing the preparation and filing of compliance reports, and
- maintaining records concerning the status of all mitigation measures.

5.5.2 Mitigation Monitoring and Reporting Program Plan Format

The draft MMRP plan (Appendix E) includes a summary table that identifies the mitigation measures proposed for the Proposed Project, summarized from this document. The mitigation monitoring table includes the following:

- **Mitigation Measure:** presents the mitigation measures identified in this document for a specific impact, along with the number of each measure.
- **Timing:** identifies when the mitigation measures will be implemented.
- **Agency/Development Consultation:** identifies the specific agency or agencies with which coordination is required to satisfy the requirements of the mitigation measure.
- **Verification:** provides checkboxes to be initialed and dated by the individual designated to verify compliance with a specific mitigation measure.

5.5.3 Noncompliance Complaints

Complaints of noncompliance with adopted mitigation measures may be submitted by interested parties, under Reclamation guidelines. Complaints should be directed to Reclamation in written form, providing specific information on the alleged violation. If a complaint is received, Reclamation (and the Regional Water Board, if appropriate) will conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure has occurred, Reclamation (and the Regional Water Board, if appropriate) will take the appropriate action to remedy the violation. The complainant will receive written confirmation indicating the results of the investigation or the final action corresponding to the particular noncompliance issue.

5.6 CEQA Findings and Statements of Overriding Consideration

The CEQA Guidelines (Section 15091) state that "[n]o public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding."

For this Master EIR, if significant effects had been identified that could not be mitigated to levels that are less than significant, the Regional Water Board, as lead agency under CEQA, would need to make written findings for each significant impact identified in this document before it could approve the Proposed Project.

Section 15093(a) of the CEQA Guidelines allows the lead agency to determine whether the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The lead agency can approve a project with significant unavoidable impacts if it prepares a "Statement of Overriding Considerations" that sets forth the specific reasons for making such a judgment.

Because no significant unavoidable impacts were identified for the Proposed Project, a Statement of Overriding Considerations will not be required.

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Volume III: Environmental Assessment/Draft Environmental Impact Report
Part 1: Draft Master Environmental Impact Report
Part 2: Environmental Assessment/Draft Environmental Impact Report

June 2009

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
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Federal Cooperating Agencies for NEPA
Shasta–Trinity National Forest
Bureau of Land Management

Cooperating Tribal Agencies
Hoopa Valley Tribe
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Volume IV

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CHAPTER 6

Introduction to Part 2–Remaining Phase 1 Sites

Chapter 6

Introduction to Part 2 – Remaining Phase 1 Sites

6.1 About This EA/EIR

6.1.1 Purpose of This Part

As explained in Chapter 1, this combined NEPA/CEQA document evaluates the environmental impacts of the proposed channel rehabilitation and sediment management activities at both a programmatic and project-specific level. Part 1 of this document provides a programmatic environmental review of the Remaining Phase 1 sites and Phase 2 sites.

Part 2 of this document, which begins with this chapter, is an EA/EIR for the six Remaining Phase 1 sites. The EA/EIR provides the site-specific environmental analysis necessary for compliance with NEPA and CEQA for these sites and will allow the lead agencies to make the necessary findings concerning whether this document provides adequate environmental review under NEPA and CEQA for the Remaining Phase 1 sites.

6.1.2 Relationship to the Master EIR

This EA/EIR for the Remaining Phase 1 sites tiers from the Master EIR assessment in Part 1. 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 analysis 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 Guideline 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 the subsequent documents. This approach facilitates the review of larger issues, such as cumulative effects, while expediting the preparation of subsequent documents by avoiding unnecessary repetition.

This EA/EIR for the Remaining Phase 1 sites tiers from the Master EIR and incorporates the Master EIR in its entirety by reference. This EA/EIR tiers from the Master EIR in terms of each major component of the assessment: the description of the Proposed Project (or proposed action; see section 6.3, below), the programmatic assessment of environmental impacts (or consequences), and the identification of mitigation measures to avoid or reduce environmental effects. Part 2 is focused on the additional site-specific environmental effects of the six Remaining Phase 1 sites not described in the Master EIR.

In addition to information provided in Chapter 2 (Proposed Project and Alternatives) and Chapter 3 (Regulatory Framework), the programmatic analysis provided in Chapter 4 of the Master EIR is also incorporated by reference. Chapter 4 provides the environmental setting, impact analyses, and mitigation measures, as applicable, for each resource topic required in an EIR. To varying degrees, these descriptions and analyses are applicable to the Remaining Phase 1 sites. Site-specific characteristics and impacts for each resource topic are provided in Chapter 7.

This EA/EIR also tiers from the "statutory considerations" discussed in Chapter 3. These discussions cover certain topics required under CEQA (see, for example, CEQA Guidelines at Section 15126), 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. Because certain other discussions are also required under NEPA, Part 2 also includes additional "statutory consideration" discussions in Chapter 8. These additional discussions address special summary topics 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.

6.1.3 NEPA and CEQA Briefly Compared

The National Environmental Policy Act (NEPA) of 1969 establishes national policy for the protection of the environment. The NEPA process, as implemented by federal regulations and agency-specific regulations and procedures, is intended to promote decisions that are based on an understanding of environmental consequences and to encourage decision makers to take actions that protect, restore, and enhance the environment. The California Environmental Quality Act (CEQA) of 1970 is broadly similar to NEPA, although there are notable differences. The purpose of CEQA is to inform state and local governmental decision makers and the public about potential significant environmental effects of proposed activities, to identify ways to avoid or reduce environmental impacts, and to disclose the reasons why a project may be approved if significant environmental impacts would result.

NEPA and CEQA share similar goals of identifying and disclosing to decision makers and the public the potential environmental effects of a proposed action (or proposed project) before taking that action. Both the federal (NEPA) and the state (CEQA) statutes establish policies and procedures that require agencies to ensure that environmental information is made available and considered early in the planning process. The two statutes, as implemented by their respective regulations and guidance, set forth what are generally parallel procedural and documentation requirements, although, again, there are differences (for example, the "statutory consideration" discussions, as discussed above in section 6.1.2). Both statutes and their implementing regulations contain provisions for integrating other environmental review requirements, including the combination of the state and federal requirements. Combining NEPA and CEQA environmental review requirements in joint documents is encouraged under both acts.

While the two statutes share common goals and general environmental review requirements, there are important differences that must be considered in joint documents. NEPA is sometimes viewed as a procedural law, requiring federal agencies to conduct environmental reviews that comply with the statute

and associated implementing regulations. CEQA, in contrast, is partly "substantive," in that it requires an agency to adopt "feasible" mitigation measures for any "significant effect on the environment."

NEPA often functions as an "umbrella" statute, under which other federal environmental review requirements are addressed, such as the Section 106 process under the National Historical Preservation Act, air conformity determinations under the federal Clean Air Act, and various Executive Orders, including those pertaining to floodplains, wetlands, migratory birds, environmental justice, Indian sacred sites, and other topics at the federal level.

One important difference between NEPA and CEQA is the way significance is determined and addressed in environmental documents. Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS) will be required. NEPA requires that an EIS be prepared when the proposed federal action as a whole has the potential to "significantly affect the quality of the human environment." This determination of significance is based on "context" and "intensity." NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA requires that the lead agency identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. A significant effect on any environmental resource triggers the preparation of an EIR. Every significant effect on the environment must be disclosed in the EIR and mitigated, if feasible. CEQA requires that this document propose mitigation measures for each significant impact of the Proposed Project subject to the approval of an agency governed by California law, even when the mitigation measure cannot be adopted by the CEQA "lead agency" (in this case, the Regional Water Board), but can only be imposed by another responsible agency.

In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance in CEQA.

Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for NEPA. The threshold for preparing an EIR under CEQA is lower than the threshold for preparing an EIS under NEPA. It is therefore not uncommon to have a joint NEPA/CEQA document that is not an EIS/EIR but rather an EA/EIR. Under NEPA, the general rule is that all alternatives must be analyzed and discussed to the same level of detail; CEQA requires only enough information about the alternatives to allow for meaningful comparison.

Because of the obligation under CEQA to mitigate "significant effects on the environment" when feasible, the characterization of impacts as being either "significant" or "less than significant" is very important under CEQA. For this reason, this integrated NEPA/CEQA document has been written in a manner that identifies, for CEQA purposes, "significance thresholds" for anticipated impacts. Some of these thresholds even have the force of law under CEQA. For example, CEQA Guidelines Section 15065 requires a "mandatory finding of significance" when a project "has the potential to substantially reduce the number or restrict the range of an endangered, rare or threatened species" listed under either the federal Endangered Species Act (ESA) (16 USC Section 1531 et seq.) or the California Endangered

Species Act (CESA) (California Fish and Game Code, Section 2050 et seq.). No such obligation exists under NEPA. CEQA thresholds of significance for other issue areas and resources were developed using applicable regulations when they exist, or best professional judgment.

6.1.4 Areas of Potential Controversy

To varying degrees, the issues listed below are anticipated to be controversial, primarily as they relate to discrete activities at specific sites. The potential for controversy focuses on the balance between existing resource uses and the potential for long-term restoration at various sites. The following issues are addressed in subsequent chapters of this document:

- impacts to special-status species, including anadromous salmonids;
- type, extent, and location of in-channel rehabilitation activities;
- the opportunity to use on-site sources of coarse sediment for long-term gravel enhancement program;
- impacts to public and private water supplies;
- impacts to existing recreational facilities;
- potential trespassing on private lands;
- potential spread of non-native invasive vegetation and techniques for non-native vegetation control;
- long-term ability of project sites to be maintained by flows;
- temporary access during construction;
- short-term construction impacts; and
- potential effects to Wild and Scenic River outstandingly remarkable values (ORVs).

6.1.5 Integration of Related Environmental Review Requirements

As mentioned above, and as discussed in Chapter 3, Regulatory Framework, the environmental processes under NEPA and CEQA facilitate the integration of other environmental review requirements. The NEPA process, particularly with respect to this document, is intended to be integrated with other environmental reviews, including but not limited to the Section 106 process under the NHPA and the Section 7 process under the federal ESA.

6.2 Purpose and Need

NEPA regulations require that an EA briefly specify the need that the agency is responding to in proposing the various alternatives, including the proposed action (40 CFR. Section 1508.9(a)). Similarly, CEQA requires that an EIR include a statement of the objectives to be achieved by a proposed project (CEQA Guidelines, Section 15124(b)). The objectives are discussed in Part 1, Chapter 2.1.

Overall, the purpose of the proposed action is to provide increases in habitat for all life stages of naturally produced anadromous fishes native to the Trinity River in the amounts necessary to reach

Congressionally mandated goals. The strategy is to initially create more habitat for native anadromous fish, and, over time, ensure that habitat complexity and abundance increase as the alluvial processes of the Trinity River are enhanced or restored in a manner that will perpetually maintain fish and wildlife resources (including threatened and endangered species) and the river ecosystem. The proposed action will 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 will 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 Action (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 Hoopa Valley and Yurok tribes. This need results from:

- requirements in the ROD (U.S. Department of Interior 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 will continue to incorporate the experience provided through the planning, design, and implementation of the Proposed Action into future restoration and rehabilitation efforts proposed by the TRRP.

6.3 Proposed Project/Proposed Action

The Proposed Action addressed in this EA/EIR is the implementation of the mechanical channel rehabilitation and sediment management activities at the six Remaining Phase 1 sites, as described in detail in Part 1, Chapter 2. The following are the Remaining Phase 1 sites: Sawmill (SM), Upper Rush Creek (UR), Lowden Ranch (LR), Trinity House Gulch (THG), Steel Bridge Day Use (SB), and Reading Creek (RC).

This EA/EIR uses the term “proposed project,” a CEQA term that is essentially synonymous with the NEPA term “proposed action.” For the remainder of this document, “Proposed Project” is also used to refer to the NEPA Proposed Action with respect to the activities at the Remaining Phase 1 sites.

CHAPTER 7

Environmental Setting and Environmental Impacts–Remaining Phase 1 Sites

SECTION 7.1

Introduction to the Analysis

Chapter 7

Environmental Setting and Environmental Impacts– Remaining Phase 1 Sites

7.1 Introduction to the Analysis

This EA/EIR assesses the site-specific environmental consequences (or "impacts") associated with implementing the proposed rehabilitation activities at the Remaining Phase 1 sites. The regulatory framework, environmental setting, methodology, and significance criteria discussed in Part 1, Master EIR (Chapters 3 and 4) are generally applicable to the Remaining Phase 1 sites, and this information is not repeated in this chapter. Instead, the focus is on site-specific characteristics, impacts, and mitigation measures (as applicable) for each Remaining Phase 1 site.

As in Part 1, the environmental analyses in Part 2 are presented by environmental resource area. As described further below, the analysis for each resource area includes discussions of the affected environment (CEQA "existing conditions"), the potential environmental impacts (CEQA "environmental impacts"), methodology, significance criteria (if applicable), and mitigation measures. While many of the same resource areas are discussed under both CEQA and NEPA, two resource areas are addressed specifically to satisfy federal requirements under NEPA, even though they are not necessarily required to comply with CEQA. Accordingly, the resource areas addressed in this part are the same as in Part 1, with the addition of discussions of Tribal Trust (section 7.17), and Environmental Justice (section 7.18), which have their regulatory basis in federal mandates and are, therefore, addressed in this integrated part of the document as required under NEPA.

The following resource areas are addressed in this chapter:

- land use
- geology, fluvial geomorphology, minerals and soils
- water resources
- water quality
- fishery resources
- vegetation, wildlife, and wetlands
- recreation
- socioeconomics, population, and housing
- cultural resources
- air quality
- aesthetics

- hazards and hazardous materials
- noise
- public services and utilities/energy
- transportation/traffic circulation
- tribal trust
- environmental justice

Site-specific characteristics and impacts related to the Remaining Phase 1 sites are provided in the subsequent sections of this chapter. To simplify this chapter, information provided in Chapter 3 – Regulatory Framework is incorporated by reference into the following sections. Each resource area section is organized in the following manner.

7.1.1 Affected Environment/Environmental Setting

The Affected Environment (or CEQA "existing conditions") sections for each of the issues discussed supplements the information in the corresponding section of Chapter 4 as necessary to describe the existing regional and local conditions for the Remaining Phase 1 sites. The affected environment establishes the context for each section of this chapter pursuant to 40 CFR Section 1508.27 (a). The information in these sections is used as the environmental baseline for analyzing the significance of potential effects of the Proposed Project and the significance of the effects of project alternatives with respect to each specific resource area (See CEQA Guidelines, Section 15125, subd. (a)).

7.1.2 Environmental Consequences and Mitigation

As required by the CEQA Guidelines, the impacts of a proposed project (action) are defined as "a change in the existing physical conditions in the affected area as they exist at the time the notice of preparation is prepared" (Section 15126.2). For purposes of NEPA, the term "environmental consequences" is synonymous with the term "impacts." The environmental consequences discussion addresses the intensity of the project as required by 40 CFR Section 1508.27 (b). The impacts of the project are identified and the level of significance of the impacts is determined in the following sections of this chapter.

The following subsections for each resource area are incorporated by reference from Part 1 of this document:

- *Methodology*. This subsection identifies the methods used to analyze impacts, as well as the key assumptions used in the analysis process. Sections that incorporate quantitative assessments reference complementary technical appendices as appropriate. Key assumptions used in qualitative analyses are described for those sections that do not rely on quantitative tools.

- *Significance Criteria.* This subsection presents the criteria and thresholds used to identify potentially significant effects on the environment, in accordance with California Public Resources Code (PRC) Section 21082.2 and CEQA Guidelines Sections 15064 and 15065. "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 and are therefore not discussed in detail in this document (PRC Section 21100 and CEQA Guidelines Section 15128).

The following subsections are also presented in the Environmental Consequences section for each issue area:

- *Summary of Impacts Table.* At the beginning of the Impacts and Mitigation Measures subsection is a table that identifies all the impacts evaluated for that particular environmental issue area (Land Use, Fishery Resources, etc.). Included in this summary table are the various levels of significance (i.e., No Impact, Less than Significant, Significant) for the alternatives associated with the Proposed Project, including the No-Action Alternative. To enhance readability, the tables provide additional columns that describe what the level of significance would be after mitigation is implemented.

- *Impacts.* At the end of each impact statement heading, the impact significance determination (i.e., No Impact, Less than Significant, Significant) is provided for each alternative evaluated. Following the impact statement, a detailed impact analysis is provided for each alternative that is fully evaluated in the EA/DEIR. In instances where the effects of one alternative are similar to another alternative, redundant impact analysis is not presented; rather a simple statement to the effect that the impacts of the two alternatives are similar is provided. An example of the impact analysis structure is provided below.

Table 7.2-2. Summary of Potential Land Use Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.2-1. Implementation of the project could disrupt existing land uses adjacent to the project site.				
No Impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

Impact 7.2-1: Implementation of the project could disrupt existing land uses adjacent to the project site. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative…

Proposed Project

Construction and maintenance of the Proposed Project…

Alternative 1

Land use impacts associated with Alternative 1 are similar to those of the Proposed Project…

Mitigation

Potentially feasible mitigation measures that would reduce significant impacts associated with each of the alternatives to less-than-significant levels are provided after each impact discussion. Consistent with Reclamation's NEPA requirements, mitigation measures can also be viewed as environmental commitments. If any instances arise where no feasible mitigation can be identified, such impacts are identified as significant and unavoidable. Similar to the organization presented in Chapter 4, an alphanumeric coding system is used to present each mitigation measure. For example, Mitigation Measure 1 would correspond to the first impact statement listed in the impact discussion. Following the mitigation measure(s) is a subheading entitled "Significance After Mitigation" that identifies the level of significance following implementation of the prescribed mitigation measure(s). In those instances where no mitigation measures were proposed because the impact was not significant, a "Not Applicable" statement follows this subheading. An example of the mitigation measures structure is provided below.

Mitigation Measures

No-Project Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project

7.2-1a Reclamation shall clearly identify all ...

Alternative 1

7.2-1a Reclamation shall clearly identify all ...

Significance after Mitigation

Less than significant

SECTION 7.2

Land Use

7.2 Land Use

This section describes existing and planned land uses in the vicinity of the Remaining Phase 1 sites and evaluates the potential impacts to land uses from implementation of the Proposed Project and its alternatives at the Remaining Phase 1 sites.

7.2.1 Affected Environment/Environmental Setting

Existing Land Uses

As discussed in section 4.2, existing land uses typical of the Remaining Phase 1 sites are primarily residential, resource, recreation, and open space. Both private and public land ownership occurs in the Remaining Phase 1 project area. Public land in and adjacent to the Remaining Phase 1 sites is primarily used for resource management and recreation. Remaining Phase 1 sites in the Lewiston Community Plan area are located north of SR 299 and adjacent to local roads. Remaining Phase 1 sites in the Douglas City Community Plan area are located in close proximity to SR 299 and SR 3, and are adjacent to local roads (Figure 1-2).

As noted in section 4.2, the reaches of the Trinity River located within the Remaining Phase 1 sites are used by anglers, rafters, wildlife watchers, and tourists. The river is accessible at several public and private locations throughout the Remaining Phase 1 sites, notably at the Rush Creek River Access, the Steel Bridge Day Use Area, and the Douglas City Campground.

Table 7.2-1 characterizes the land ownership and land use zoning districts that apply to each of the Remaining Phase 1 sites.

Table 7.2-1. Land Ownership and Use in the Remaining Phase 1 Project Boundaries

Site	Area of Site (Acres)	Public Ownership (Acres)	Private Ownership (Acres)	Land Use Zoning Districts
Sawmill (SM)	103.4	89.6	13.8	Resource Rural Residential Open Space
Upper Rush Creek (UR)	92.3	5.8	85.7	Resource Rural Residential Open Space Commercial
Lowden Ranch (LR)	186.4	182.6	3.8	Resource Rural Residential Open Space
Trinity House Gulch (THG)	43.7	29.0	14.7	Rural Residential Resource Open Space

Table 7.2-1. Land Ownership and Use in the Remaining Phase 1 Project Boundaries

Site	Area of Site (Acres)	Public Ownership (Acres)	Private Ownership (Acres)	Land Use Zoning Districts
Steel Bridge Day Use (SB)	22.4	22.2	0.2	Rural Residential Resource
Reading Creek (RC)	135.8	67.3	68.5	Community Development Rural Residential Open Space

Local Planning

Trinity County General Plan Land Use Designations

The Trinity County General Plan (Trinity County 2003) is discussed in Chapter 4.2. Under this plan, lands within the Remaining Phase 1 site boundaries fall within the following five land use categories: Community Development, Resource, Rural Residential, Open Space, and Commercial. The County has established zoning districts that provide an additional level of specificity for planning purposes. For a detailed discussion of Trinity County General Plan land uses and definitions, refer to the Master EIR (section 4.2, Table 4.2-1).

Community Plans

The Remaining Phase 1 sites are located within the Lewiston Community Plan and Douglas City Community Plan planning areas. These community plans are discussed in the Master EIR (section 4.2).

Land Uses Associated with the Remaining Phase 1 Rehabilitation Sites

Rehabilitation Sites in Lewiston

Four of the Remaining Phase 1 sites (SM, UR, LR, and THG) are encompassed by the Lewiston Community Plan area. The SM and UR sites are in the Rush Creek Road and Goose Ranch Road neighborhoods. The Rush Creek Road neighborhood parallels the river to the north (right side of the river). The Rush Creek Road area located in and adjacent to the SM and UR sites is primarily Rural Residential with minimal parcel sizes ranging from 1–5 acres. The Goose Ranch Road neighborhood parallels the river to the south (left side of the river). Most of the parcels in this neighborhood that are adjacent to the SM and UR sites have direct river access and are zoned Rural Residential, with 2.5- to 5-acre minimum parcel sizes. The LR and THG sites are located in the Old Lewiston Road neighborhood. This area generally consists of agriculture, resource, and residential land uses, with parcel sizes varying from 5–40 acres.

Sawmill

The SM site is primarily comprised of publicly owned land managed for resource uses and recreation by Reclamation and CDFG. A few private parcels are used for residences at the downstream end of the site

on both the left and right sides of the river. No structures or buildings are present within this project site boundary.

Land use zoning districts at this site include Rural Residential and Open Space. Portions of the site in the 100-year floodplain have been designated as "Zone AE" and "Zone X" Flood Hazard Area by FEMA. The areas in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones, thereby restricting development.

Upper Rush Creek

The UR site is primarily comprised of private land used for residential purposes, but has one commercial user (the Trinity River Lodge). Riparian vegetation has been removed in much of this area and has been replaced with lawns and gardens associated with residential use. Some structures are present at this site. BLM manages the portion of this site where the Rush Creek River Access is located (the right side of the river adjacent to Rush Creek Road).

Land use zoning districts at this site include Rural Residential, Commercial, Flood Hazard, Scenic Conservation, and Open Space. Portions of the site in the 100-year floodplain have been designated as "Zone AE" and "Zone X" Flood Hazard Area by the FEMA. The areas in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones.

Lowden Ranch

The LR site is primarily comprised of public lands managed by BLM and DWR. Land managed by BLM covers a large portion of the site, stretching from Lewiston Road (south) across the river to an area above Browns Mountain Road (north). The DWR manages 90 acres of land abutting Grass Valley Creek and the Trinity River. Private land is located at the upstream and downstream ends of the site. Private land at the upstream end of the site includes Bucktail Subdivision (right side of the river), which consists of residential parcels of 1 acre or larger, and residential parcels on the left side of the river that are 5 acres or larger. A few large residential and agricultural parcels are located at the downstream end of the site. No structures are located at the site.

Land use zoning districts at the LR site include Rural Residential, Agriculture, Scenic Conservation, Open Space, and Flood Hazard. Portions of the site in the 100-year floodplain have been designated as "Zone AE" and "Zone X" Flood Hazard Area by FEMA. The areas in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones.

Trinity House Gulch

The THG site is primarily comprised of public land managed by BLM. Private lands are located at the upstream portion of the site on both sides of the river. Private land uses in and adjacent to this site consist of residential and agricultural land uses. No structures are present at this site.

Land use zoning districts at this site include Agriculture, Rural Residential, Scenic Conservation, Open Space, and Flood Hazard. Portions of the site in the 100-year floodplain have been designated as "Zone

AE" and "Zone X" Flood Hazard Area by FEMA. The areas in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones.

Rehabilitation Sites in Douglas City

Two Remaining Phase 1 sites (SB and RC) are encompassed by the Douglas City Community Plan area. The SB site is located adjacent to the Steel Bridge Road neighborhood, which is characterized as a riverbank community with residential and resource land uses. Parcel sizes in this neighborhood vary from 3–20 acres. The RC site is located adjacent to the Community Core neighborhood, which consists of a variety of land uses including public services, commercial, mobile home parks, and single family residential.

Steel Bridge Day Use

The SB site is primarily comprised of public land managed by BLM, and coincides with the recreational development known as the Steel Bridge Day Use Area. This site is not included within a discrete zoning district. BLM's recreational area extends upstream beyond the site boundary. Private land is located within the center of the site, and is adjacent to Steelbridge Road. There are no residences located within the site; however, there are several residences immediately downstream of the site. Several structures associated with recreation uses exist at the SB site.

Reading Creek

Public lands within the RC site are managed by BLM for recreation, as are some areas of private land in the upstream portion of the site. BLM manages the Douglas City Campground along the right side of the river. Private land uses in and adjacent to the site include single-family residences and a mobile home park located at the upstream portion of the site on both sides of the river. Dredge tailings and berms are present at this site, along with some ponds in previously excavated areas. Several structures exist at this site.

Land use zoning districts at the RC site include Rural Residential, Commercial, Mobile Home Park, Scenic Conservation, Open Space, and Flood Hazard. Portions of the site in the 100-year floodplain have been designated as "Zone AE" and "Zone X" Flood Hazard Area by the FEMA.

Trinity County Zoning

The Trinity County Zoning Ordinance is discussed in section 4.2, Land Use and Trinity County zoning districts that apply to lands within the site boundaries are identified in Table 4.2-2. As discussed in section 4.2, all areas in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones. Land zoned as Timber Harvest, Ag Forest, and Agriculture exists adjacent to these sites; however, no timber production or agricultural activities extend into the sites, nor do these sites contain any lands designated as Prime Farmland, Unique Farmland, or Farmlands of Statewide Importance.

Detailed descriptions of Trinity County zoning districts can be found in section 4.2, Table 4.2-3.

Proposed Land Uses

Public lands within and adjacent to the Remaining Phase 1 sites are managed by federal, state, or local agencies according to resource and recreation goals and policies. In general, privately owned parcels within and adjacent to these sites have been subdivided to the fullest extent possible under existing zoning designations. Figures 7.2-1a-f illustrate the land ownership pattern for each site. Therefore, future rural residential development on the uplands, above the river's floodplain, would be minimal. Future development is further restricted by the proximity of parcels to the Trinity River; many of these parcels are zoned Flood Hazard and Open Space. Proposed project activities would not result in any changes that would conflict with future proposed land uses.

7.2.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.2-2 summarizes land use impacts that could result from implementation of the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 7.2-2. Summary of Potential Land Use Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.2-1. Implementation of the project could disrupt existing land uses adjacent to the project sites.				
No Impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.2-2. Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the DWR Hamilton Ranch Management Plan, the Trinity County General Plan, or other local community plans, policies, and ordinances.				
No Impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.2-3. Implementation of the project may affect the availability of a locally important mineral resource recovery site.				
No Impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.2-1: Implementation of the project could disrupt existing land uses adjacent to the project site. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no restoration activities would occur at any of the Remaining Phase 1 sites. Therefore, there would be no impact.

Proposed Project

The Proposed Project would not introduce a new land use within the boundaries of the Remaining Phase 1 sites, nor would it obstruct the water conveyance functions of the 100-year floodplain. Project activities that aim to restore floodplain functions would have long-term benefits for many land uses that are located along the Trinity River.

The Proposed Project is designed to minimize short-term disruptions to the communities of Lewiston and Douglas City that could occur because of rehabilitation activities at the Remaining Phase 1 sites. Construction and staging areas would be located in and adjacent to the 100-year floodplain, which is designated as a Scenic Conservation overlay and is generally free of development. Much of the construction and most staging areas would be located on state or federal lands within these sites. Rehabilitation activities and river access would also occur on private lands within and adjacent to these sites. Staging, construction, and access on private lands in and adjacent to the site boundaries would require landowner approval. Residential and commercial development located within or near these sites is typically outside the areas of direct impact associated with the Proposed Project, and is generally located on uplands outside the 100-year floodplain.

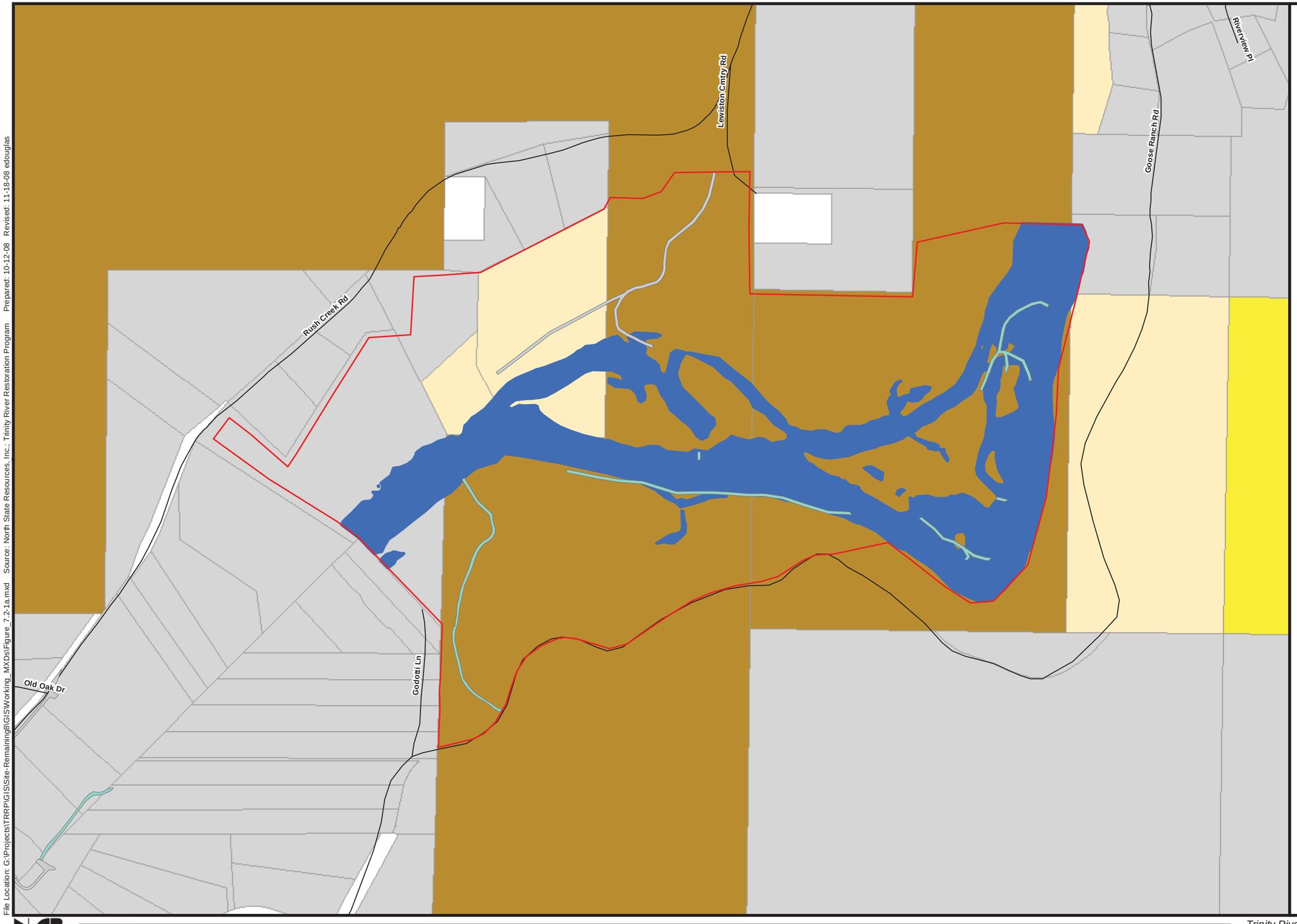
The following paragraphs discuss each of the Remaining Phase 1 sites and the adjacent land uses.

Sawmill

Project staging and construction activities at the SM site would occur in close proximity to several residences; however, project activities would not interfere with, preclude, or conflict with adjacent land uses. Staging areas for this site would be located primarily on Reclamation and CDFG lands on the right side of the river and adjacent to Lewiston Cemetery Road. One staging area would be located on private land in the 100-year floodplain that is designated as Open Space. The majority of upland restoration would occur on state and federal lands. A small portion of upland restoration would occur on private land in the 100-year floodplain. The upland activity areas identified as U-1 SM and U-2 SM would be located near several residences that are situated between Rush Creek Road and Lewiston Cemetery Road.

Upper Rush Creek

Project staging and construction activities at the UR site would occur in close proximity to several residences and a resort; however, project activities would not interfere with, preclude, or conflict with adjacent land uses. This site includes the highest proportion of private land of all the Remaining Phase 1 sites, as well as several parcels managed by BLM. Staging areas would be located on the right side of the river on BLM parcels (e.g., parking area) and on vacant private land in the 100-year floodplain. The staging areas on private land would be partially screened from nearby residences by vegetation. Upland restoration proposed for this site would be located near residences. The activity area identified as U-1 UR would be located between BLM's parking area and the adjacent residence. This residence is partially

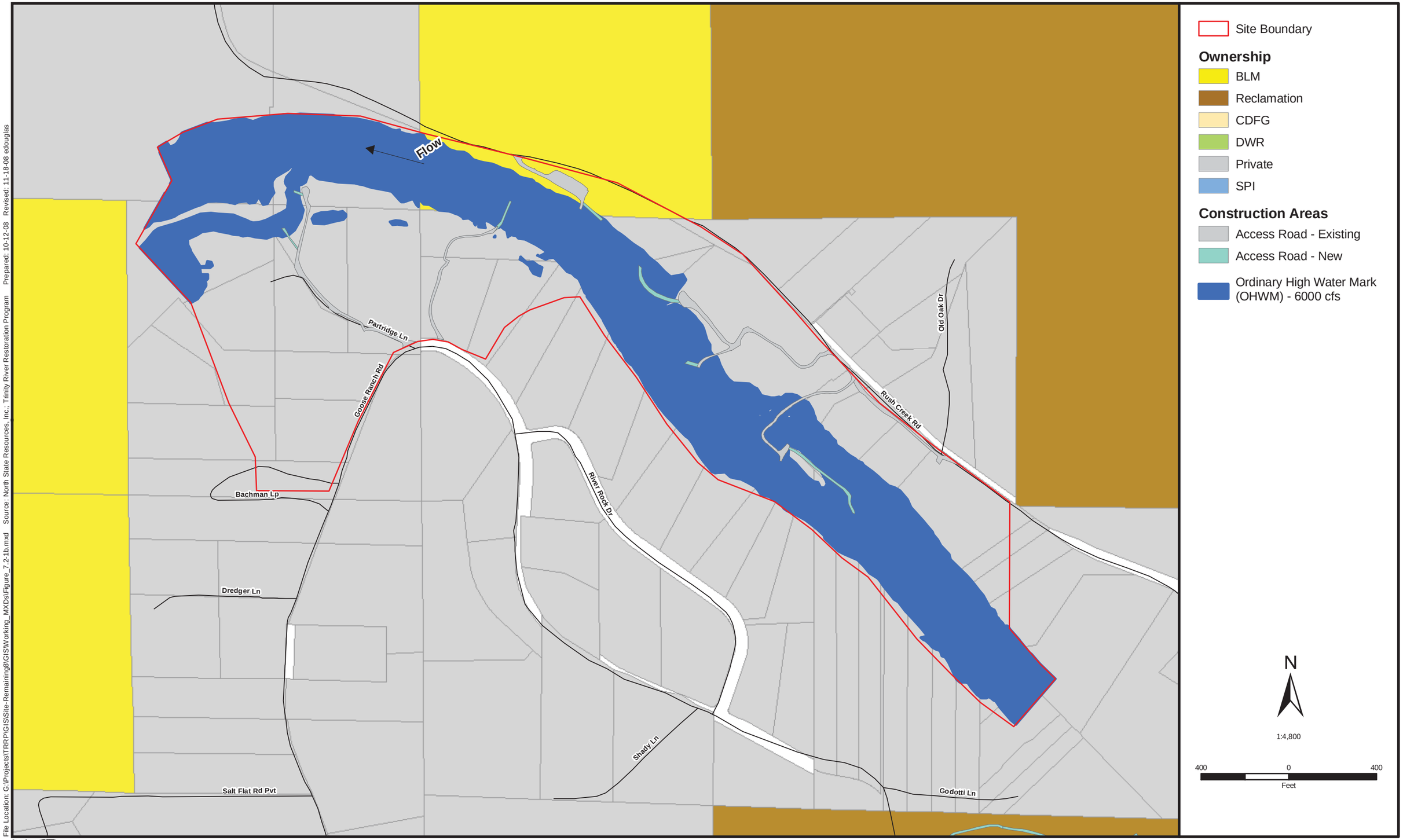


File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.2-1a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.2-1a
Sawmill - Land Ownership

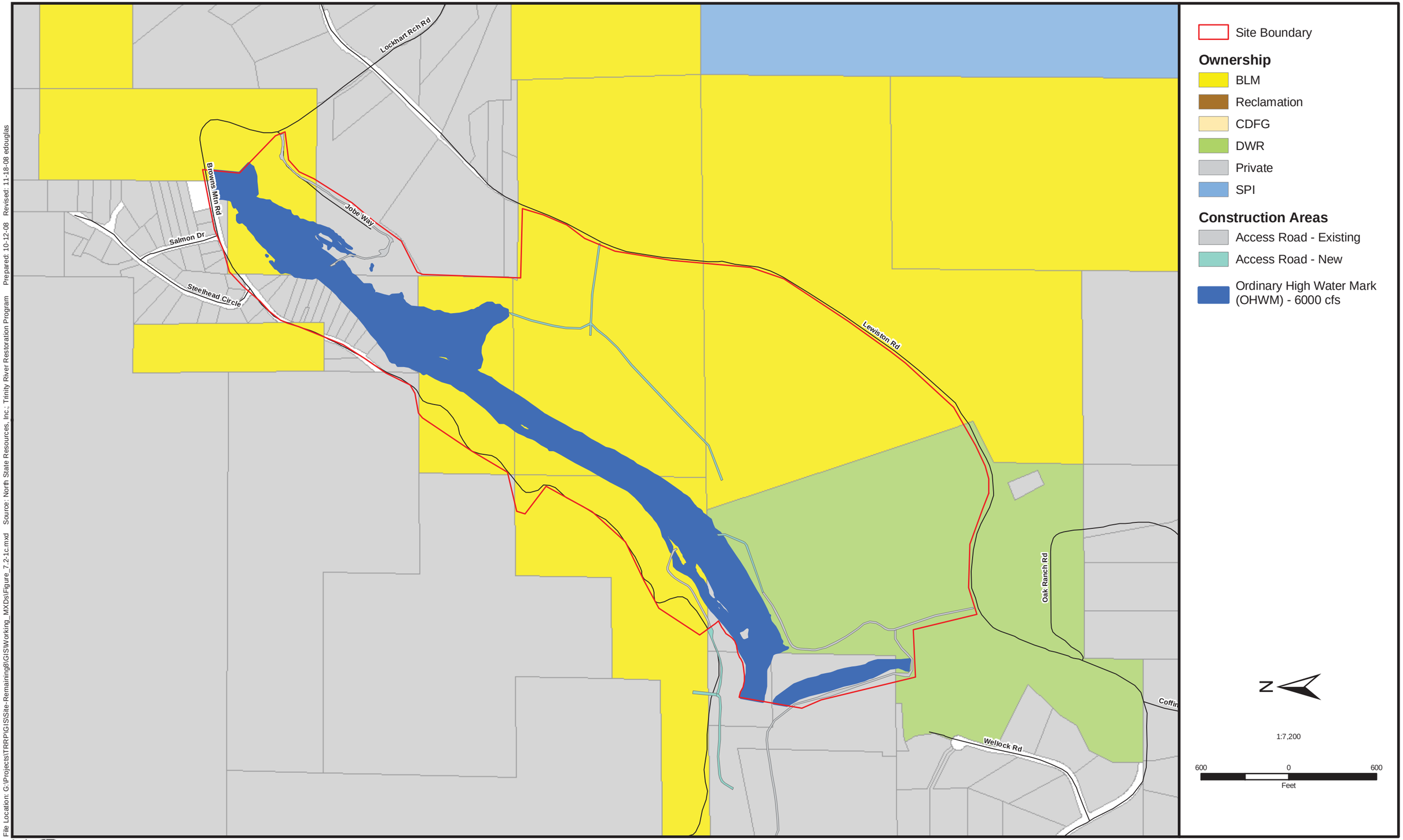


File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.2-1b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.2-1b
Upper Rush Creek - Land Ownership

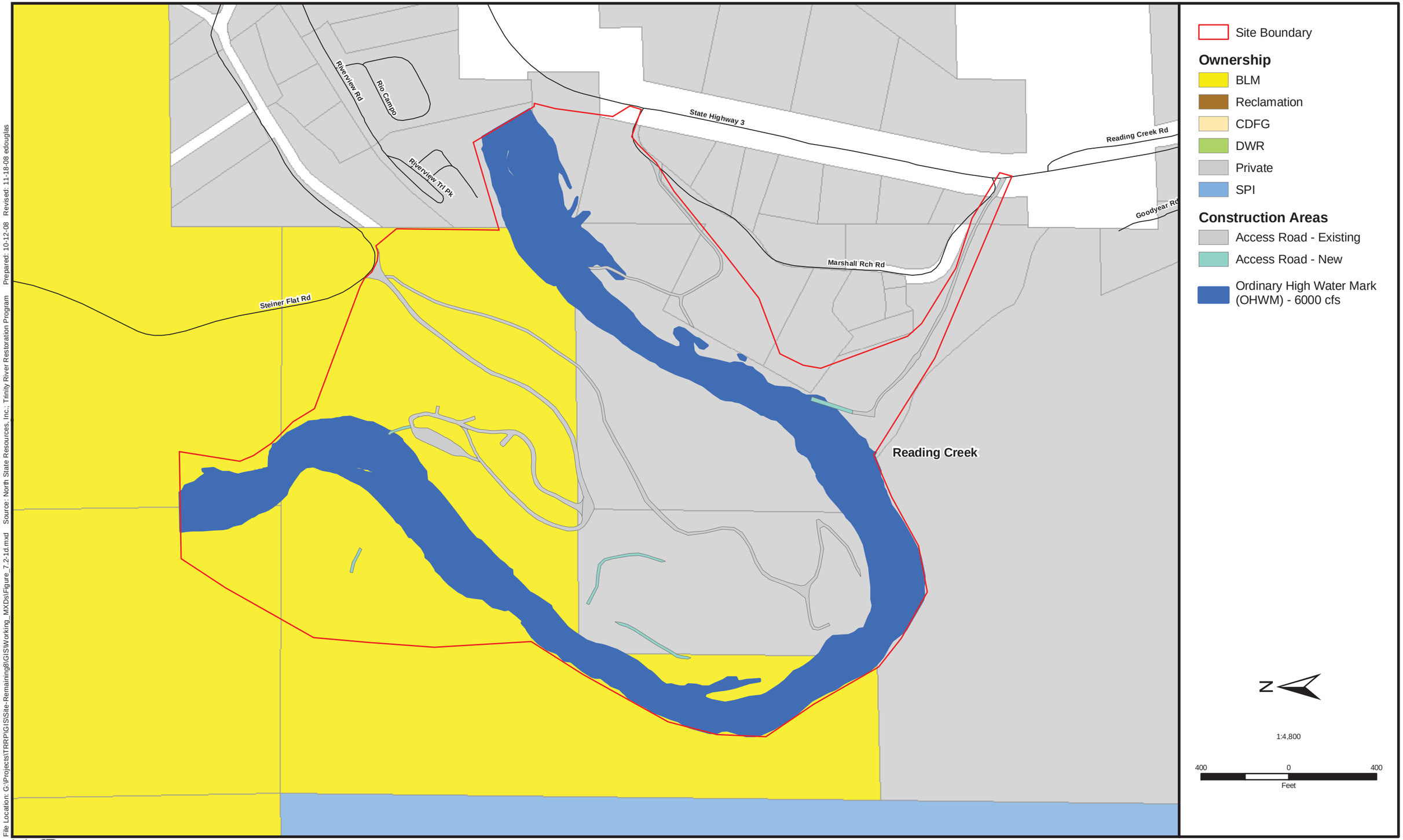


File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.2-1c.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.2-1c
Lowden Ranch - Land Ownership

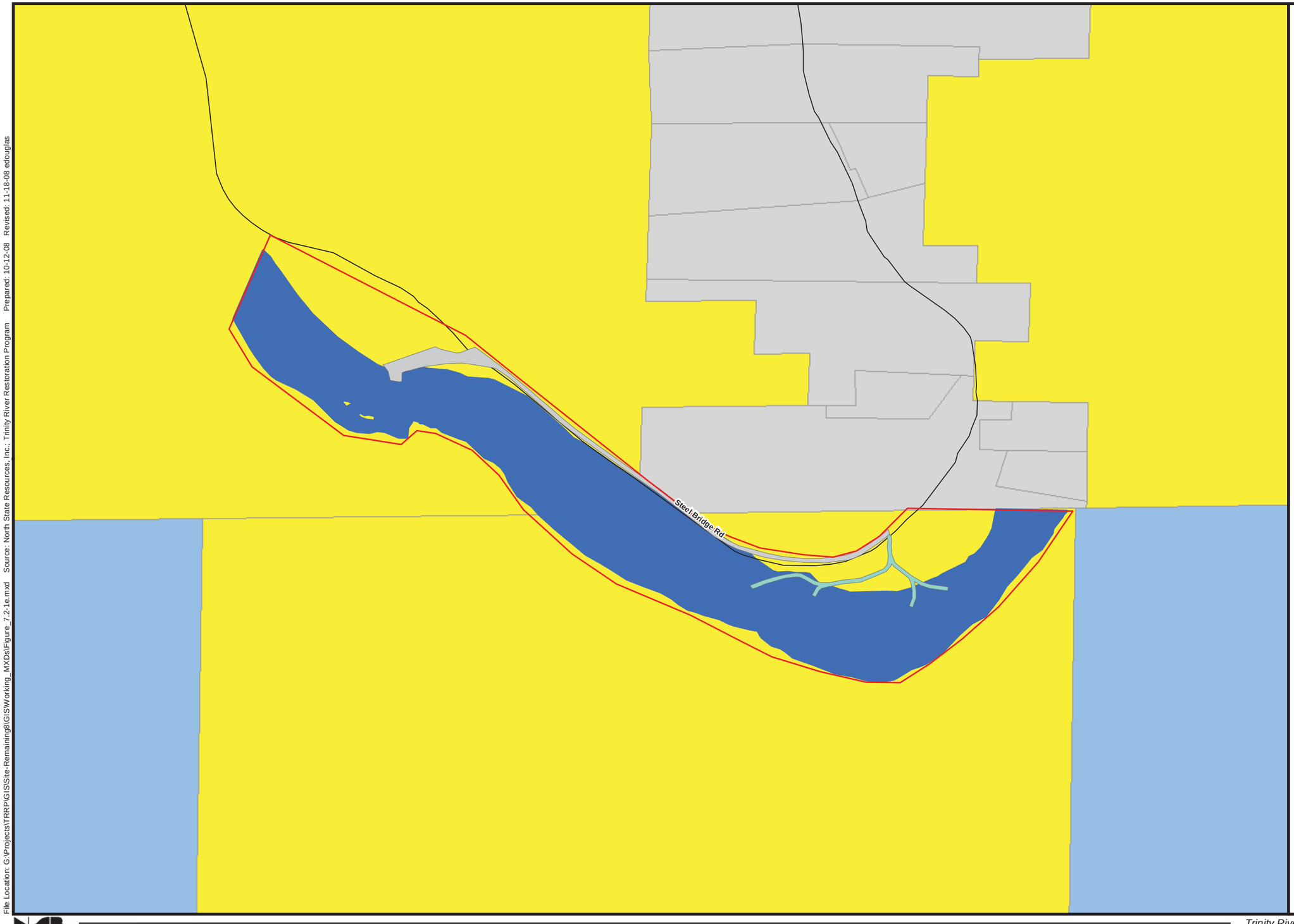


File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.2-1d.mxd Source: North State Resources,Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.2-1d
Trinity House Gulch - Land Ownership



Site Boundary

Ownership

- BLM
- Reclamation
- CDFG
- DWR
- Private
- SPI

Construction Areas

- Access Road - Existing
- Access Road - New
- Ordinary High Water Mark (OHWM) - 6000 cfs

N

1:3,600

300 0 300

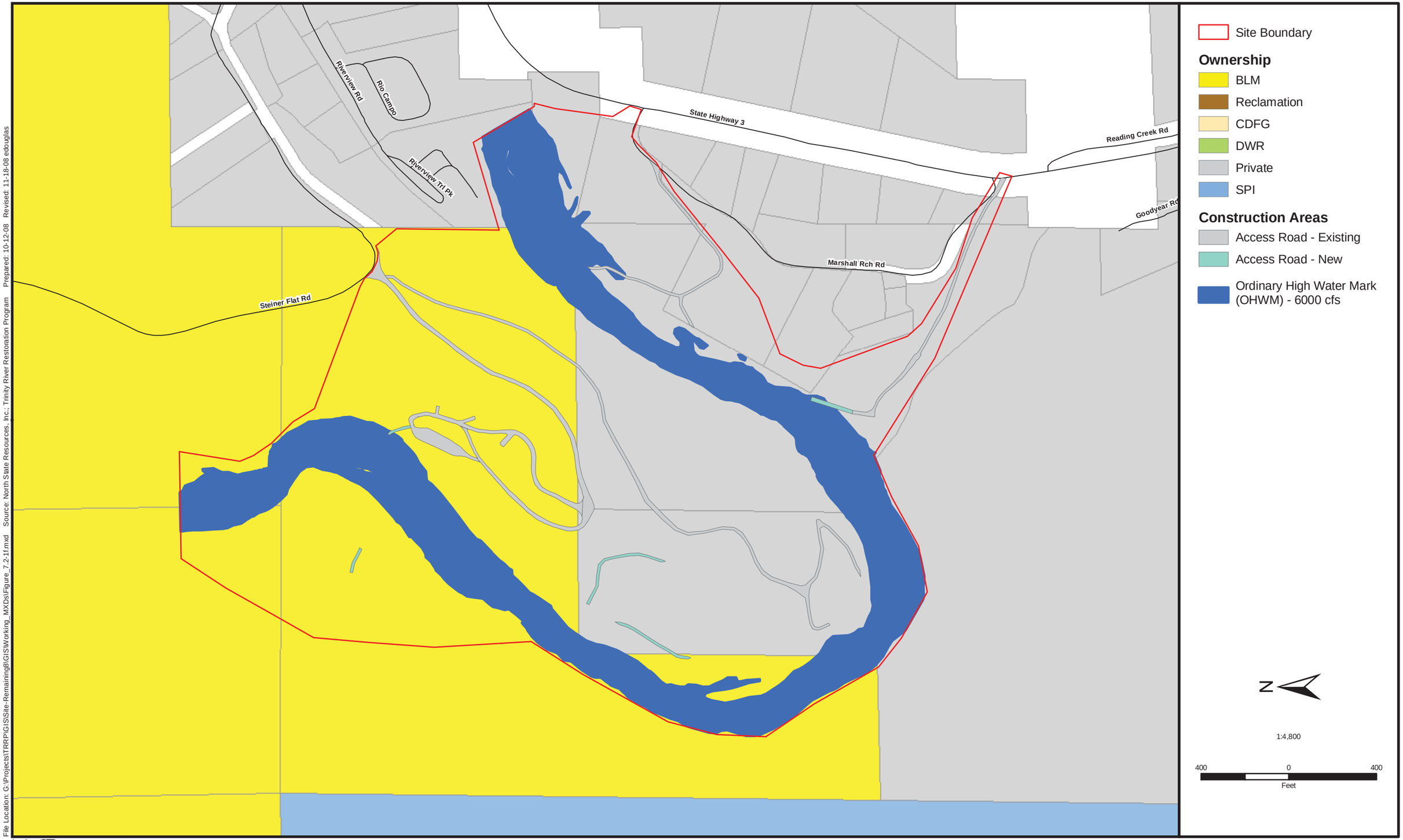
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7.2-1e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.2-1e
Steel Bridge Day Use - Land Ownership



File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.2-1f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.2-1f
Reading Creek - Land Ownership

buffered by vegetation. Activity area U-2 UR would be located on vacant land adjacent to Rush Creek Road. The nearest residence, located to the southeast, would be buffered by vegetation and the next nearest residence to the southwest would be partially buffered by vegetation.

Lowden Ranch and Trinity House Gulch

Project staging and construction activities at the LR and THG sites would occur in close proximity to several residences and near agricultural lands; however, project activities would not interfere with, preclude, or conflict with adjacent land uses. Staging areas for these sites would be located on BLM parcels to avoid impacts to residential and commercial land uses. Some upland activity would occur near a residence at activity areas U-1 LR and U-2 LR. Upland activities would occur in an open field; however, the nearby residence is buffered by vegetation. Instream channel activities would occur adjacent to the Bucktail Subdivision. Riparian vegetation provides a buffer for the majority of the in-channel activity areas located adjacent to the residences in the Bucktail Subdivision. These activity areas include IC 1LR, IC-2 LR, IC-3LR, and a portion of R-1 LR. In-channel activities proposed for the THG site would be located approximately 500 feet from the nearest residences. A large sloping field and vegetation separates these areas from nearby residences located on the left side of the river.

Steel Bridge Day Use

Project staging and construction activities at the SB site would occur in a recreation area and in close proximity to a few residences; however, project activities would not interfere with, preclude, or conflict with recreation activities upstream of the site or adjacent residential land uses. Staging areas would be located on BLM parcels near the upstream boundary of the site. One of the staging areas would be relatively close to the adjacent residence (approximately 150 feet) due to topographical constraints of this site. Additionally, the staging areas were placed within the boundary of activity area R-1 SB to reduce the direct impacts to the land and biological communities and to reduce the impacts on non-renewable resources such as fuel. The staging area adjacent to the private parcel would be buffered from the residence by vegetation. Construction activities involving the south portion of BLM's day use area would temporarily preclude some recreation activities; however, the north portion of BLM's day use area would be open for recreation use while construction activities occur. Impacts associated with recreation are discussed in sections 4.8 and 7.8, Recreation.

Reading Creek

Project staging and construction activities at the RC site would occur in close proximity to several residences, a mobile home park, and BLM's Douglas City Campground; however, project activities would not interfere with, preclude, or conflict with adjacent land uses and would only have a temporary affect on recreational facilities located within the site. Staging areas would be located primarily on BLM parcels associated with the campground. One staging area would be located on private land on the left side of the river in a vacant field near SR 3 and Marshall Road.

Based on the analysis above, potential conflicts with or disruptions to adjacent land uses resulting from activities associated with Proposed Project at the Remaining Phase 1 sites would be temporary and less than significant.

As discussed in sections 4.16 and 7.16, Transportation and Traffic, no road closures would result from implementation of the Proposed Project at these sites. As described in Chapter 2, access to adjacent residences would be maintained during project construction and post-construction monitoring activities. However, access to adjacent residences could be temporarily disrupted (minor delays or detours) during deployment of heavy equipment to and from the rehabilitation sites.

Temporary disruption of public access to the river could occur at a number of Remaining Phase 1 sites (e.g., Rush Creek River Access, Steel Bridge Day Use Area, and Douglas City Campground), but the duration would be limited. Activities proposed at the Remaining Phase 1 sites would be implemented over the course of 3– 5 years and would not preclude access from nearby access points, located several miles upstream and downstream of these sites. For example, while Remaining Phase 1 activities may be implemented at the UR site, river access would still be available at the Old Lewiston Bridge and Bucktail river access points. Therefore, the impact would be less than significant.

Construction activities in the river channel could interrupt adjacent land uses for short periods; but they would not preclude the use of businesses or residences. Construction and transportation associated with the Proposed Project could produce minor nuisance effects (i.e., noise, air quality, and aesthetics) at some nearby residences; however, such impacts would be temporary and would not significantly affect the ability to use adjacent lands. Project impacts associated with noise, air quality, and aesthetics are discussed in sections 4.16 and 7.16, sections 4.11 and 7.11, and sections 4.14 and 7.14, respectively.

Alternative 1

Like the Proposed Project, there would be no long-term land use impacts under Alternative 1. In general, long-term and temporary land use impacts related to Alternative 1 would be similar to those under the Proposed Project. However, the extent of such impacts would be less under Alternative 1 because of smaller areas of disturbance and smaller project areas at five of the Remaining Phase 1 sites. There is no distinction between the Proposed Project and Alternative 1 at the SM site.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.2-2: Implementation of the 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 impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the proposed Remaining Phase 1 rehabilitation activities would not occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

Implementation of activities proposed under the Proposed Project and Alternative 1 at the Remaining Phase 1 sites would not introduce land uses that are incompatible with existing or proposed land uses, nor would rehabilitation activities conflict with any land use plan, policy, or ordinance. This impact would be the same as Impact 4.2-2 discussed in section 4.2.2. Therefore, the impacts would be less than significant.

Appendix A documents the determination that the activities proposed at the Remaining Phase 1 sites would be consistent with the ACS. The discussion provided for Impact 4.2-2 in section 4.2.2, Land Use summarizes the project's consistency with federal, state, and local plans, policies, and ordinances.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.2-3: Implementation of the project may affect the availability of a locally important mineral resource recovery site. ***No impact for the No-Project Alternative, less than significant for the Proposed Project and Alternative 1***

No-Project Alternative

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

Proposed Project and Alternative 1

There are no locally important mineral recovery sites located within or adjacent to the Remaining Phase 1 sites, or within 10 river miles of the project boundaries. Although there are properties that may have some ongoing mineral recovery efforts, the TRRP has worked closely with the mining community to locate site boundaries in a manner that minimizes any mineral recovery efforts. Therefore, both the Proposed Project and Alternative 1 would have a less-than-significant impact.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.3

Geology, Fluvial Geomorphology, Minerals, and Soils

7.3 Geology, Fluvial Geomorphology, Minerals, and Soils

This section describes geologic, fluvial geomorphic, and soils resources in the vicinity of the Remaining Phase 1 rehabilitation sites and evaluates the potential impacts to these resources from implementation of the Proposed Project or its alternatives at the Remaining Phase 1 sites.

7.3.1 Affected Environment/Environmental Setting

Geology of the Remaining Phase 1 Sites

Sawmill

The Copley Greenstone is exposed along both sides of the channel in the SM site and presumably underlies the entire site. Granitic rocks are exposed south of the site boundary; however, the extent of this exposure is obscured by the terrace deposits that extend over most of the site on both sides of the river. The Copley Greenstone is considered stable and erosion-resistant, and the granitic rocks are considered highly-erodible. Typically soil disturbance on granitic terrain will likely have higher rates of subsequent erosion than disturbance activities on metamorphic terrain (e.g., Copley Greenstone).

Upper Rush Creek

At least three geologic units occur within the boundaries of the UR site. The aerial extent of each unit within this site is unknown because they are covered by modern alluvial deposits on both sides of the river. The underlying geology appears to have a complex spatial relationship, and it is likely that the boundaries between these units are highly variable. Granitic rocks are located near the western project boundary. The metasediment and sedimentary rocks of the Bragdon Formation and the metamorphosed pyroclastic rocks of the Copley Greenstone have mixed exposure along the north and south banks of the Trinity River. The Copley Greenstone is the most erosion-resistant, followed by the Bragdon Formation, and granitic rocks, respectively. Therefore, rehabilitation activities in granitic terrain will likely have higher rates of subsequent surface erosion than rehabilitation activities in the Copley Greenstone or Bragdon Formation.

Lowden Ranch

Several geologic units occur within the boundaries of the LR site. Broad, flat terrace deposits covered with modern alluvial deposits extend over a majority of the area. The modern alluvial deposits along the south bank of the river are likely underlain by the thinly-bedded shale of the Bragdon Formation on the western portion of the site. Granitic rocks are evident along the eastern portion of the site, and the Copley Greenstone is exposed along the right bank of the Trinity River. Because a majority of the rehabilitation activities could occur on the left bank of the river, the landforms influenced by these geologic units may inhibit access to some uplands activities such as staging. Of the three geologic units that occur, the Copley Greenstone is considered the most resistant to erosion, followed by the Bragdon Formation, and granitic rocks.

Trinity House Gulch

Even though the THG site is immediately downstream and adjacent to the LR site, the bedrock geology of the two sites varies. The THG site is underlain by Abrams Mica Schist along the right bank of the Trinity River and by the sedimentary deposits of the Weaverville Formation along the left bank. A small intrusion of ultrabasic intrusive rock is exposed along the left bank of the river, serving as a grade control in this reach. A broad floodplain covered with modern alluvial and remnant glacial deposits covers a majority of the project site and obscures the aerial extent of these geologic units. Since a majority of the rehabilitation activities would occur in association with the modern alluvial deposits, the presence, exposure, and extent of the underlying geologic units should not be limiting factor, other than activities related to road and staging areas. Of the three geologic units, the Abrams Mica Schist is considered the most resistant to erosion, followed by the Weaverville Formation and the ultrabasic deposits, respectively.

Steel Bridge Day Use

The entire SB site is underlain by the moderately-erodible rocks of Abrams Mica Schist. The Abrams Mica Schist is considered moderately erodible, but layers of less competent rock may exist within the unit.

Reading Creek

The entire RC site is likely underlain by Abrams Mica Schist. However, this cannot be verified because exposure within the site boundary is obscured by the presence of modern alluvial deposit, including extensive dredge tailing along the river. The Abrams Mica Schist is considered moderately erodible, but layers of less competent rock may exist within the unit.

Regional/Local Fluvial Geomorphology

A discussion of the regional and local fluvial geomorphology is discussed in the Master EIR (section 4.3).

Fluvial Geomorphology – Remaining Phase 1 Sites

The geomorphic environment of the Remaining Phase 1 sites is directly affected by the hydrology, channel bed composition, sediment regimes, and riparian vegetation at these six sites. Each site contains a number of distinct morphological features that depend on a variety of physical processes to maintain their fundamental structure. Modification of the channel and floodplain configurations within these sites has altered and simplified the natural diversity of geomorphic processes and products; hence, limiting the variety of channel forms, habitats, and vegetation structures.

Extensive modification of historic and modern alluvial landforms within these sites is evident by the aerial extent of channel modifications resultant from historic mining and, more recently, impacts related to the TRD. A comprehensive discussion of these modifications is provided in section 7.10, Cultural Resources. Geomorphic features that were modified directly or indirectly by human intervention account for approximately 56 percent of the total area within the site boundaries, primarily modified terrace deposits. Table 7.3-1 provides a summary of the geomorphic features for each site. Based on the area of

human disturbance, it is apparent that human intervention has altered the morphology, to varying degrees at each of the sites.

Table 7.3-1. Area of Remaining Phase 1 Sites Occupied by Selected Geomorphic Features

Geomorphic Feature	Sawmill (acres)	Upper Rush Creek (acres)	Lowden Ranch (acres)	Trinity House Gulch (acres)	Steel Bridge Day Use (acres)	Reading Creek (acres)	Total (acres)
Vegetated Riparian Berm*	1.58	0.21	0.21	0.83	0.78	3.81	7.42
Delta	0.00	0.20	0.20	0.43	0.00	0.19	1.02
Floodplain	1.26	9.02	19.92	2.87	3.73	7.57	44.37
Levee*	0.00	0.00	1.54	0.45	0.00	0.00	1.99
Modified Floodplain*	8.98	0.00	0.00	0.00	0.00	0.00	8.98
Modified Terrace*	52.26	48.59	157.09	14.90	3.24	50.52	326.60
Point Bar	0.20	0.21	0.41	0.20	0.09	0.82	1.93
Rip-rap*	0.00	0.35	0.00	0.00	0.00	0.00	0.35
Tailings Piles*	5.33	0.44	1.18	0.44	0.00	5.06	12.45
Terrace	0.86	0.76	0.29	0.59	2.19	9.40	14.09
Upland Hillslope	23.36	13.36	17.39	17.67	4.87	43.31	119.96
Water	9.56	18.40	13.56	5.30	7.58	14.45	68.85
Total	**103.39**	**91.54**	**211.79**	**43.68**	**22.48**	**135.13**	**608.01**

* = Human induced geomorphic feature

Site-Specific Fluvial Geomorphology

Sawmill

Modified terrace deposits dominate the geomorphic features of the SM site and occupy both sides of the river (Figure 7.3-1a). This section of the river contains two obvious meanders. The furthest upstream meander is an abrupt ninety-degree bedrock-controlled feature that redirects the river from the west to the north. A second bedrock controlled meander (Trinity River Restoration Program 2007) is located approximately 2,000 feet downstream and redirects river flow slightly towards the west. The river banks between these meanders are dominated by riparian berms, primarily in the northern half of the reach. The river is confined by steep slopes along the left bank throughout most of the site. The dominant feature along the right bank is the Cemetery Side Channel Complex, which is a series of side channels that were constructed by Reclamation during the 1980s. This construction project excavated dredge tailings and placed them adjacent to the constructed side channel, intermittently entrenching it. Excavated dredge tailings were also used to construct in-stream grade control structures in the main channel of the Trinity River parallel to the constructed side channel complex. These structures are oriented perpendicular to streamflow and span the width of the channel. Four grade control structures are still visible on aerial photographs of the site. Dredge tailings also occupy a large area in the uplands to the west of the

upstream extent of this side channel complex. Of the Remaining Phase 1 sites, the SM site contains the largest area covered by tailings, approximately 5 acres.

The SM site shares a common site boundary with the UR site. These sites are hydrologically associated due to their spatial proximity to one another. The post-TRD hydrology of the Trinity River and historic rehabilitation efforts have formed the current geomorphic environments at both sites. Any alteration of hydrologic regime at the SM site will likely affect the UR site over time.

Upper Rush Creek

The UR site occupies the upstream portion of a large-scale meander of the Trinity River (Figure 7.3-1b). The downstream boundary of the site coincides with the confluence of Rush Creek and the Trinity River, where extensive series of deltaic deposits persist. Floodplain deposits occupy both sides of the active channel in the upstream portion of the site, but the width of the active channel increases as it approaches the Rush Creek delta. The delta at the mouth of Rush Creek functions as a hydraulic control, influencing the large glide that extends approximately 2,000 feet upstream into the site. This low gradient feature lacks sinuosity but offers complexity in the form of islands, side channels, and riparian wetlands. In the 1980s, Reclamation modified the Rush Creek delta by constructing a side channel along the left bank downstream, almost to Salt Flat. The original intent of this side channel was to enhance the off-channel rearing habitat below the Rush Creek delta. Its functionality has diminished over time and ongoing fluvial processes have resulted in the reforming of the deltaic features, preventing the river from occupying this side channel during typical baseflow conditions.

The UR site includes a number of residences, recreational facilities, and roads. Some of these improvements are located below the OHW established for post-ROD flows (6,000 cfs). Historic dredge tailing deposits are also located at the OHW at several locations within the site. A majority of the development within the site has occurred along the right bank, near the upstream boundary. Residential dwellings constitute most of the development, but BLM does manage a small parking area adjacent to an unimproved boat ramp upstream of Rush Creek adjacent to Rush Creek Road.

Lowden Ranch

Within the LR site, the Trinity River has been simplified over time as a result of historic land use activities, including mining and various types of agriculture. Some meander features can be identified upstream of the confluence with Grass Valley Creek near the Hamilton Ponds. The right side of the river is confined by upland features, while the left side is occupied by a large floodplain/terrace feature upstream from Grass Valley Creek. The depositional environment associated with the Grass Valley Creek delta has resulted in a hydraulic control that has formed the alluvial deposits observed within the site. Adjacent to the active channel, sparsely-vegetated floodplain deposits are located on both sides of the river in the upstream third of the site, and vegetated floodplain deposits are located on the right bank of the meander near the downstream boundary. The majority of the LR site, specifically on river left, occupies modified river terrace deposits (Figure 7.3-1c). Historic dredge tailing deposits are evident, as well as piles of fine sediment that is excavated from the Hamilton Ponds on a routine basis. While Grass Valley Creek enters the mainstem Trinity River downstream of the site, the reach of Grass Valley Creek

between the Hamilton Ponds and the mouth are included within the LR site. Over time, a levee system has been constructed by private parties along both sides of Grass Valley Creek, and in this reach Grass Valley Creek exhibits characteristics of a braided stream channel; flowing around in-channel gravel bar and point bar deposits adjacent to the banks of the active channel. The abundance of point bars and the extent of deltaic sediment downstream suggest that the tributary continues to transport measurable amounts of sediment into the main stem of the Trinity River despite the efficiency of the Hamilton Ponds immediately upstream. Several residential structures are located near the site boundary, but it appears that the only constructed features within the site boundaries are roads and driveways.

Trinity House Gulch

The THG site represents an extension of the fluvial processes observed immediately upstream at the LR site, and in fact these sites are intrinsically linked due to their spatial relationship. For example, the mouth of Grass Valley Creek and the associated delta are located within the THG site, but the reach of Grass Valley Creek between the Hamilton Ponds and the confluence delta is located within the LR site; and sediment transported in Grass Valley Creek is deposited in the delta and the riverine segment within the THG site.

The mainstem Trinity River flows east to west through most of the site but begins to meander to the southwest near the downstream site boundary. The main feature of the site is a lobe of modified terrace deposits located along the right bank of the river near the downstream end of the site (Figure 7.3-1d). This lobe is believed to be composed of a pre-dam point-bar-like deposit that was either a point bar modified by mining activity and/or fluvially reworked tailings. Adjacent to the northwest flank of the lobe is a small deltaic feature at the mouth of Trinity House Gulch. The amount and character of vegetation on this feature suggest that post-ROD flows have not been effective in modifying this feature to-date. In fact, the morphological mapping suggests that this feature is expanding towards the river. There are thin ribbons of existing vegetated floodplain deposits along both sides of the river. A small point bar deposit is present on the left bank, near the western boundary of the site. There are at least two residential structures and associated access roads within the boundary of this site. One access road emanates from the Hamilton Ponds and parallels the left bank towards the LR site. Browns Mountain Road serves as the northern boundary for the site. Several private roads access portions of the site along the right bank.

Steel Bridge Day Use

The SB site is the smallest of the Remaining Phase 1 sites. Located on the left bank, it occupies a portion of a large meander that winds from south to east in the mainstem Trinity River. A large island of floodplain deposits is located in the main channel approximately 20 feet upstream from the beginning of the meander. The site is comprised of approximately equal amounts of floodplain deposits, terrace deposits, and upland hillslope (Figure 7.3-1e). The right bank of the river is controlled by a steep hill slope that is contiguous with the uplands. Isolated riparian berms have formed on the left bank. To some degree, these berms have isolated the river from the floodplain deposits under certain flows; thus, decreasing the opportunity for deposition and scour. It appears that over time, floodplain deposits have migrated towards the thalweg within this site and have partially separated the vegetated berm from

flowing water. The growth of these floodplain deposits has increased friction to the flow of the mainstem during high flows events, and has likely accelerated the deposition of coarse sediment at this site.

Reading Creek

The RC site occupies a long (approximately 6,000 feet) southwest to northeast trending meander that is confined by a relatively steep valley wall on the left bank, particularly downstream from the confluence of Reading Creek (Figure 7.3-1f). On the river left, the mouth of Reading Creek enters from the southeast near RM 92.9, and a small delta is located at the confluence with the river. A large portion of the site is overlain by dredge tailing deposits or other topographic features associated with historic mining activities. Upstream of Reading Creek, the river is confined, in part by large tailing deposits on both sides. Riparian berms have developed along the inside of the meander downstream of Reading Creek. To varying degrees, these berms extend downstream to the site boundary.

The RC site has the largest area of riparian berms and point bars. A majority of the coarse sediment bar deposits occur downstream from the mouth of Reading Creek. This fact coupled with the presence of a deltaic deposit at the mouth of Reading Creek suggests that Reading Creek is a significant contributor of sediment to the mainstem Trinity River. Prior to the ROD, reduction of peak flows by the TRD may have inhibited the transport of coarse sediment through this reach.

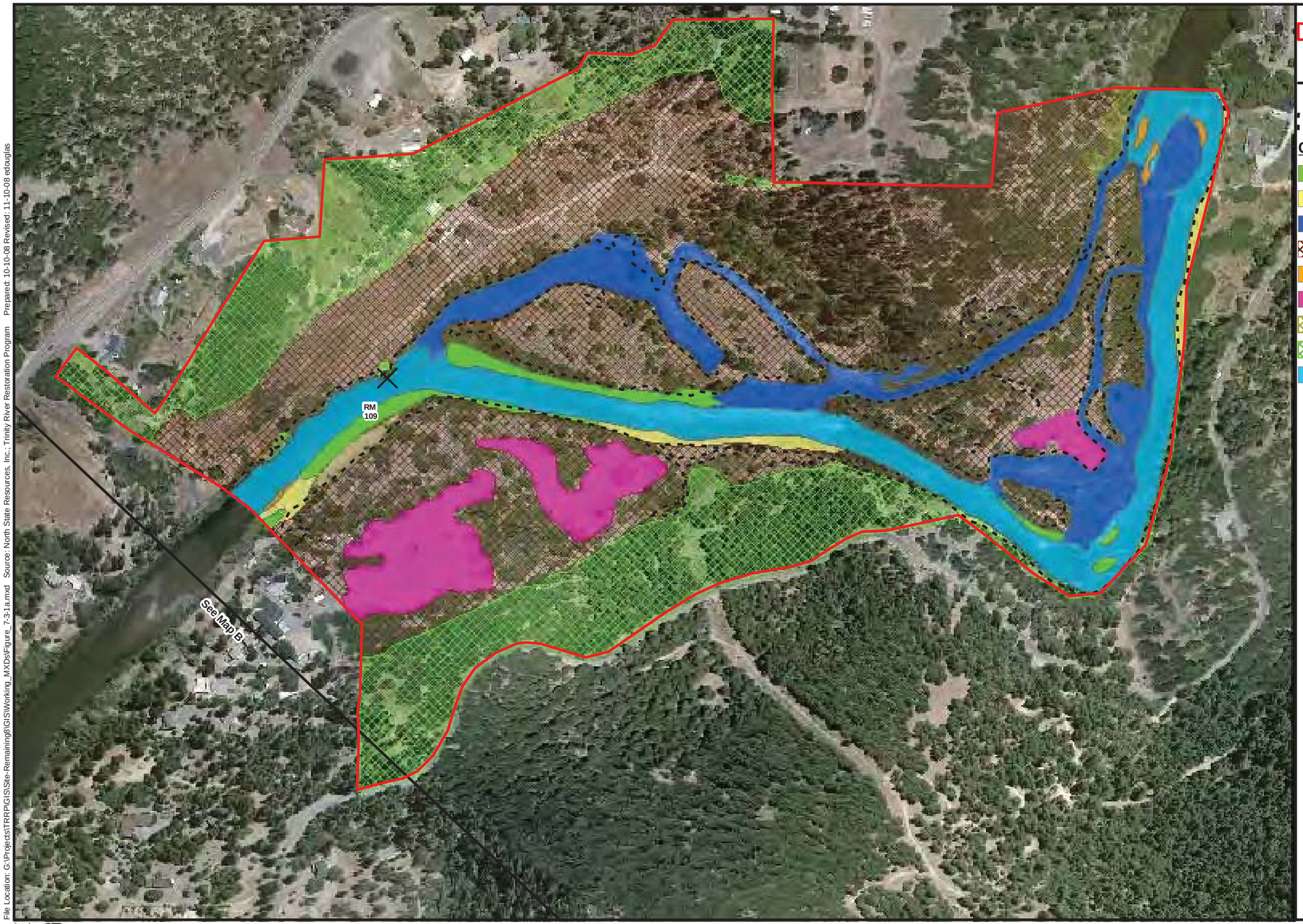
Mines and Mineral Resources

The geologic properties of many of the units in the Klamath Mountains Province 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, by a variety of methods, from the advent of European settlement to the present.

Historically, the principal mineral of economic importance was gold. Both lode (hardrock) mines and placer (alluvial gravel) mines were present in the watershed, with activity from 1848 to the present. The tailing deposits associated with large-scale placer mining provide a substantial source of aggregate required in various construction projects.

Recent and ancient alluvial deposits were extensively mined until the 1940s using a variety of techniques. The hydraulic mining operations used high-pressure water to erode and mobilize large quantities of unconsolidated overburden from gold-bearing areas. Evidence of this activity can be seen at various locations within the reach, including the SM and RC sites. Large-scale bucket-line dredge operations were also common between 1930 and 1950. These activities left behind tailing deposits that continue to influence the form and function of the Trinity River, and are apparent at a number of the Remaining Phase 1 sites described in the Master EIR (Chapter 2). The SM, UR, LR, and RC sites have large volumes of dredge tailings that are artifacts of this mining era.

Since World War II, mineral extraction activities have focused on aggregate resources, although some gold mining activity continues, primarily using suction dredging. Over time, aggregate mining of alluvial



Site Boundary (103.421 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs

Geomorphic Feature

- Berm (1.582 acres)
- Floodplain (1.256 acres)
- Modified Floodplain (8.980 acres)
- Modified Terrace (52.293 acres)
- Point Bar (0.196 acre)
- Tailings Piles (5.332 acres)
- Terrace (0.856 acre)
- Upland Hillslope (23.363 acres)
- Water (9.563 acres)

N

1:3,600

300 0 300
Feet

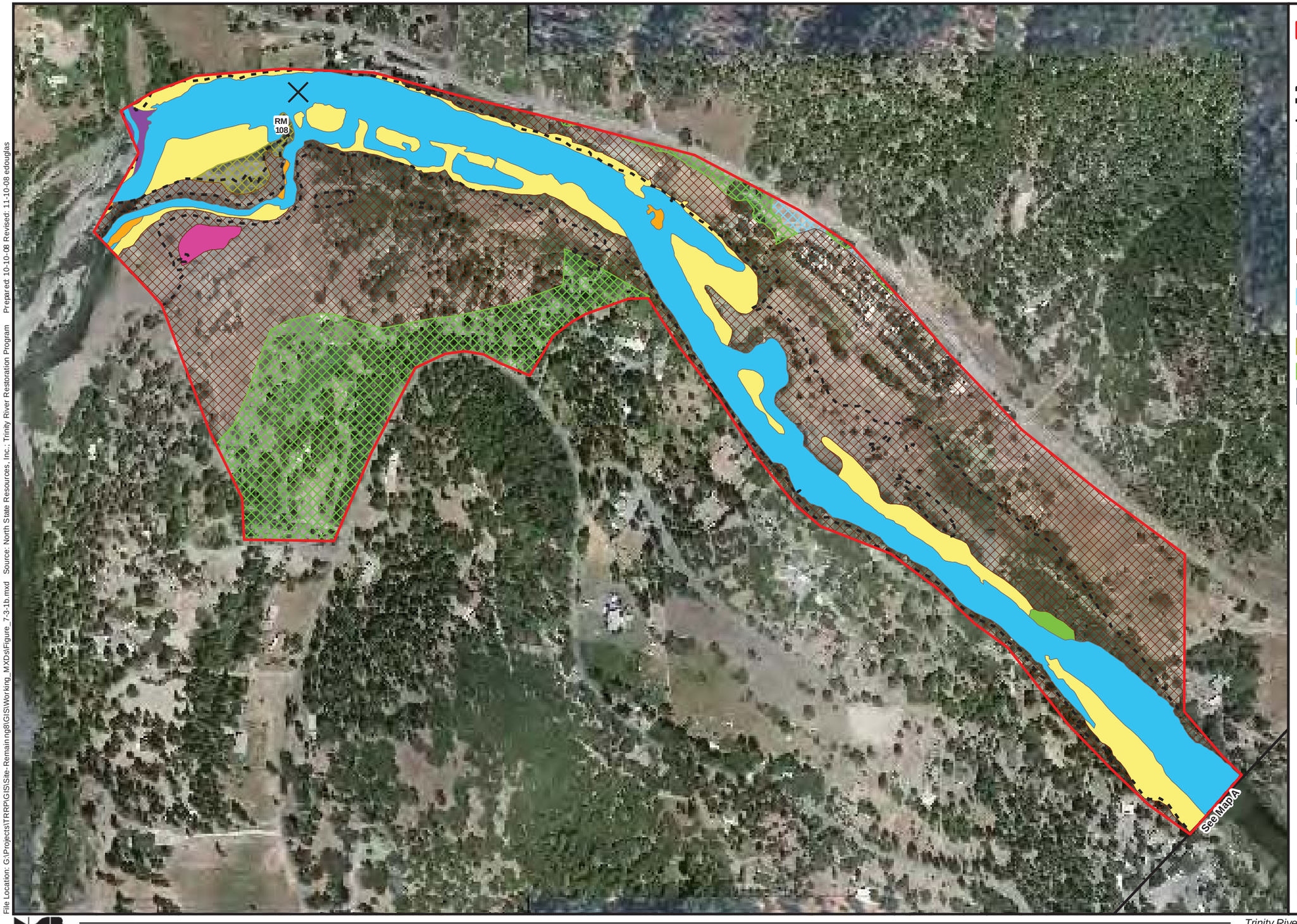
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-3-1a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-10-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.3-1a
Sawmill - Mapped Geomorphic Features



Site Boundary (92.274 acres)
River Mile (RM)
Ordinary High Water Mark (OHWM) - 6000 cfs
Matchline

Geomorphic Feature

- Berm (0.213 acre)
- Delta (0.221 acre)
- Floodplain (9.033 acres)
- Modified Terrace (49.263 acres)
- Point Bar (0.216 acre)
- Rip-rap (0.346 acre)
- Tailings Piles (0.443 acre)
- Terrace (0.757 acre)
- Upland Hillslope (13.364 acres)
- Water (18.418 acres)

N

1:4,200

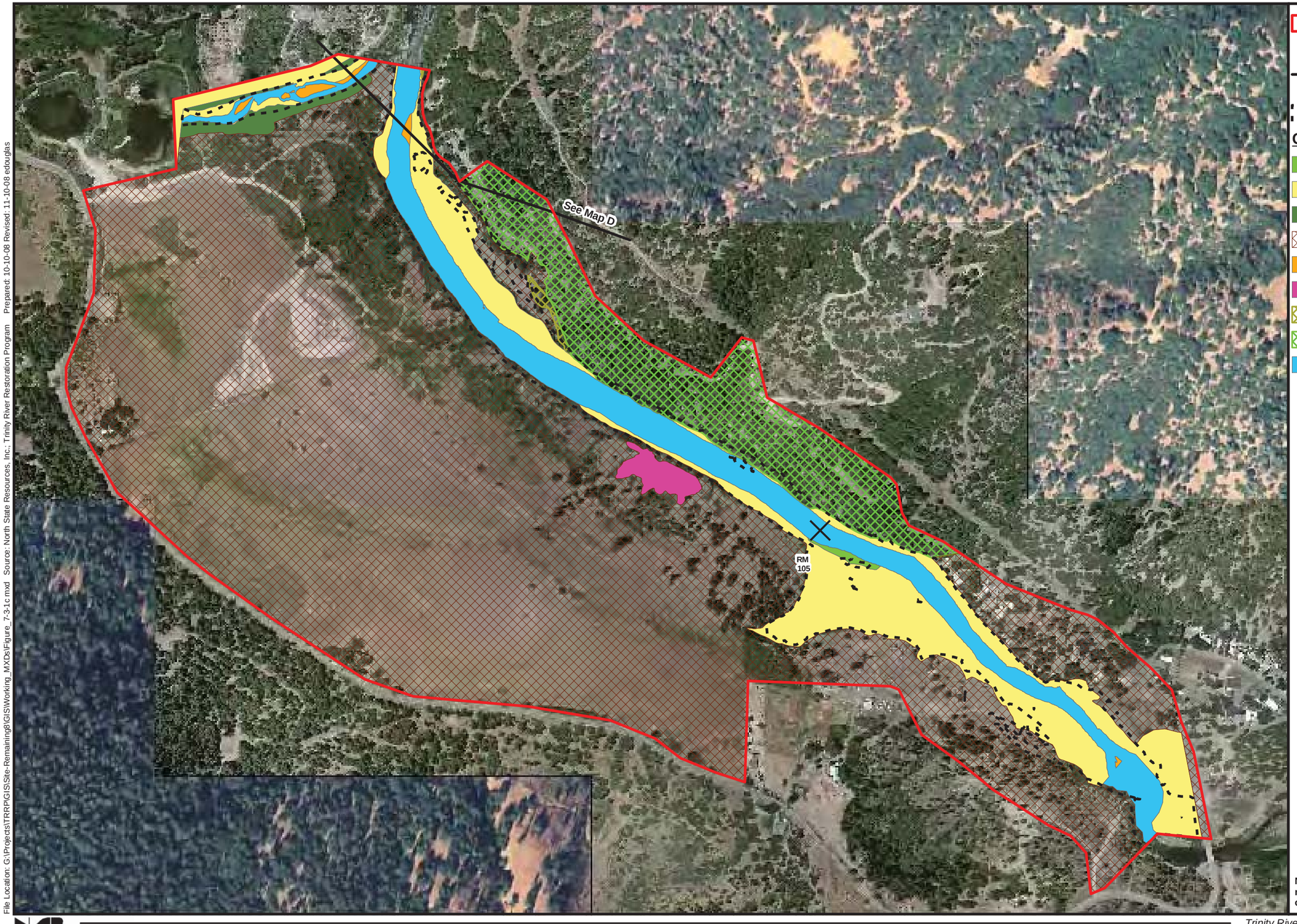
350 0 350
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRPG\S\Site-Remaining\GIS\Working_MXDs\Figure_7-3-1b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-10-08 edouglas

North State Resources, Inc.

Figure 7.3-1b
Upper Rush Creek - Mapped Geomorphic Features



Site Boundary (211.769 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs

Geomorphic Feature

Berm (0.212 acre)
Floodplain (19.920 acres)
Levee (1.541 acres)
Modified Terrace (157.079 acres)
Point Bar (0.405 acre)
Tailings Piles (1.178 acres)
Terrace (0.289 acre)
Upland Hillslope (17.589 acres)
Water (13.556 acres)

N

1:5,400

450 0 450
Feet

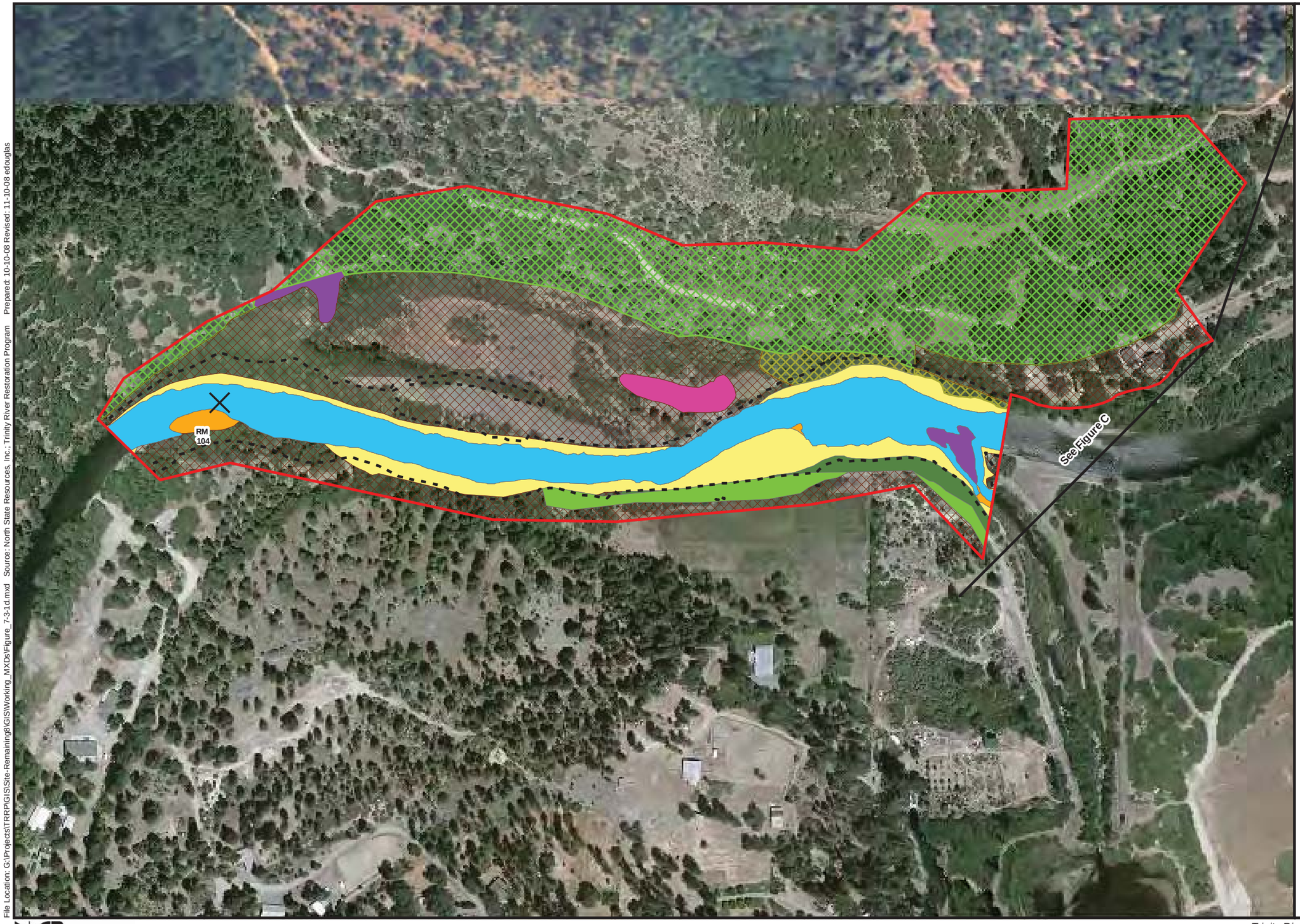
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-3-1c.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-10-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.3-1c
Lowden Ranch - Mapped Geomorphic Features



Site Boundary (43.695 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs

Geomorphic Feature

- Berm (0.833 acre)
- Delta (0.428 acre)
- Floodplain (2.870 acres)
- Levee (0.451 acre)
- Modified Terrace (14.900 acres)
- Point Bar (0.201 acre)
- Tailings Piles (0.436 acre)
- Terrace (0.587 acre)
- Upland Hillslope (17.690 acres)
- Water (5.299 acres)

N

1:3,000

250 0 250
Feet

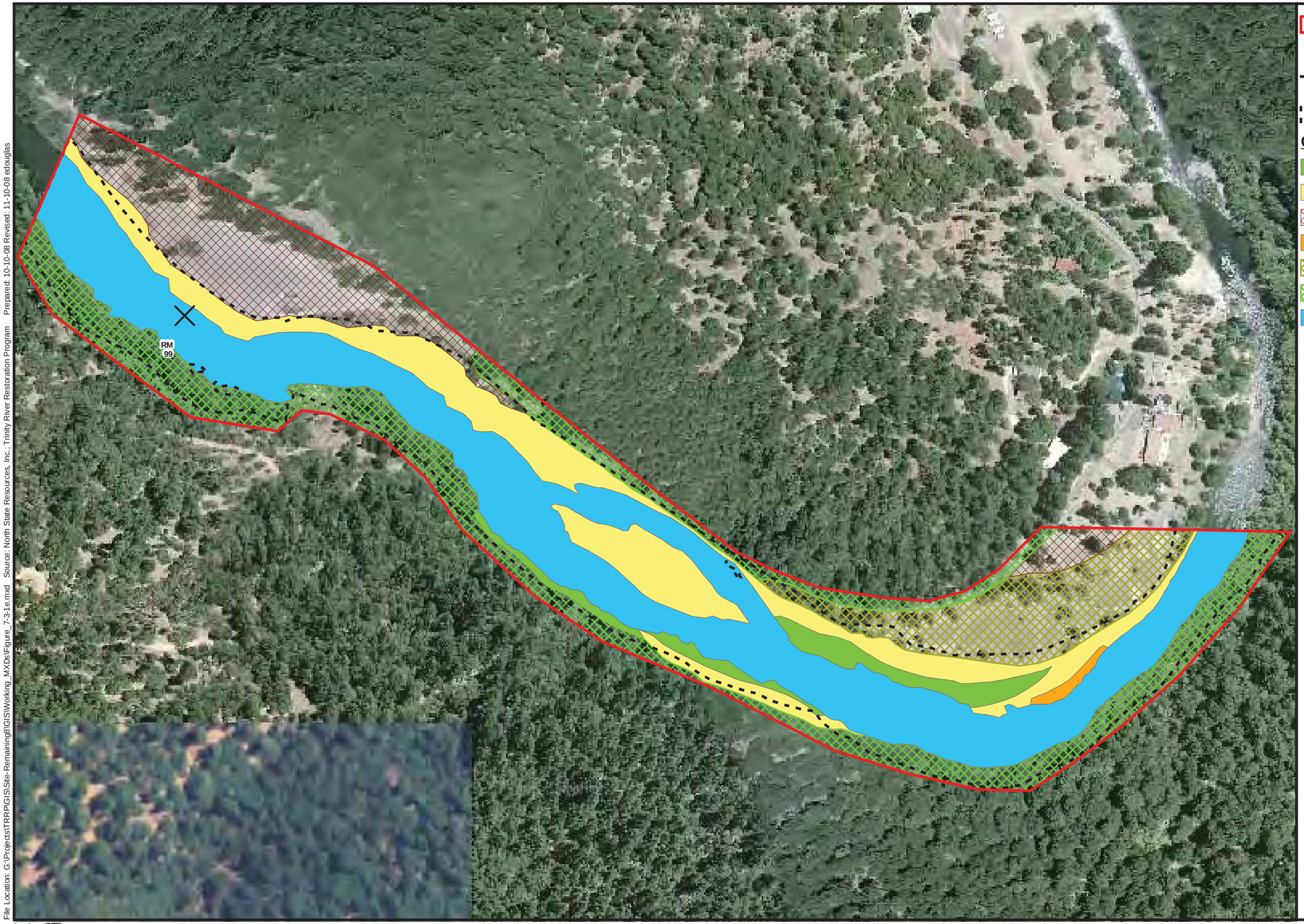
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.3-1d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-10-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.3-1d
Trinity House Gulch - Mapped Geomorphic Features



Site Boundary (22.475 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs

Geomorphic Feature

Berm (0.775 acre)
Floodplain (3.733 acres)
Modified Terrace (3.244 acres)
Point Bar (0.089 acre)
Terrace (2.192 acres)
Upland Hillslope (4.866 acres)
Water (7.576 acres)

N

1:2,400

200 0 200
Feet

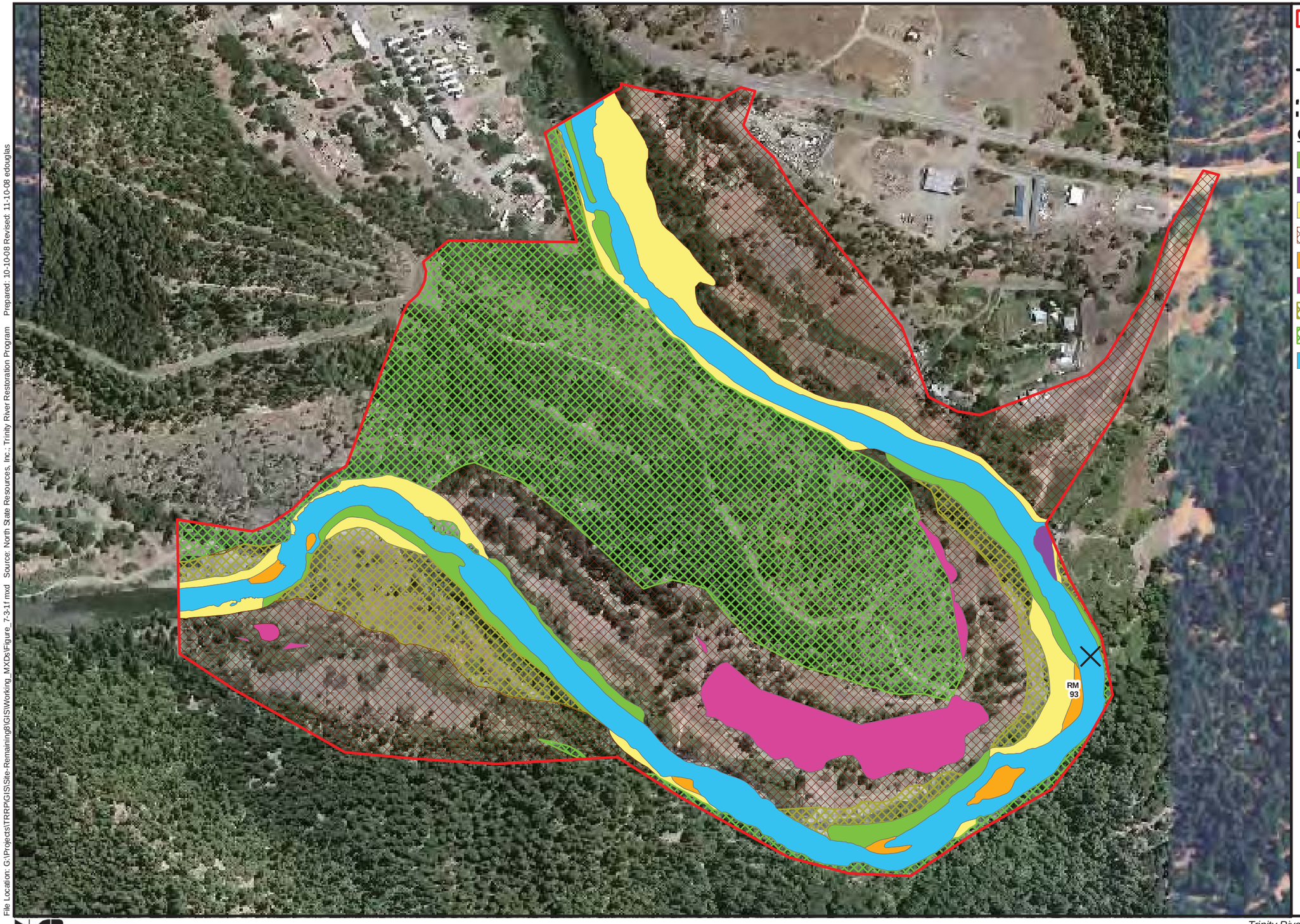
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-3-1e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-10-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.3-1e
Steel Bridge Day Use - Mapped Geomorphic Features



- Site Boundary (135.871 acres)
- River Mile (RM)
- Matchline
- Ordinary High Water Mark (OHWM) - 6000 cfs

Geomorphic Feature

- Berm (3.819 acres)
- Delta (0.194 acre)
- Floodplain (7.587 acres)
- Modified Terrace (50.519 acres)
- Point Bar (0.817 acre)
- Tailings Piles (5.064 acres)
- Terrace (9.406 acres)
- Upland Hillslope (43.978 acres)
- Water (14.487 acres)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-3-1f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-10-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.3-1f
Reading Creek - Mapped Geomorphic Features

deposits and reworking of hydraulic tailings have resulted in additional channel modifications and changes in sediment supply.

Mining Activity

Current records indicate that there are 11 active mining claims located within, or close to, the Remaining Phase 1 sites (U.S. Bureau of Land Management 2008). One claim is located within the boundaries of the RC site, and 10 claims are located less than two river-miles downstream of one or more Remaining Phase 1 sites. According to BLM records, most of these claims are filed as placer in nature. Under the 1872 Mining Law, placer claims are established with the intent to sort unconsolidated alluvial materials for precious metals (e.g., gold, platinum). Currently, there are no authorized operating plans for placer mining activities within, or in close proximity to, the Remaining Phase 1 sites; although, suction dredging does occur at various locations along the Trinity River. Suction dredging is the principal mining method used on the Trinity River, and typically occurs on mining claims and private lands throughout Trinity County during base-flow periods.

There are currently no approved mining activities operating under the sanctions of the 1872 mining law or a County Surface Mining and Reclamation Act (SMARA) permit within, or close to, the Remaining Phase 1 sites. There are, however, two permitted aggregate mining operations, the Eagle and the Smith mines, operating in the general vicinity of the Trinity River under Trinity County's SMARA authority. A sand and gravel extraction company is currently operating at the site of the historic La Grange Hydraulic Gold Mine, upstream of Junction City. The Smith Mine, in the vicinity of Hocker Flat, is currently inactive (Smith, pers. comm. 2008).

Rehabilitation activities at the RC site have the potential to affect the greatest number of active mining claims because this site is located less than 2 river-miles downstream of nine active mining sites, and five of the nine sites are located within 1 river mile of the RC site. Additionally, one claim, the Dennis Ray McCoy mining claim, is located within the boundaries of the RC site.

Geologic Hazards

Seismicity and Seismic Hazards

A discussion of the regional seismicity and seismic hazards is provided in the Master EIR (section 4.3).

An earthquake with a magnitude of 8.5 or greater would be needed to induce seismic hazards at the Remaining Phase 1 sites (California Geologic Survey 2008). All of the Remaining Phase 1 sites are located between 62 and 124 miles from the northern San Andreas Fault zone and the Cascadia Subduction Zone, which are the closest known active areas capable of producing an earthquake with a magnitude of 8.5 or greater.

No local active Quaternary faults have been identified, although little detailed mapping of Quaternary geologic features has been conducted in the area. However, there are several small pre-Quaternary faults located less than 1 mile south of the Trinity River between the LR and SB sites.

Liquefaction

Liquefaction is a process whereby water-saturated granular soils are transformed to a liquid state during ground shaking. Loose to medium dense sands, gravels, and silts occurring below the water table are prone to liquefaction. The soils bordering the Trinity River in immediate proximity to the Remaining Phase 1 sites are predominantly alluvial in nature. These soils have the potential to experience liquefaction; however, no detailed analysis was conducted because the type of activities described in Chapter 2 would not affect the potential for liquefaction or be affected by liquefaction were it to occur.

Landslides

The potential for landslides exists within, or close to, the Remaining Phase 1 sites. Typically, landslides in the Klamath Mountains Province occur in association with high precipitation and runoff events. To varying degrees, the inherent slope stability at these sites along the reach is dependent on the underlying geology. The underlying geology of the Remaining Phase 1 sites is dominated by metamorphosed marine- sedimentary rock, which generally has layers of incompetent rock embedded within its stratigraphy. These incompetent layers can facilitate landslides depending on their spatial relationship with the river and other local geographic features. This suggests landslides in the area may occur along planes of structural weakness within metamorphic geologic units rather than occurring based solely on their topographic disposition. Additionally, disturbance associated with historic mining features, road construction, and high-intensity wildfire could further influence landslide types and locations at the Remaining Phase 1 sites. Although landslides are a common occurrence along roadways in Trinity County, these features are typically intercepted by the roadbed and contribute little, if any, material to the mainstem Trinity River.

Seiches

A seiche is an oscillation or standing wave in a body of water confined in a basin. Seiches commonly arise from a sudden local change in atmospheric pressure, accompanied by wind and, occasionally, tidal currents. They can also occur as the result of ground shaking caused by earthquakes, or by the force of large landslides or debris flows entering a water body. Local water bodies capable of generating a large-scale seiche include Trinity Lake, Lewiston Lake, and Grass Valley Creek Reservoir. The hazards associated with a seiche involve the overtopping or possible failure of these dams, with resultant modifications to the flow regime of the Trinity River (i.e., flooding). However, the likelihood of such an event occurring at any of the Remaining Phase 1 sites is minimal.

Volcanic Activity

Volcanic hazards in the general vicinity of the Remaining Phase 1 sites are limited primarily to ash fall and minor seiches in Trinity and Lewiston lakes. There are three large active volcanoes in the Cascade Range in California—Lassen Peak, Mount Shasta, and the Medicine Lake Volcano—as well as numerous smaller vents. The distance (75 to 100 miles) from these volcanic centers and the prevailing westerly winds suggests that a volcanic eruption would have little impact to the any of the Remaining Phase 1 sites (Trinity County 2003).

Soils

The majority of the soils at the Remaining Phase 1 sites are described in the Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture 1998) with lesser amounts described in the Soil Survey of Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California (U.S. Department of Agriculture 2008). A comprehensive list of the soils associated with each of the Remaining Phase 1 sites is provided in Appendix L.

Soils derived from granitic rocks are typically fine-grained and commonly referred to as decomposed granite "DG". These soils occur in isolated locations at the Remaining Phase 1 sites and are recognized as a leading contributor of fine sediments (sand) to the Trinity River. Grass Valley Creek, originating in the headwaters of the Shasta Bally Batholith, has been the subject of ongoing sediment reduction efforts by Reclamation, BLM, and private land managers for more than 20 years. Historic deposition of granitic sediments at the mouth of Grass Valley Creek has likely influenced the soil composition and texture near the LR and THG sites, as well as other sites downstream.

7.3.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.3-2 summarizes the potential geology, fluvial geomorphology, minerals and soils impacts that would result from the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 7.3-2. Summary of Geology, Fluvial Geomorphology, Soils, and Minerals Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.3-1. Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.				
No impact	No impact	No impact	Not applicable[1]	Not applicable[1]
Impact 7.3-2. Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.3-3. Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.				
No impact	Significant	Significant	Less than significant	Less than significant

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

Impact 7.3-1: Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction. ***No impact for No-Project Alternative, Proposed Project, and Alternative 1.***

No-Project Alternative

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

Proposed Project and Alternative 1

Under the Proposed Project and Alternative 1, 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.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.3-2: Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River. ***No impact for No-Project Alternative; significant impact for Proposed Project and Alternative 1.***

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 at any of the Remaining Phase 1 sites has a significant potential to increase erosion and subsequent short-term sedimentation of the Trinity River. The significance of erosion at each site 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., feathered edges, side channels, and floodplains). At these locations, the exposure of these fine-textured soils during and after construction occurs will increase the potential for soil erosion and sedimentation. Impacts of turbidity levels specific

to water quality degradation are analyzed in sections 4.5 and 7.5, Water Quality, and associated impacts to anadromous fisheries are analyzed in sections 4.6 and 7.6, Fishery Resources.

A majority of the rehabilitation activities would occur in, or in close proximity to, flowing water associated with the affected reach of the mainstem Trinity River and its tributaries, and could expose newly disturbed and/or stable sediments and other alluvial materials to flowing water. Specifically, in-channel activities (i.e., stream crossing construction/use, grade control removal, LWD placement) and riverine rehabilitation activities (low-flow side channel construction, floodplain construction, and riparian vegetation removal) would likely disturb areas in proximity to flowing water. 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; an increase 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 and the existing hydrologic conditions have shaped the disturbed area into a quasi-stable configuration. However, downstream turbidity levels may remain elevated for a longer duration as diurnal and seasonal fluctuations in hydrologic conditions further shape the disrupted area into a more stable geometry.

Construction activities in the river (e.g., floodplain construction and mechanical vegetation removal) and the uplands (e.g., construction of staging areas and staging of excavated sediment) has the potential to significantly decrease soil cohesion and armoring; thus, increasing soil exposure to energetic weather conditions and increasing the short-term potential for wind and water erosion. Increased wind and water erosion and subsequent downstream sediment transport in the Trinity River would occur if any soils were left exposed during the wet season (typically November through May) and other infrequent precipitation events (summer thunderstorms).

The use of heavy equipment for restoration activities will 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 significant increase in soil compaction will cause a potentially significant increase in erosion. Therefore, this impact is significant.

Table 7.3-3. Extent of Disturbance for the Proposed Project and Alternative 1

Site	Project	Stream Crossings (miles)	In-Channel (acres)	Riverine (acres)	Upland (acres)	Roads (miles)	Staging Areas (acres)
SM	Proposed Project	0.04	3.3	15.1	3.6	0.9	10.4
	Alternative 1	0.04	3.3	15.1	3.6	0.9	10.4
UR	Proposed Project	0.02	2.4	8.6	3.1	1.0	4.1
	Alternative 1	0.00	1.6	4.8	1.7	0.7	2.3

Table 7.3-3. Extent of Disturbance for the Proposed Project and Alternative 1

Site	Project	Stream Crossings (miles)	In-Channel (acres)	Riverine (acres)	Upland (acres)	Roads (miles)	Staging Areas (acres)
LR	Proposed Project	0.03	2.8	32.0	67.6	1.5	8.8
	Alternative 1	0.01	2.6	27.4	64.0	1.0	4.8
THG	Proposed Project	0.06	0.8	6.1	6.5	0.5	1.7
	Alternative 1	0.06	0.8	6.1	2.8	0.4	0.7
SB	Proposed Project	0.00	0.7	2.7	0.3	0.5	2.5
	Alternative 1	0.00	0.5	2.7	0.3	0.2	0.9
RC	Proposed Project	0.01	1.5	15.4	9.2	2.1	6.5
	Alternative 1	0.00	1.5	10.9	7.1	1.3	2.9

Alternative 1

Implementation of Alternative 1 at any of the Remaining Phase 1 sites has a significant potential to increase erosion and subsequent short-term sedimentation of the Trinity River. The potential for erosion is determined using the same factors that were used to evaluate the Proposed Project.

Compared to the Proposed Project, implementation of Alternative 1 would decrease the extent and number of rehabilitation activities at each Remaining Phase 1 site except SM. Table 7.3-3 compares the disturbed area within each site by activity type for the Proposed Project and Alternative 1. Data in the table clearly indicates that Alternative 1 decreases the extent of the disturbed area in most of the Remaining Phase 1 sites. However, the potential for erosion remains significant due to the proximity of construction disturbance to flowing water, exposure of disturbed areas to energetic weather conditions, and soil compaction due to heavy equipment use. Therefore, this impact is significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.3-2 apply (section 4.3.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 would be inhibited if a mining claim occupies a rehabilitation site, or if rehabilitation activities cause a dramatic increase of sediment levels in the Trinity River, causing placer mining downstream to be unworkable for a period of time. There are two current aggregate mining activities operating through a County SMARA permit, the Eagle Mine and the Smith Mine, although the Smith mine is not actively excavating material (Smith, pers. comm. 2008). The Eagle Mine is not located within hydrologic influence of the Trinity River and will not likely be affected by the Proposed Project. Additionally, there are at least 11 mining claims staked on lands managed by BLM. Currently, BLM has no authorized operating plans for public lands along this reach of the Trinity River. All of the mining claims are located downstream from at least one of the Remaining Phase 1 sites One active mining claim is located within the boundaries of the RC site. Mining activities are likely to occur on private lands within this reach; however, it is unlikely that land owners would authorize activities associated with the Proposed Project that preclude their ability to conduct mining activities. Overall, the Proposed Project could inhibit the development and extraction of mineral resources, including precious metals and aggregate resources within, and close to, rehabilitation sites. This would be a significant impact.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would decrease within the Remaining Phase 1 sites. The overall reduction of activities, including a substantial decrease in the overall acres and volume of material, will reduce the impacts related to the development and extraction of mineral resources. However, the potential conflicts between mineral management and rehabilitation activities could result in a significant impact.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.3-3 apply (section 4.3.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.4

Water Resources

7.4 Water Resources

This section is a discussion of the water resources known to occur in the Trinity River Basin in proximity to the proposed Remaining Phase 1 mechanical channel restoration sites along the Trinity River. It also evaluates potential impacts to water resources from implementation of the Proposed Project and alternatives.

7.4.1 Affected Environment/Environmental Setting

The affected environment for water resources is addressed in the Master EIR (section 4.4).

7.4.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.4-1 summarizes the potential water resources impacts that could result from construction of the project.

Table 7.4-1. Summary of Potential Water Resource Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.4-1. Implementation of the project could result in a temporary or permanent increase in the BFE.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.4-2. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.4-3. 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	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.4-1: Implementation of the project could result in a temporary or permanent increase in the base floodwater elevation. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1***

No-Project Alternative

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

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.4.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.4-2: Implementation of the project could result in a permanent decline in groundwater elevations or permanent changes in groundwater quality. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.4.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.4-3: 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 for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1***

No-Project Alternative

Under the No-Project Alternative, no people or structures would be exposed to flood risks associated with the Proposed Project because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.4.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.5

Water Quality

7.5 Water Quality

This section describes water quality conditions in the Trinity River Basin in proximity to the Remaining Phase 1 rehabilitation sites along the Trinity River. It also evaluates potential impacts to water quality from implementation of the Proposed Project and its alternatives.

7.5.1 Affected Environment/Environmental Setting

Rehabilitation activities at all of the Remaining Phase 1 sites would occur in or adjacent to the Trinity River. For the past four years, the TRRP has implemented these types of activities in conjunction with the Hocker Flat, Canyon Creek, Indian Creek, and Lewiston-Dark Gulch projects. While the type and intensity of these activities varied, the affects of these activities on water quality in the Trinity River is well understood. Within all the Remaining Phase 1 sites (Table 7.5-1), a majority of the proposed rehabilitation activities would occur in (i.e., Stream crossings or In-channel activities) or adjacent to (i.e., Riverine activities) the Trinity River, and a smaller portion would occur in the uplands. Specific rehabilitation activities proposed for each site are described in Chapter 2 of the Master EIR. Short distances between restoration activities and flowing water, including shallow alluvial groundwater, magnifies the potential for rehabilitation activities to adversely impact the water quality of the Trinity River.

Table 7.5-1 illustrates the type and size of the activities considered for the Remaining Phase 1 sites. Overall, LR is the largest of these sites, followed by the RC, SM, URC, THG, and SB sites, respectively.

Table 7.5-1. Activity Areas – Remaining Phase 1 Sites

Site	Stream Crossings (miles)	In-Channel (acres)	Rivervine (acres)	Upland (acres)	Roads (miles)
Sawmill	0.04	3.3	15.1	3.6	0.9
Upper Rush Creek	0.02	2.4	8.6	3.1	1.0
Lowden Ranch	0.03	2.8	32.0	67.6	1.5
Trinity House Gulch	0.06	0.8	6.1	6.5	0.5
Steel Bridge Day Use	0.00	0.7	2.7	0.3	0.5
Reading Creek	0.01	1.5	15.4	9.2	2.1

Additional information on the affected environment as it relates to water quality is provide in the Master EIR, section 4.5, Water Quality.

7.5.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.5-2 summarizes the potential water quality impacts resulting from construction and operation of the project.

Table 7.5-2. Summary of Potential Water Quality Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Action Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.5-1. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.5-2. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.5-3. Construction of the project could cause contamination of the Trinity River from hazardous materials spills.				
No Impact	Significant	Significant	Less than significant	Less than significant
Impact 7.5-4. Construction of the project could result in increased stormwater runoff and subsequent potential for erosion.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.5-5. Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.				
No impact	Significant	Significant	Less than significant	Less than significant

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

Impact 7.5-1: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.5.3). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.5-1 apply (section 4.5.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.5-2: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.5.2) based on information outlined in Chapter 2. No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.5-2 apply (section 4.5.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.5-3: Construction of the project could cause contamination of the Trinity River from hazardous materials spills. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.5.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.5-3 apply (section 4.5.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.5-4: Construction and maintenance of the project could result in increased stormwater runoff and subsequent potential for erosion. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.5.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.5.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore no mitigation is required

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.5-5 apply (section 4.5.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.6

Fishery Resources

7.6 Fishery Resources

This section describes the fishery resources and aquatic habitats that are known to occur within the boundaries of the Remaining Phase 1 sites and evaluates the impacts of the Proposed Project and alternatives on these resources. The discussion of fisheries resources is based on a focused literature review, informal consultation with resource agencies, and observations made during site visits.

7.6.1 Affected Environment/Environmental Setting

Special-Status Species

Special-status fish species potentially occurring at the project sites are discussed in the Master EIR (section 4.6) and Appendix G. Based on site-specific information, their likelihood of occurrence at each of the Remaining Phase 1 sites is provided below.

Local Aquatic Habitat

The aquatic environment in the general vicinity of the Remaining Phase 1 sites 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.

Figures 7.6-1a-f illustrate aquatic mesohabitat as defined by the USFWS for the Remaining Phase 1 sites. 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 essential fish habitat (EFH) for both coho and Chinook salmon.

To varying degrees, the Remaining Phase 1 sites provide spawning habitat for anadromous salmonids. Suitable spawning habitat occurs in most of the riffles, particularly in the low-gradient riffles and tail-outs of pools and deep run/glide habitats. The quality and extent to which these habitats are used varies by site. Salmon spawner surveys in the upper Trinity River conducted annually by the CDFG (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 (Sections 1 and 2), which range from Lewiston Dam to Old Lewiston Bridge and Old Lewiston Bridge to Bucktail Bridge, respectively. Section 2 includes the SM and UR sites.

All of the Remaining Phase 1 sites provide some level of suitable habitat for salmonid rearing. Large cobbles and boulders provide suitable cover and refuge for rearing salmonids. To some degree, this substrate type occurs within each of the sites discussed in this section. Additionally, overhanging riparian and aquatic vegetation contributes shade and physical cover, enhancing the value of rearing habitat at these sites. Where available, site-specific observations of juvenile rearing habitat are provided below.

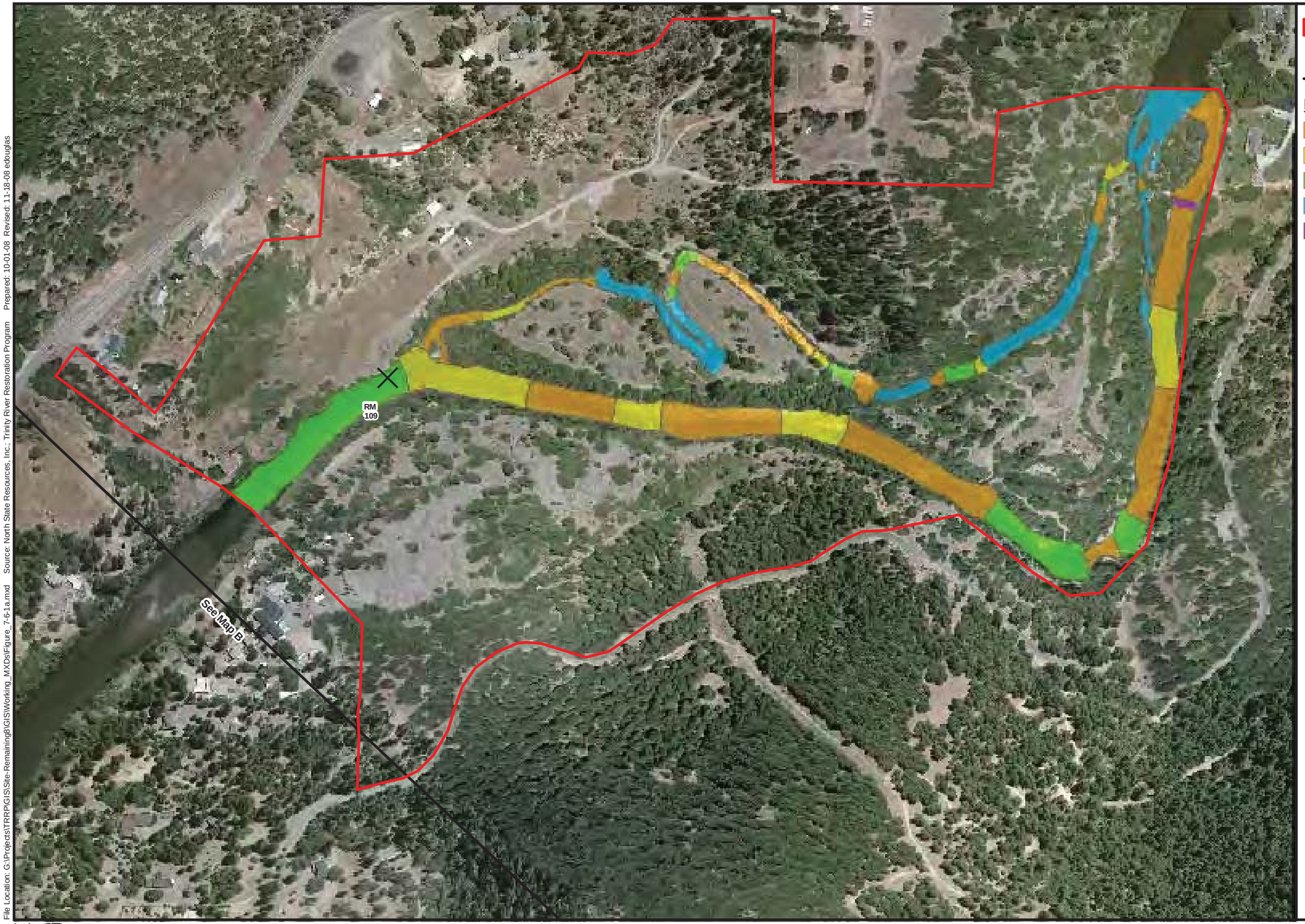
Although juvenile coho rearing habitat is considered limited in the general vicinity of the Remaining Phase 1 sites, juveniles are expected to utilize suitable habitats in the 40-mile reach of the mainstem Trinity River below Lewiston Dam year-round (Glase, pers. comm. 2002). Pool habitat associated with

boulders and large woody debris (LWD) is particularly preferred by rearing coho salmon (Hassler 1987; Sandercock 1991; Moyle 2002). In 2006, CDFG biologists snorkeled during the summer low-flow period (450 cfs) to enumerate juvenile coho salmon in the reach between Lewiston Dam and Steelbridge Day Use area. Juvenile coho salmon were predominantly found in four mesohabitat types as follows: side-channels (38.73 percent), glides (28.72 percent), backwaters (16.58 percent), and runs (10.55 percent). Juvenile coho salmon were found in close proximity to the bank (mean 2.16 feet) and to both object cover (mean 1.08 feet) and overhead cover (mean 2.16 feet). The dominant object cover type used by juvenile coho salmon was non-emergent rooted aquatic vegetation (55.74 percent of observations), while the second most used object cover type was small woody debris (26.12 percent) (Garrison 2007). In contrast, Chinook fry habitat is limited to the stream edges in the low-gradient riffles and on point bars. Additional Chinook fry rearing habitat exists at the tail outs of the pool habitats. Where available, site-specific observations of juvenile rearing habitat are provided below.

In 2003, the TRRP contracted with North State Resources, Inc. to conduct a radio-telemetry study of migration and behavioral thermoregulation of adult spring-run Chinook salmon in the upper Trinity River (Marine and Lyons 2004). The greatest numbers of over-summering radio-tagged fish were observed between Evans Bar and Dutton Creek and between Lewiston Dam and Bucktail Bridge. Fish also resided for the longest times in these reaches. These 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. Exceptionally large, deep glides in the vicinity of the confluence of Carr Creek, Indian Creek, and Rush Creek were used extensively as holding habitat for adult spring-run Chinook salmon. Holding habitat with depths greater than 3 feet, including pools with depths as great as 17 feet, was used for the longest period of time during the study.

Adult summer/fall-run steelhead migrate to, and hold in, the deeper pools, runs, and glides in the general vicinity of the Remaining Phase 1 sites between the months of 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 the riffles throughout the reach encompassing the Remaining Phase 1 sites. Suitable juvenile steelhead rearing habitat occurs in and adjacent to the Remaining Phase 1 sites. Fry and juvenile steelhead of both runs may be expected in the riffle and run/pool habitats year-round, especially those associated with abundant SRA and large cobble/boulder habitat, including large woody debris (Hampton 1988; Moyle 2002).

Adult Pacific lampreys migrate to the mainstem Trinity River and tributaries during the spring and early summer, although they are documented to occur in the river near Lewiston through August (Moffett and Smith 1950; Moyle 2002). Suitable lamprey spawning habitat occurs in the low-gradient riffles and in the run/pool tail outs in and adjacent to the Remaining Phase 1 sites. Based on juvenile outmigrant trapping data, larval lampreys (ammocoetes) and juveniles are expected to be abundant year-round in the upper Trinity River (Glase, pers. comm. 2002). Juveniles require areas of relatively slow currents and mud- and sand-bottomed backwaters and pools, where they burrow and filter feed on detritus and algae



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Habitat Type

Low Slope

Moderate Slope

Pool

Run

Step

N

1:3,600

300 0 300

Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-1a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-01-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-1a
Sawmill - Aquatic Habitat

Site Boundary (92.274 acres)
River Mile (RM)
Matchline

Habitat Type

Low Slope
Moderate Slope
Pool
Run

N

1:4,200

350 0 350
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-1b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-01-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-1b
Upper Rush Creek - Aquatic Habitat

Site Boundary (211.769 acres)
River Mile (RM)
Matchline

Habitat Type

Low Slope
Moderate Slope
Pool
Run

N

1:5,400

450 0 450
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-1c.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-01-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-1c
Lowden Ranch - Aquatic Habitat

Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Habitat Type

Low Slope

Moderate Slope

Pool

Run

Step

N

1:3,000

250 0 250

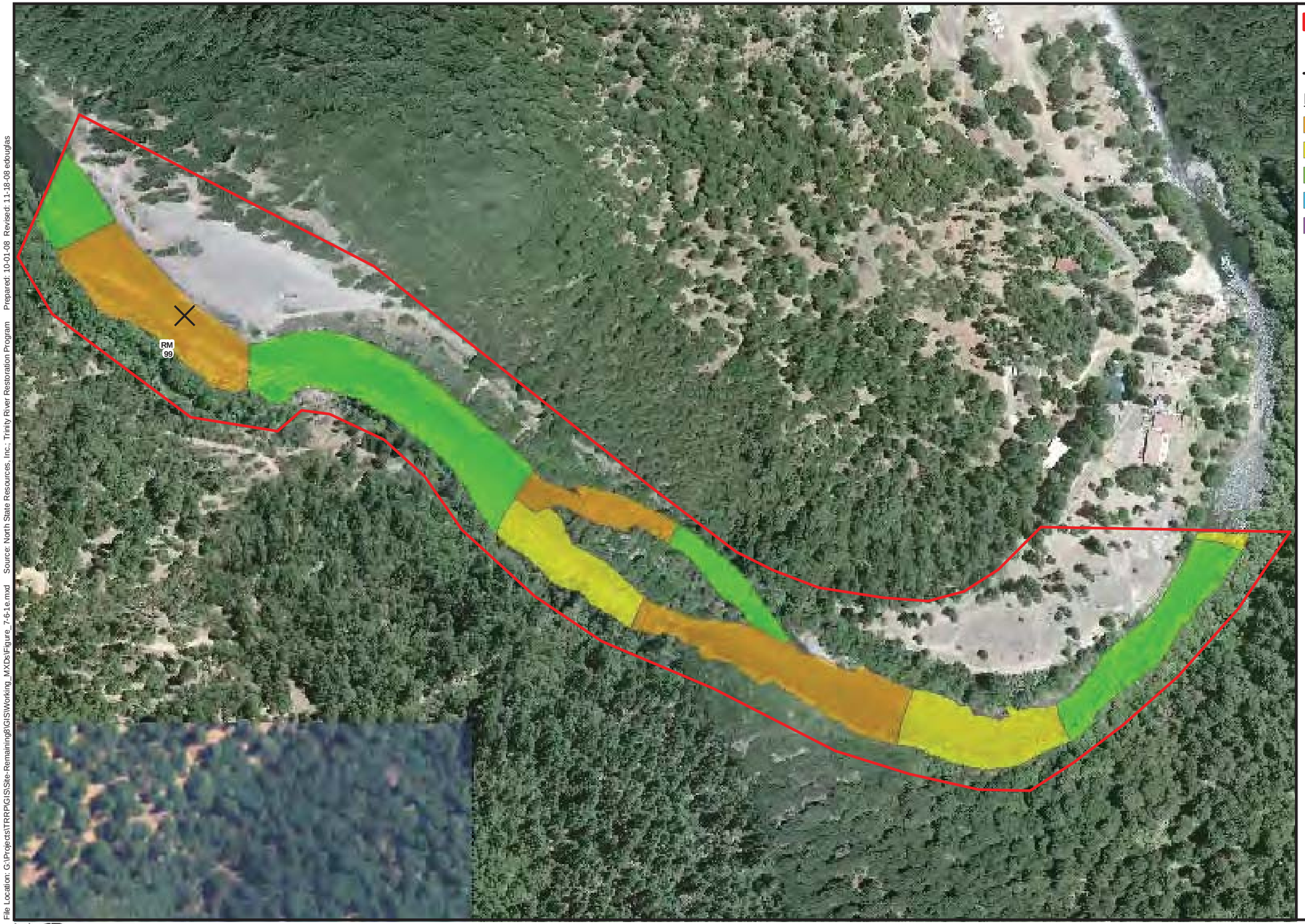
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-1d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-01-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-1d
Trinity House Gulch - Aquatic Habitat



Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Habitat Type

Low Slope

Moderate Slope

Pool

Run

Step

N

1:2,400

200 0 200

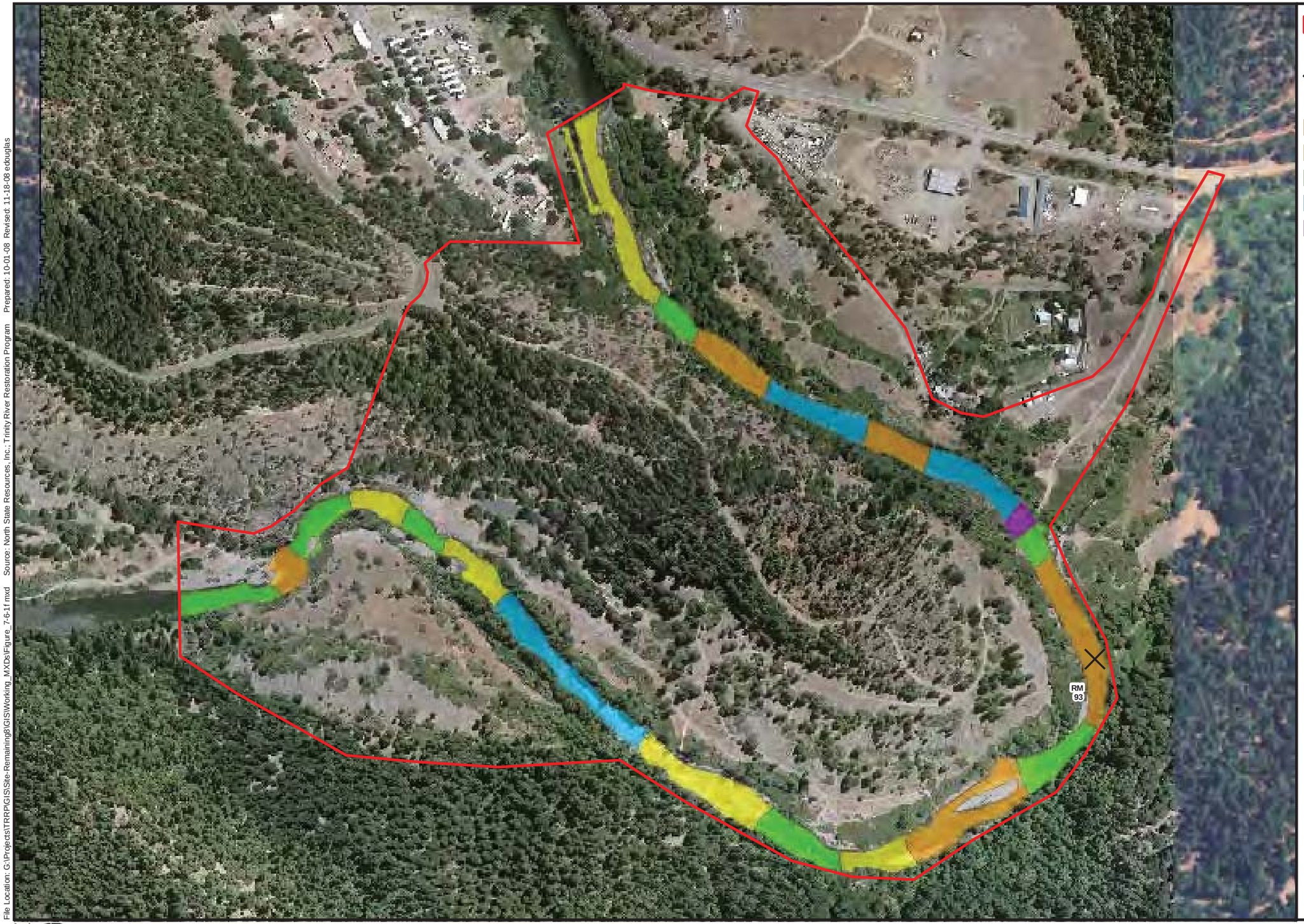
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-1e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-01-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-1e
Steel Bridge Day Use - Aquatic Habitat



Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Habitat Type

Low Slope

Moderate Slope

Pool

Run

Step

N

1:4,200

350 0 350

Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-1f.mxd Prepared: 10-01-08 Revised: 11-18-08 edouglas

Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-1f
Reading Creek - Aquatic Habitat

(Moyle 2002). Based on this habitat preference, ammocoetes may be expected in the mud and sand sediments of the pool and run/edgewater habitats in and adjacent to the Remaining Phase 1 sites.

The following site-specific aquatic habitat descriptions and species occurrence and utilization analysis have been developed from a review of annual reports, spawner distribution reports, technical studies (annual salmon redd surveys were conducted from September through mid-December 2001-2006)[1], TRRP's geomorphic characterization (see section 7.3), field visits, and TRRP's ongoing planning process.

Sawmill

Salmon redd surveys encountered an annual average of 123 redds (range 98–176) within the boundary of the SM site. Because of high use of the constructed side channel and mainstem by spawning anadromous salmonids, spawning densities at this site were about double what they were for the entire redd survey reach from Old Lewiston Bridge to Bucktail River Access (132.6 vs. 64.2 redds per mile). Sixty-five percent of the redds enumerated within the SM site since 2001 were constructed upstream of the gravel injection site at RM 109.0, where there are multiple channels (main and side channels) (Chamberlain et al. 2007).

Side channel rearing habitat evaluations were conducted within the enhanced Cemetery Side Channel in 1989 and 1990 (U.S. Fish and Wildlife Service 1989, 1990). The USFWS (1990) determined that feathered banks, meanders, and cobble/boulder wing deflectors added to the Cemetery Side Channel increased habitat for Chinook salmon fry (by a factor of 5.3) and juvenile Chinook salmon (by a factor of 3.6). Studies conducted under the auspices of the TRRP in 2006 and 2007 revealed that sandy areas of this side channel were occupied by coho throughout the year, and provided larval habitat for lamprey.

Surveys focused on use of habitat by coho fry (spring, summer, and winter seasons) were conducted under the auspices of the TRRP in 2005 and 2006 in the general vicinity of this site. This survey also included observations on other species/age classes. Coho young of the year were found during the summer throughout the site, with concentrations of juvenile coho in close proximity to constructed wood clusters in the faster areas of the side channel. Winter coho fry use was only observed in the vicinity of the sharp bend in Cemetery Side Channel at the upper end of the site. Coho were observed at the entrance to the side channel and downriver on the left bank from the side channel re-entry point. Chinook and steelhead fry were observed throughout this reach (Garrison 2007).

Significant adult anadromous salmonid holding occurred in pools within the project boundary (in Cemetery Hole and in Sawmill Hole). Brown trout were also observed in these pools.

Upper Rush Creek

Salmon redd surveys conducted from September through mid-December 2001 to 2006 encountered an annual average of 36 redds (range 22–52) within the boundary established for the UR site. Spawning densities in this site were lower than the entire survey reach from Old Lewiston Bridge to Bucktail River

[1] Site boundaries were revised subsequent to the salmon redd surveys.

Access (44.4 vs. 64.2 redds per mile). Spawning activity was limited to about the upper two-thirds of the site where there were suitable gravels and velocities (Chamberlain et al. 2007). Some adult Chinook and steelhead holding occurred in the pool above the Rush Creek delta, and significant numbers of brown trout were observed there.

During summer, coho salmon fry were observed along the left margin of the main river channel (Garrison 2007). High densities of coho fry were also observed in open water areas in association with dense riparian vegetation, such as the area adjacent to BLM's parking lot and river access (Garrison 2007).

Lowden Ranch

Redd surveys encountered an annual average of 34 redds (range 18–51) within the boundary established for the LR site. Most of the redds were characterized as Chinook salmon redds. Spawning densities were nearly identical to what they were for the entire survey reach from Bucktail River Access to Steel Bridge River Access (34.0 redds per mile). Generally, high concentration of redds were not observed within the boundary established for this site (Chamberlain et al. 2007).

Trinity House Gulch

Salmon redd surveys encountered an average of five Chinook redds (range 3–9) within the boundary established for the THG site. Spawning densities were very low compared to the entire survey reach from Bucktail River Access to Steel Bridge River Access (12.2 vs. 34.0 redds per mile) (Chamberlain et al. 2007). At the THG site, an intermittent creek enters the river along the right bank. During a June 2007 site visit, this creek went subsurface where the gulch intersected the alluvial deposits and remerged a few feet from the low-flow channel of the Trinity River. Based on casual observations, the river provides some adult salmonid holding habitat at the extreme upstream end, coincident with the mouth of Grass Valley Creek.

Steel Bridge Day Use

Salmon redd surveys conducted September through mid-December 2001 to 2006 encountered an annual average of 16 redds (range 8–20) within the boundary established for the SB site. Most of these redds were Chinook. A functional side-channel along the left bank upstream of most of the activity areas supports spawning densities higher than that for the entire redd survey reach from Steel Bridge River Access to the Douglas City Campground (41.5 vs. 25.9 redds per mile). Nearly all spawning activity within this project boundary occurs on the upstream half of this side-channel, where existing channel complexity is higher (Chamberlain et al. 2007).

Reading Creek

Salmon redd surveys encountered an annual average of 26 redds (range 23–28) within the boundary established for the RC site. Spawning densities at the site were slightly lower than that for the entire redd survey reach from Steel Bridge River Access to the Douglas City Campground (16.9 vs. 25.9 redds per mile). Chinook and steelhead redds were generally dispersed throughout the length of the site (Chamberlain et al. 2007).

In 2002, a stranding study was conducted at the downstream end of this site, immediately downstream of BLM's campground (Chamberlain 2003). At higher flows, stranding was observed behind the riparian berm in conjunction with a side channel feature. As flows recede, this feature is isolated from the main channel near the campground. Limited anadromous salmonid fry use surveys were conducted in 2005. Some fry were found in this area, but use appears to be limited (Trinity River Restoration Program 2007).

The RC site includes the Douglas City Campground, a site of many previous assessments, and which frequently served as a reference reach for comparison of early Reclamation restoration projects (e.g., Douglas City Feathered Edge immediately downstream) (Gallagher 1995, 1999).

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and EFH are described in the Master EIR (section 4.6).

The Remaining Phase 1 sites provide all four major components of EFH as defined by the Pacific Fisheries Management Council (2000).

7.6.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.6-1 summarizes the potential fisheries impacts that would result from the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 7.6-1. Summary of Potential Fishery Resource Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.6-1. 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	Significant	Less than significant	Less than significant
Impact 7.6-2. 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	Significant	Less than significant	Less than significant
Impact 7.6-3. 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	Significant	Less than significant	Less than significant

Table 7.6-1. Summary of Potential Fishery Resource Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.6-4. 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	Significant	Less than significant	Less than significant
Impact 7.6-5. Implementation of the project would result in the permanent and temporary loss of SRA habitat for anadromous salmonids.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.6-6. Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.				
No impact	Significant	Significant	Less than significant	Less than significant

Impact 7.6-1: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

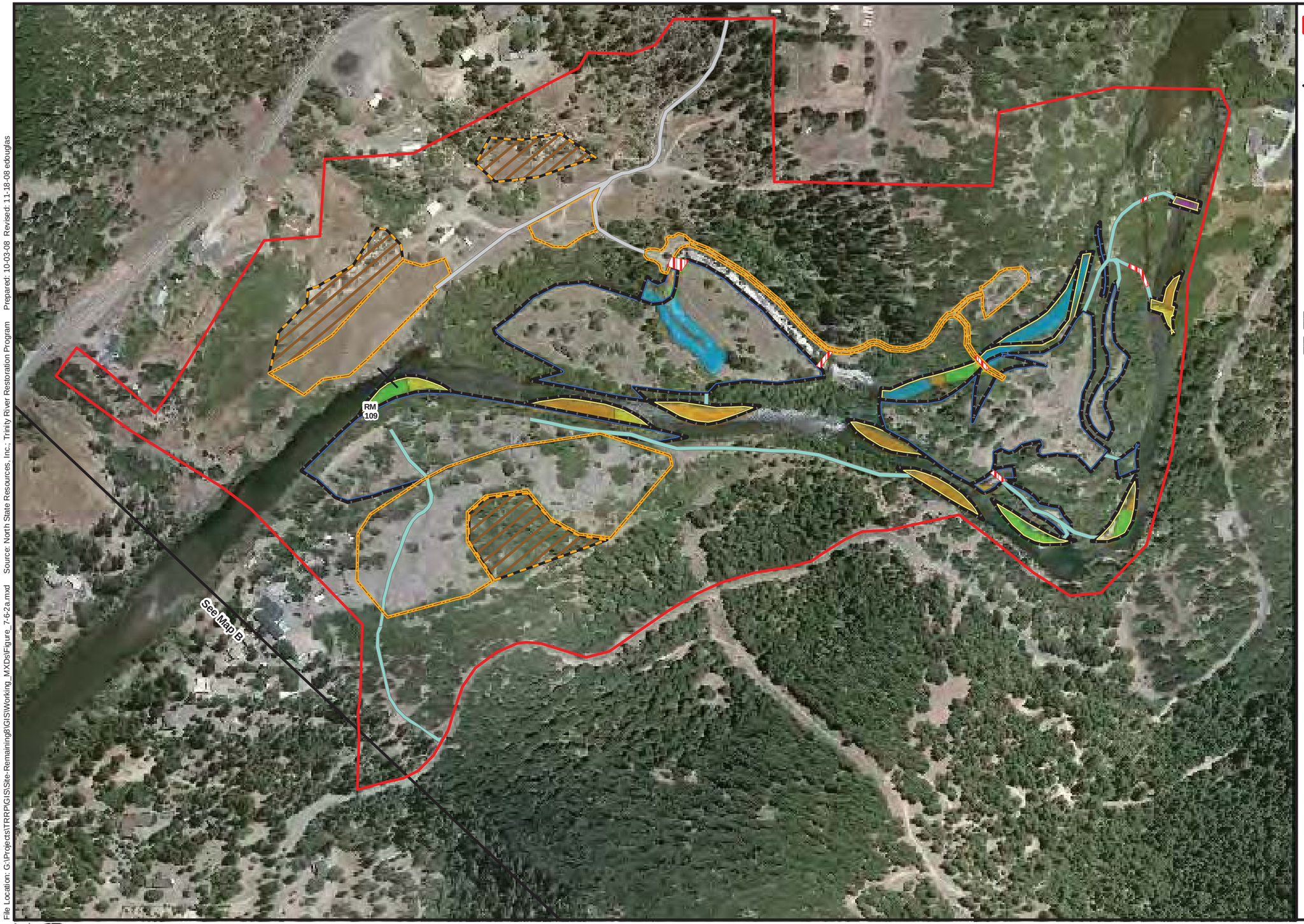
No-Project Alternative

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 Chapters 4 and 5, 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 affects will continue to influence the spawning and rearing habitat for anadromous fishes, irrespective of this alternative. Under this alternative, there would be no impact.

Proposed Project

Coho Salmon

Under the Proposed Project, no permanent adverse effects to coho salmon spawning habitat within the boundaries of the Remaining Phase 1 sites would occur. Instead, the Proposed Project is expected to result in immediate as well as long-term improvements. Figures 7.6-2a-f illustrate the extent of the grading, excavating, and coarse sediment addition that would occur below the OHW in riverine habitat (blue areas) under the Proposed Project. The long-term design objective is 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 project sites. This dynamic fluvial



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (1.249 acres)

Moderate Slope (0.326 acre)

Pool (0.513 acre)

Run (1.067 acres)

Step (0.036 acre)

N

1:3,600

300 0 300

Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-2a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-2a
Sawmill - Impacts of Proposed Project on Aquatic Habitat

Site Boundary (92.274 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.064 acre)

Moderate Slope (0.071 acre)

Pool (2.017 acres)

Run (0.550 acre)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-2b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-2b
Upper Rush Creek - Impacts of Proposed Project on Aquatic Habitat

Site Boundary (211.769 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (1.876 acres)

Moderate Slope (0.225 acre)

Pool (0.001 acre)

Run (2.463 acres)

N

1:5,400

450 0 450

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-2c.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-2c
Lowden Ranch - Impacts of Proposed Project on Aquatic Habitat

Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.533 acre)

Pool (0.003 acre)

Run (0.013 acre)

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-2d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-2d
Trinity House Gulch - Impacts of Proposed Project on Aquatic Habitat

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.210 acre)

Moderate Slope (0.137 acre)

Pool (0.365 acre)

N

1:2,400

200 0 200

Feet

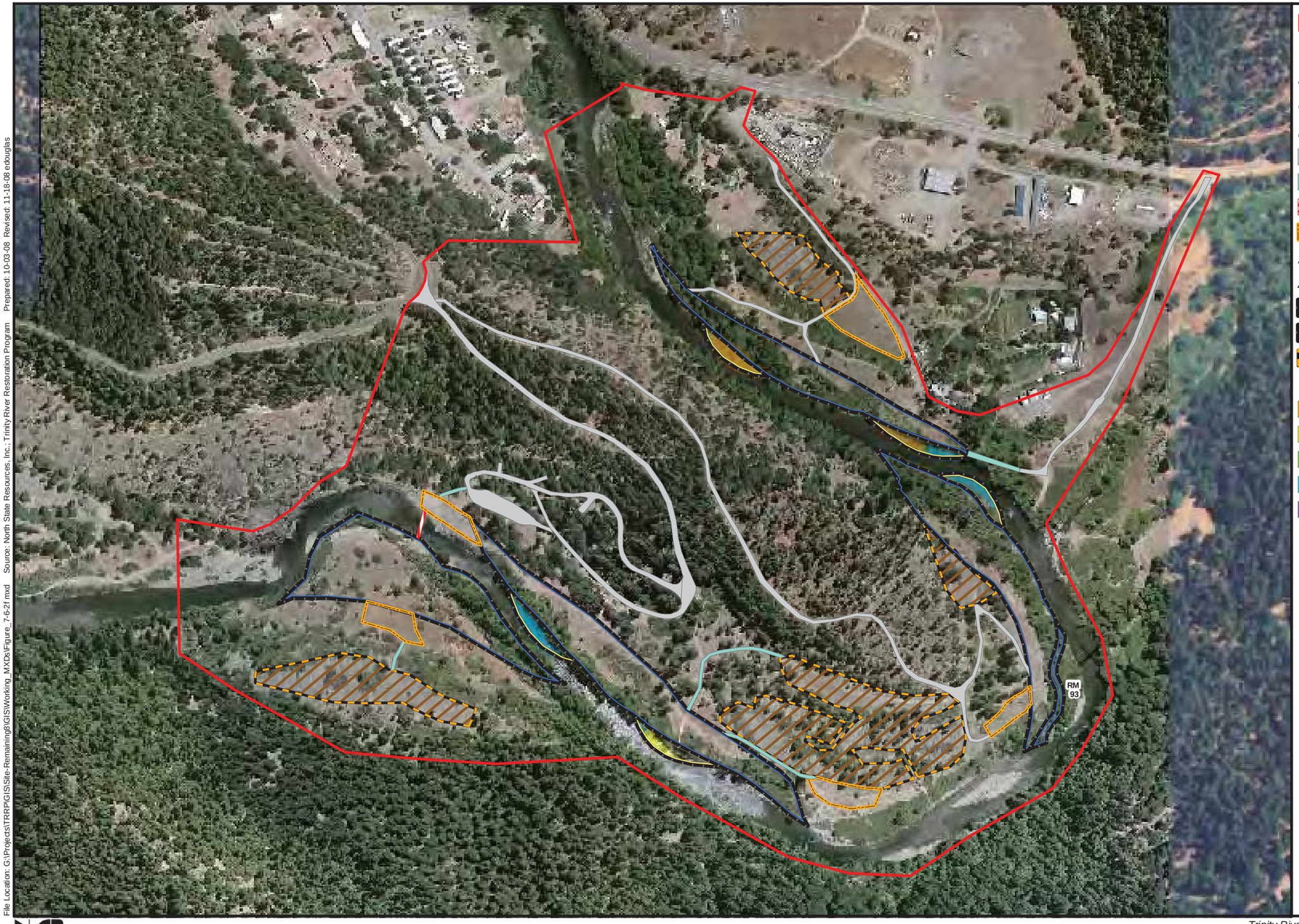
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-2e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-2e
Steel Bridge Day Use - Impacts of Proposed Project on Aquatic Habitat



Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.418 acre)

Moderate Slope (0.159 acre)

Pool (0.038 acre)

Run (0.507 acre)

Step (0.007 acre)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-2f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-2f
Reading Creek - Impacts of Proposed Project on Aquatic Habitat

channel would result in a net increase in point bar surface area through coarse sediment deposition, increasing spawning habitat within the boundaries of the Remaining Phase 1 sites. The addition of coarse sediment, either construction or long-term injection (including spawning sized gravels) to the Trinity River at select sites 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; the removal of existing grade control structures; and the addition of coarse sediment material, including contouring and grading in the low-flow channel. Any salmon redds on or near the existing grade control structures or coarse sediment addition sites 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 these construction areas. However, excavation of grade control structures would be conducted during late-summer (July 15-September 15) low-flow conditions, as authorized by NMFS and CDFG, to avoid impacts to spawning anadromous salmonids. The addition (injection) of coarse sediment at various IC activity areas would occur during the channel maintenance flows released from the TRD during the spring. While the volume of material introduced to the channel may vary by water year type, the timing and mechanism would be based on the transport capacity of these flows.

Suitable habitat for juvenile salmonids occurs within the boundaries of the Remaining Phase 1 sites. Some temporary effects on the quality of this habitat will occur through removal of riparian vegetation that contributes to SRA habitat in the project reaches. Similar effects will also occur during excavation of the existing grade control structures and coarse sediment addition. The principal effects 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). The potential direct and indirect effects to fish resulting from increased suspended sediment and turbidity levels are addressed further under Impact 7.6-2.

The adverse impacts on habitat are expected to be offset in the long-term by benefits associated with implementing the Proposed Project. These benefits will accrue from: 1) the constructed inundation surfaces, 2) overall reconnection of these inundated surfaces to the river at low flows, 3) potential channel migration through the alluvial surfaces, and 4) revegetation of these surfaces with native plant species that will 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 channel migration process and engineered side channel and alcove habitats will collectively increase the relative abundance of rearing habitat, compared to the existing condition. The

Proposed Project will include construction of 14.6 acres of side-channel, 54.3 acres of berm removal and constructed floodplain, and the addition of 58,770 cubic yards of coarse sediment, which together will enhance aquatic habitat within the boundaries of the Remaining Phase 1 sites.

Ultimately, the collective changes in channel morphology as a result of the Proposed Project will improve rearing habitat diversity for all anadromous salmonids. LWD will be strategically placed in restored side-channels and floodplain areas. The addition of LWD will provide complex physical habitat that will have important effects on juvenile and adult fish in the Trinity River in that they will 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; as cited in Cederholm et al. 1997). Although the impacts to coho salmon under the Proposed Project would be temporary and localized, they would be significant.

Chinook Salmon

Potential impacts and benefits to Chinook would be generally similar to those previously described for coho salmon. Spring- and fall-run salmon are known to spawn and rear within the boundaries of the Remaining Phase 1 sites. Juvenile spring-run Chinook salmon would be expected to rear year-round within these sites and may be displaced by in-river work activities. Additionally, prior to spawning adult spring-run Chinook salmon utilize holding habitat offered by run, glide, and pool areas within these sites. No permanent adverse impacts to spring-run Chinook salmon holding habitat will occur. The Proposed Project does not include activities that will directly fill, modify, or otherwise affect the quality or quantity of spring-run holding habitat in the Trinity River. 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; the removal of existing grade control structures; and the addition of coarse sediment material, including contouring and grading in the low flow channel. The potential effects of increased suspended sediment and turbidity to holding adult spring-run Chinook salmon are addressed under Impact 7.5-2.

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 are known to migrate and stage within the boundaries established for the Remaining Phase 1 sites 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. Adult Pacific lampreys migrate upstream to spawn from spring through early summer and again in the fall. The removal of riparian vegetation that contributes to SRA habitat within the site boundaries could also have a temporary impact on adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the implementation of the Riparian Revegetation and Monitoring Plan, described in Chapter 2, will alleviate this impact over the longer term.

Although the impacts to coho salmon and other anadromous fish under the Proposed Project would be temporary and localized, they would be significant.

Alternative 1

Coho Salmon

Under Alternative 1, rehabilitation activities at the Remaining Phase 1 sites would be similar to, but less than, those described for the Proposed Project. Figures 7.6-3a-f illustrate the locations and types of activities included in Alternative 1. Alternative 1 would result in a reduction in the temporary and permanent construction-related impacts to riverine habitats below the OHW (blue areas) compared to the Proposed Project. Specifically, this alternative reduces the number of riverine, upland, and in-channel activities, including stream crossings at five of the sites. The activities proposed at the SM site are identical to those included in the Proposed Project. Alternative 1 includes coarse sediment injection activities at select sites. Similar to the Proposed Project, these locations would be used to stockpile and inject gravel for mobilization at high flows. Introduction of the gravel would take place during spring for distribution by the river during high flows, or delivered to the mid-channel during high flows using mechanized equipment. Alternative 1 will include construction of 14.6 acres of side-channel, 48.8 acres of berm removal and constructed floodplain, and the addition of 53,215 cubic yards of coarse sediment, which will contribute to the quantity and quality of aquatic habitat in this reach of the Trinity River.

Most of the expected benefits of the Proposed Project would also occur under this alternative. Although Alternative 1 would provide benefits to coho salmon, the temporary and localized impacts to spawning and rearing habitat remain significant.

Chinook Salmon

Alternative 1 would result in temporary and permanent construction-related impacts to spawning, holding, and rearing habitat for Chinook salmon generally similar to those described for coho salmon. However, the reduction in the number, type, and magnitude of activities included in Alternative 1 would reduce these impacts relative to the Proposed Project. Most of the expected benefits of the Proposed Project would occur under this alternative.

Steelhead

Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for steelhead generally similar to those described for coho salmon. However, the reduction in the number, type, and magnitude of activities included in Alternative 1 would reduce these impacts relative to the Proposed Project. Most of the expected benefits of the Proposed Project would occur under this alternative.

Pacific Lamprey

Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Pacific lampreys similar to those described for coho salmon. However, the reduction in the number, type, and magnitude of activities included in Alternative 1 would reduce these impacts relative to the Proposed Project. Most of the expected benefits of the Proposed Project would occur under this alternative.

Although the impacts to coho salmon and other anadromous fish under Alternative 1 would be temporary and localized, they would be significant.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.6-1 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.6-2: 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. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

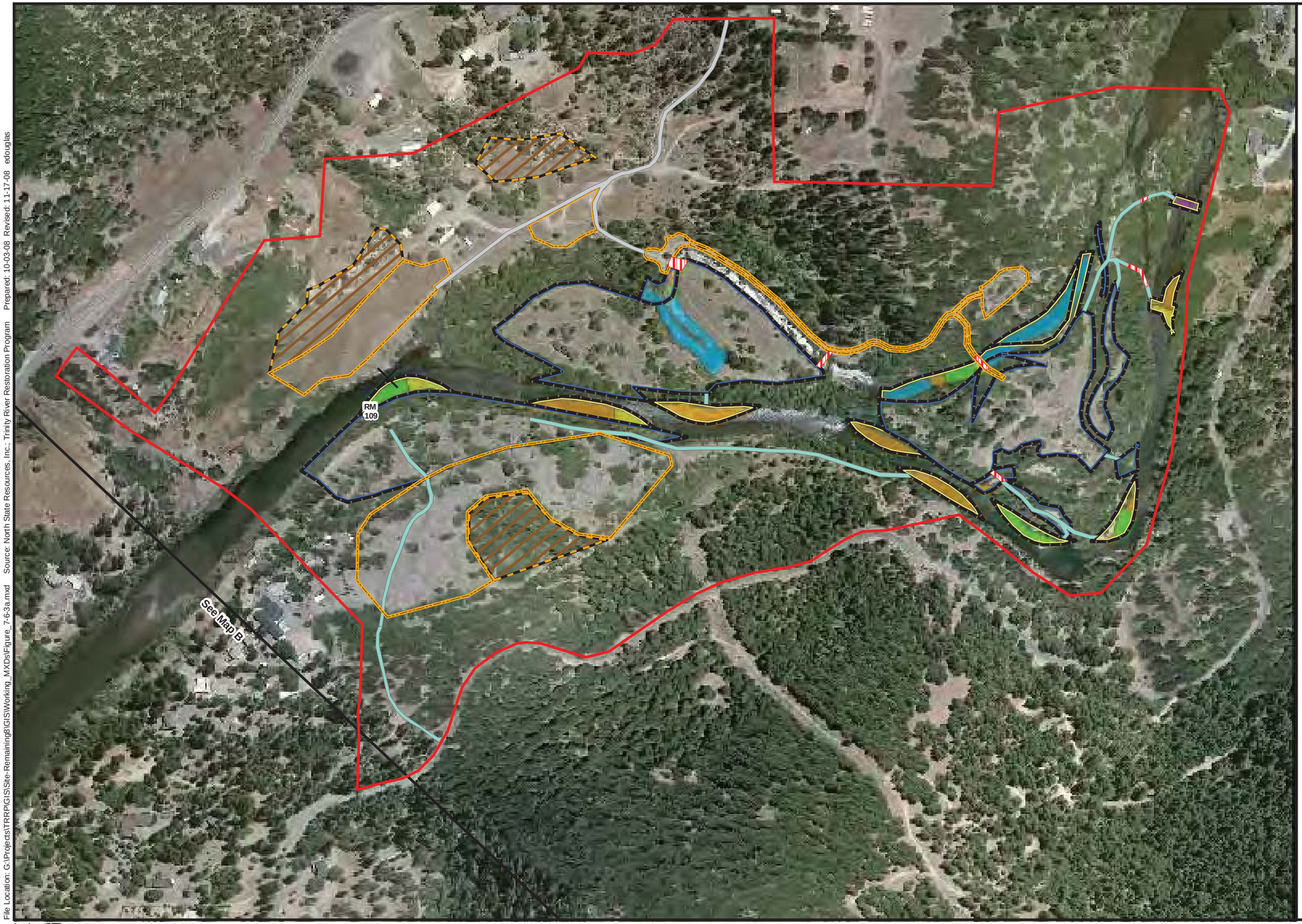
No-Project Alternative

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 project sites 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



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (1.249 acres)

Moderate Slope (0.326 acre)

Pool (0.513 acre)

Run (1.067 acres)

Step (0.036 acre)

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-3a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-3a
Sawmill - Impacts of Alternative 1 on Aquatic Habitat

Site Boundary (92.274 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.008 acre)

Moderate Slope (0.003 acre)

Pool (0.121 acre)

Run (0.514 acres)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-3b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-3b
Upper Rush Creek - Impacts of Alternative 1 on Aquatic Habitat

Site Boundary (211.769 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (1.624 acres)

Moderate Slope (0.097 acre)

Run (2.443 acres)

N

1:5,400

450 0 450

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-3c.mxd Prepared: 10-03-08 Revised: 11-17-08 edouglas Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-3c
Lowden Ranch - Impacts of Alternative 1 on Aquatic Habitat

Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.533 acre)

Pool (0.003 acre)

Run (0.013 acre)

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-3d.mxd Prepared: 10-03-08 Revised: 11-17-08 edouglas

Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-3d
Trinity House Gulch - Impacts of Alternative 1 on Aquatic Habitat

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.210 acre)

Moderate Slope (0.137 acre)

Pool (0.146 acre)

N

1:2,400

200 0 200

Feet

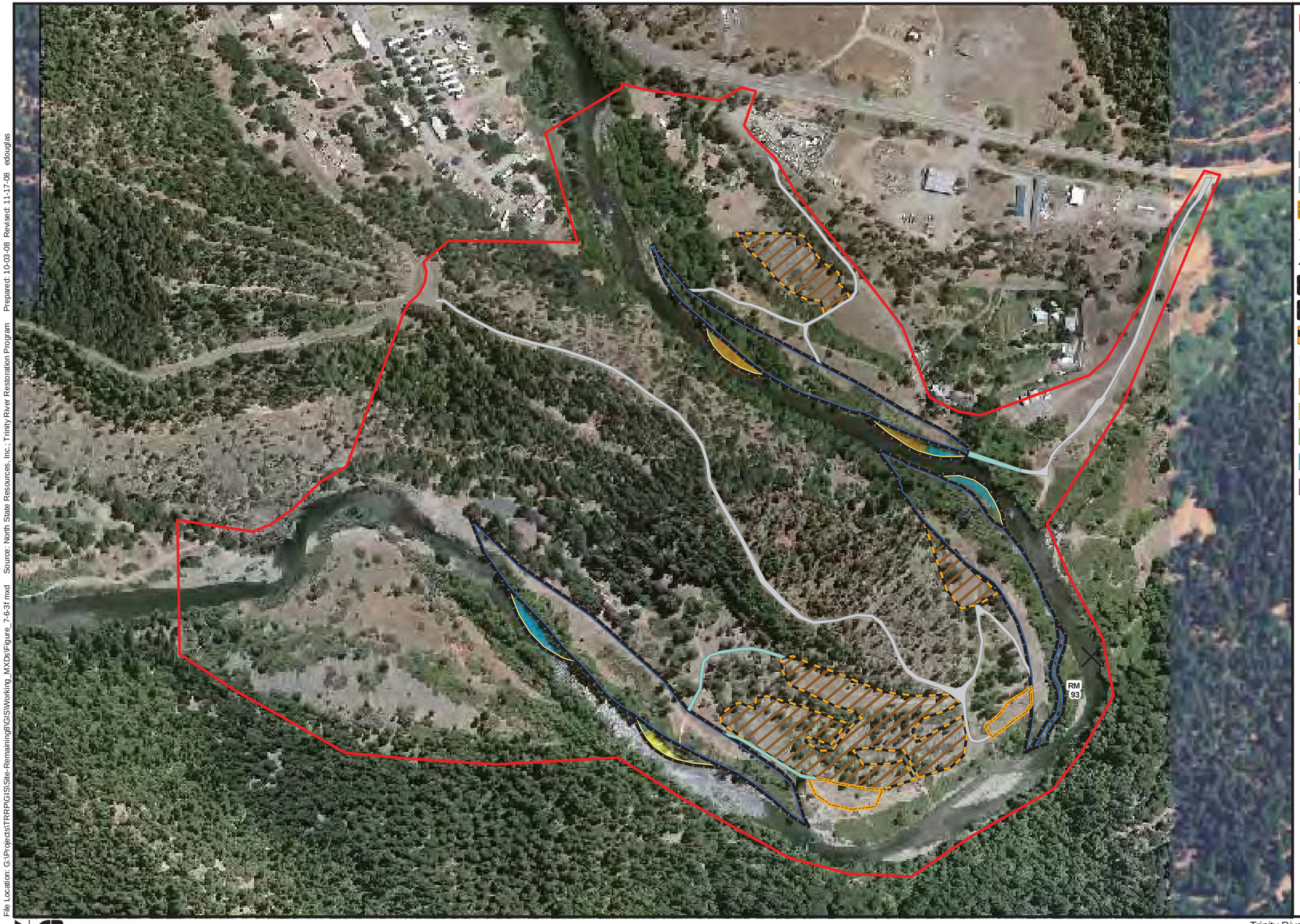
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-3e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-3e
Steel Bridge Day Use - Impacts of Alternative 1 on Aquatic Habitat



Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Construction Areas

Name

Access Road - Existing

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Habitat Type

Low Slope (0.418 acre)

Moderate Slope (0.124 acre)

Pool (0.002 acre)

Run (0.496 acre)

Step (0.007 acre)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-3f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-03-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-3f
Reading Creek - Impacts of Alternative 1 on Aquatic Habitat

photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980).

In-channel and riverine activities 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, which would result in localized and temporary increases of suspended sediment and turbidity.

Approximately 12.8 acres of mainstem Trinity River main channel habitat would be temporarily affected during the various in-channel activities. Low gradient (4.4 acres) and pool habitat (2.9 acres) would be impacted more than other available habitat types. In-channel activities would result in 9.8 acres of temporary impacts to mainstem Trinity River habitat. Operation of heavy equipment in the active channel during 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 will 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 known 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 Biological Opinion and associated incidental take statement for the ROD and amended Biological Opinion for in-river work.

Chinook Salmon

Potential impacts to Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Project 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 habitats within and adjacent to the Remaining Phase 1 sites. Construction activities are proposed during the spawning period, and in-river construction may temporarily displace holding adult salmonids. Some fine-textured materials may settle near or on known 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 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 Klamath Mountain Province ESU steelhead are known to migrate, stage (as adults), and rear (as juveniles) within the site boundaries 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 lampreys 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-gradient 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.

While the Proposed Project would increase aquatic habitat within the boundaries of the Remaining Phase 1 sites, 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.

Alternative 1

Coho Salmon

Alternative 1 would result in temporary effects on coho salmon from erosion, sedimentation, and turbidity that are generally similar to, but less than, those described for the Proposed Project. As illustrated in Figures 7.6-3a-f, the location, type, and magnitude of activities included within this alternative would be reduced, with the exception of the SM site. Most of the expected benefits of the Proposed Project would also occur under this alternative. Approximately 10.1 acres of mainstem Trinity River main channel habitat would be temporarily affected during the various in-channel activities. Low gradient (4.0 acres) and run habitat (4.5 acres) would be impacted more than other available habitat types. In-channel activities would result in a temporary impact to 8.8 acres of mainstem Trinity River habitat. However, construction activities would result in an increase in the amount of project generated erosion, sedimentation, and turbidity.

Chinook Salmon

Alternative 1 would result in erosion, sedimentation, and turbidity impacts to Chinook salmon similar to those previously described for coho salmon.

Steelhead

Alternative 1 would result in temporary effects on steelhead from erosion and sedimentation similar to those previously described for coho and Chinook salmon.

Pacific Lamprey

Alternative 1 would result in temporary effects on Pacific lampreys from erosion and sedimentation similar to those previously described for coho, Chinook, and steelhead.

While Alternative 1 would increase aquatic habitat within the boundaries of the Remaining Phase 1 sites, 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.

Mitigation Measures

No-Project Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.6-2 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant/beneficial

Impact 7.6-3: Construction activities associated with the project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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

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 salmonid life stages within close proximity to construction activities.

Chinook Salmon

Potential impacts to Chinook salmon populations in the Trinity River resulting from the accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Steelhead

Potential impacts to steelhead populations in the Trinity River resulting from the accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Pacific Lamprey

Potential impacts to Pacific lamprey populations in the Trinity River resulting from the accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Although short-term, these impacts are considered significant.

Alternative 1

The risk of, and impacts resulting from, construction-related accidental spills of hazardous materials associated with Alternative 1 would be similar to those associated with the Proposed Project for all anadromous fish species. These impacts would be significant.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.6-3 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 all the Remaining Phase 1 sites, and juvenile coho salmon may be expected to rear within these boundaries year-round. Adult coho migrate through these sites 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 activities, including excavation of existing grade control structures, coarse sediment addition including grading, and use of river crossings at any of the six sites included in the Proposed Project. Excavation of the existing grade control structures, coarse sediment addition, and associated grading would be conducted only during late-summer low-flow conditions (e.g., July 15 – September 15). 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, will find suitable habitat within river reaches upstream or downstream of the project, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (National Marine Fisheries Service 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 would not occur. However, direct impacts to juvenile coho salmon could occur during the annual, long-term addition of coarse sediment at stream-side injection sites during spring flow events. Coarse sediment would be injected by positioning the material bankside for distribution by the river at high flows, or by delivering the material to the mid-channel via mechanized equipment. This could result in injury to, or mortality of, juvenile coho salmon if they are present, which would be a significant impact.

A small, temporary, but uncertain level of stranding of coho salmon fry could occur on the newly constructed inundation surfaces and side channels 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 and in flood bypasses (Sommer 2001), the constructed features could increase this process to varying degrees. All of the designs for constructed inundation surfaces incorporate a downstream slope equal to that of the river channel and would drain in a downstream direction that would be guided toward the river channel by earthwork contours to minimize the potential for stranding. 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 previously 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 relocate. 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 Phase 1 and Phase 2 sites, and physiological effects, or ultimately death, are not expected as temperatures in this reach of the Trinity River (13-15 °C) are below the threshold observed where spring run can accumulate stresses. Based on the proximity of the site boundaries to holding habitat observed in 2003/2004, and ongoing studies on temperature tolerance, temperatures in this section of the Trinity River are sufficiently cool that spring-run Chinook salmon are able to deal with stressors (e.g., relocation) without adverse effect (North State Resources 2005).

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.

Pacific Lamprey

Potential impacts on 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.

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.

Alternative 1

Construction-related mortality of adult and juvenile fishes associated with Alternative 1 would be generally less than that of the Proposed Project due to the reduction in the location, number, and magnitude of activities. While the activities included in Alternative 1 are intended to benefit salmonids and other aquatic organisms, the short-term construction impacts would be significant.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.6-4 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.6-5: Implementation of the project would result in the permanent and temporary loss of SRA for anadromous salmonids. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 section 4.6, Fishery Resources, the term *riparian habitat* encompasses the range of riparian vegetation conditions within the boundaries of the Phase 1 and Phase 2 sites. It does not have a specific legal description or definition. To illustrate the impacts to SRA habitat, a set of figures (Figures 7.6-4a-f) is provided following this impact discussion.

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 woody debris 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. However, complexity in the riparian environment is also an important component of fish habitat; such complexity would be increased over the long-term under the Proposed Project.

Removal of the riparian berm and re-activation of adjacent floodplains within riverine activity areas would allow for natural revegetation of most of the riparian habitat (mixture of willows, alders, and cottonwoods) that would be lost as a result of berm removal and floodplain contouring. Under the Proposed Project, large seed trees (willow and cottonwood) and large nesting trees would be left intact.

Additionally, riparian habitat removed under the Proposed Project would be replaced during the revegetation efforts consistent with the requirements of the Riparian Revegetation and Monitoring Plan. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing 60.5 acres of riparian vegetation is considered a significant impact.

Alternative 1

The impacts associated with Alternative 1 are illustrated in Figures 7.6-5a-f. Similar to other impact discussions, this alternative represents a reduction in the location, type, and magnitude of activities, relative to the Proposed Project. These reductions will decrease the total amount of SRA habitat that will be impacted in the short-term. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing 52.0 acres of riparian vegetation is considered significant.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.6-5 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

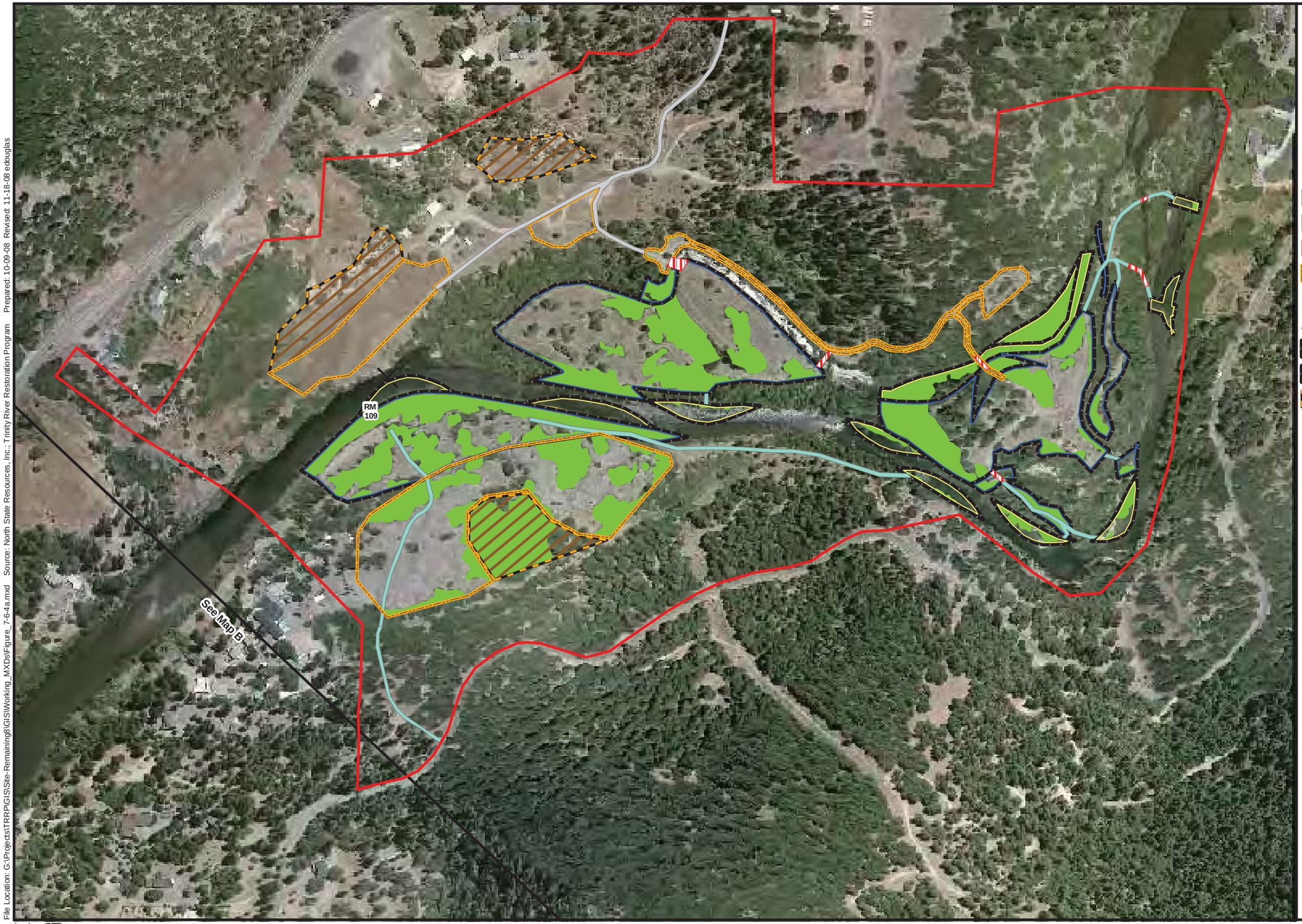
No-Project Alternative

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

Coho Salmon

Construction activities associated with the Proposed Project would require temporary placement of low-flow channel crossings at each of the Remaining Phase 1 sites, using alluvial materials as specified in Chapter 2. The crossings will be constructed to maintain adequate water depths and velocities for fish passage. The low water crossings would be used to move heavy equipment across the low-flow channels to access activity areas on opposite banks of the Trinity River. Construction activities could require



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (11.478 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:3,600

300 0 300

Feet

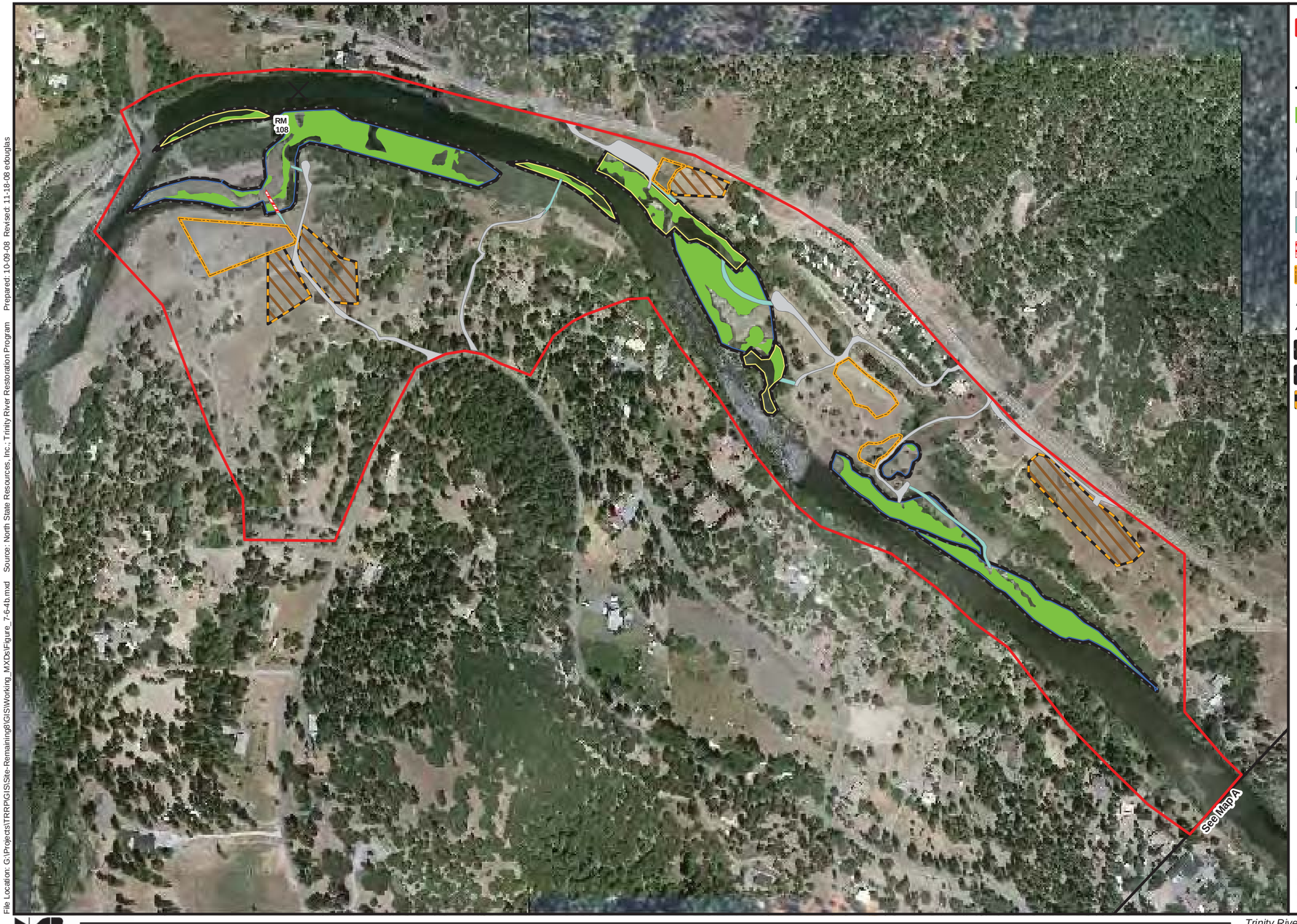
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-4a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-09-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-4a
Sawmill - Impacts of Proposed Project on Riparian Area Habitat



Site Boundary (92.27 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (6.899 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:4,200

350 0 350

Feet

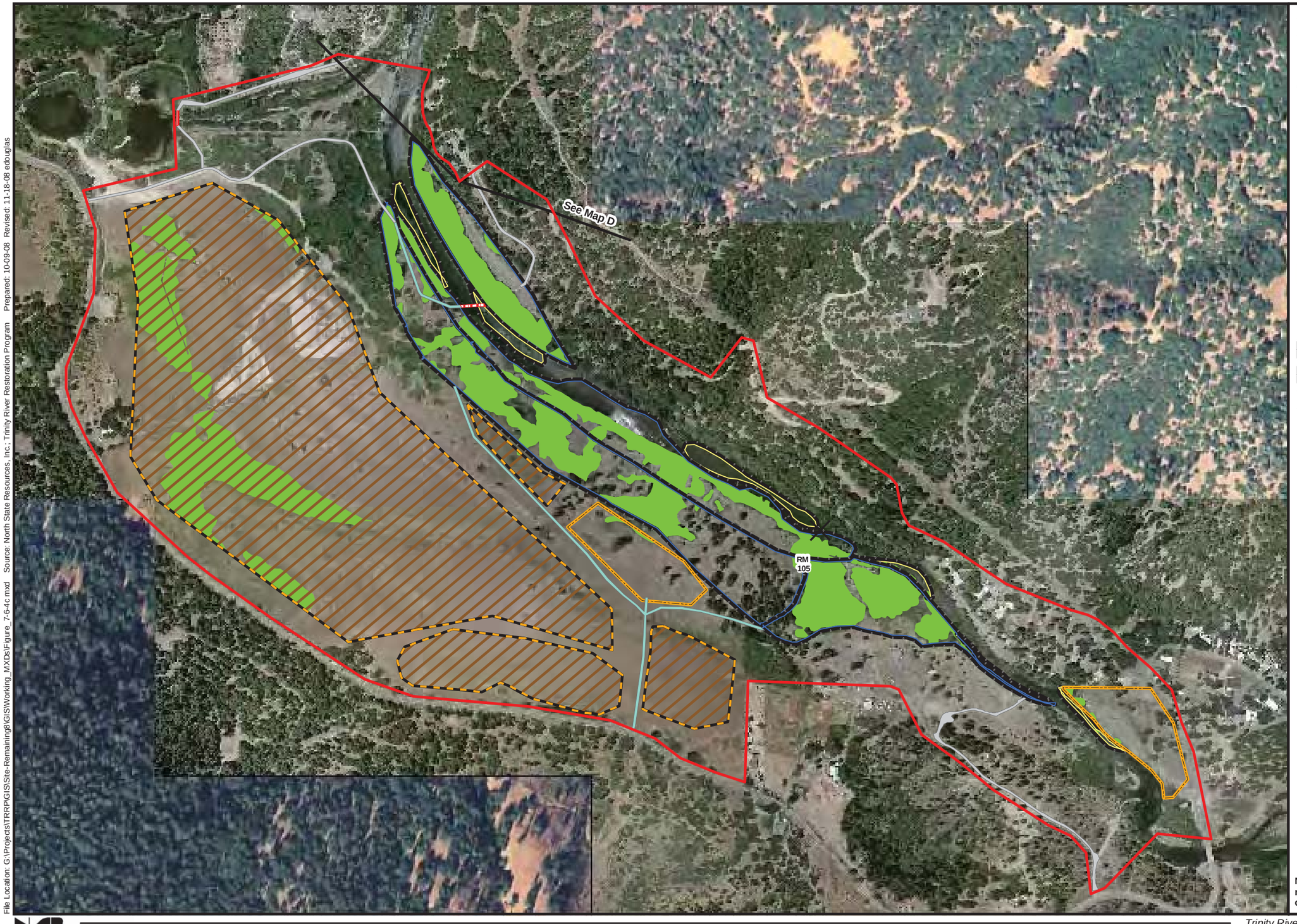
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-4b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-09-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-4b
Upper Rush Creek - Impacts of Proposed Project on Riparian Area Habitat



Site Boundary (211.774 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (25.979 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:5,400

450 0 450

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-4c.mxd Prepared: 10-09-08 Revised: 11-18-08 edouglas Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-4c
Lowden Ranch - Impacts of Proposed Project on Riparian Area Habitat

Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (2.786 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-4d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-09-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-4d
Trinity House Gulch - Impacts of Proposed Project on Riparian Area Habitat

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (1.191 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:2,400

200 0 200

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-4e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-09-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-4e
Steel Bridge Day Use - Impacts of Proposed Project on Riparian Area Habitat

Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (12.183 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:4,200

350 0 350

Feet

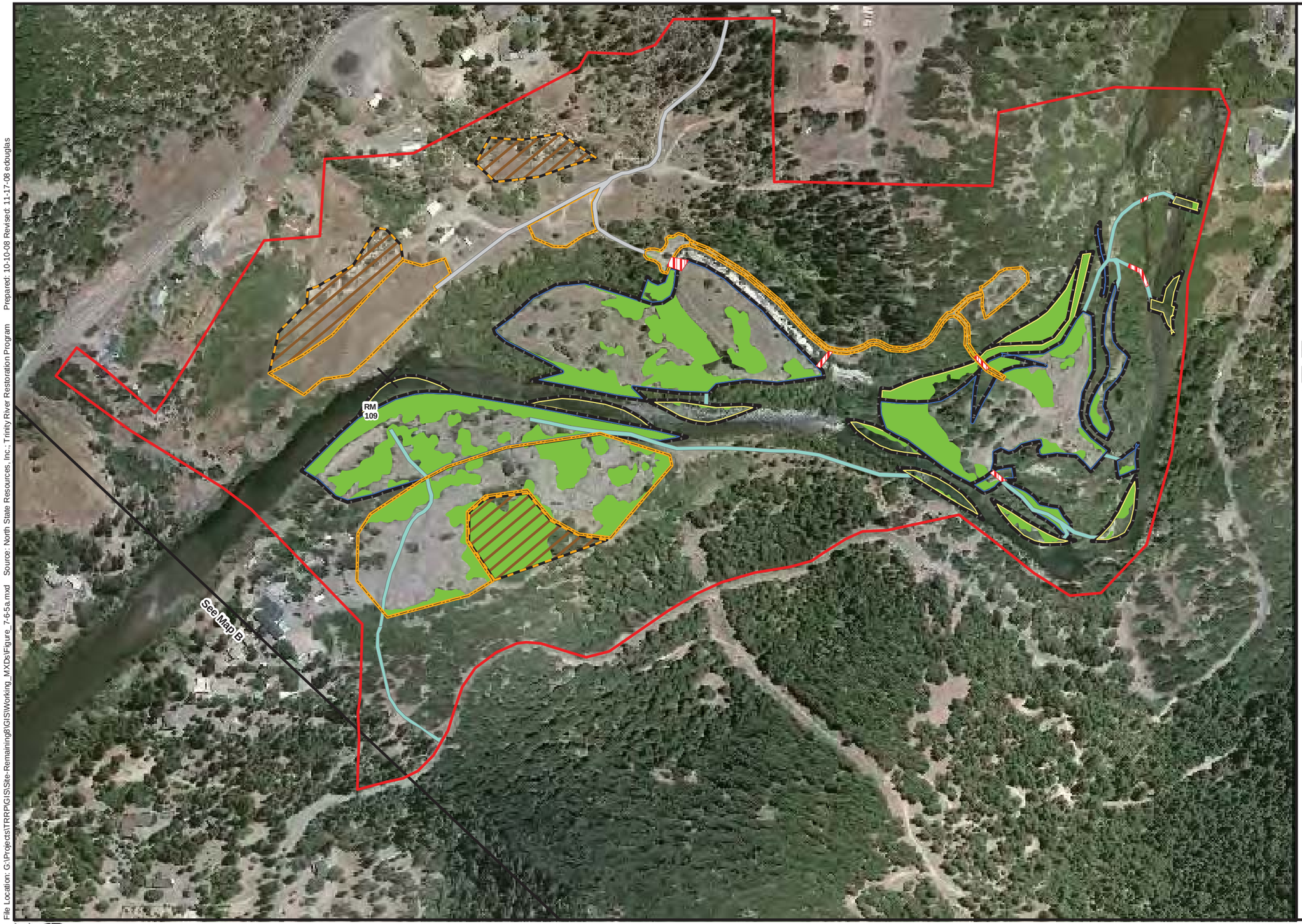
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-4f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-09-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-4f
Reading Creek - Impacts of Proposed Project on Riparian Area Habitat



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (11.478 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-5a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-5a
Sawmill - Impacts of Alternative 1 on Riparian Area Habitat

Site Boundary (92.274 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (4.454 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:4,200

350 0 350

Feet

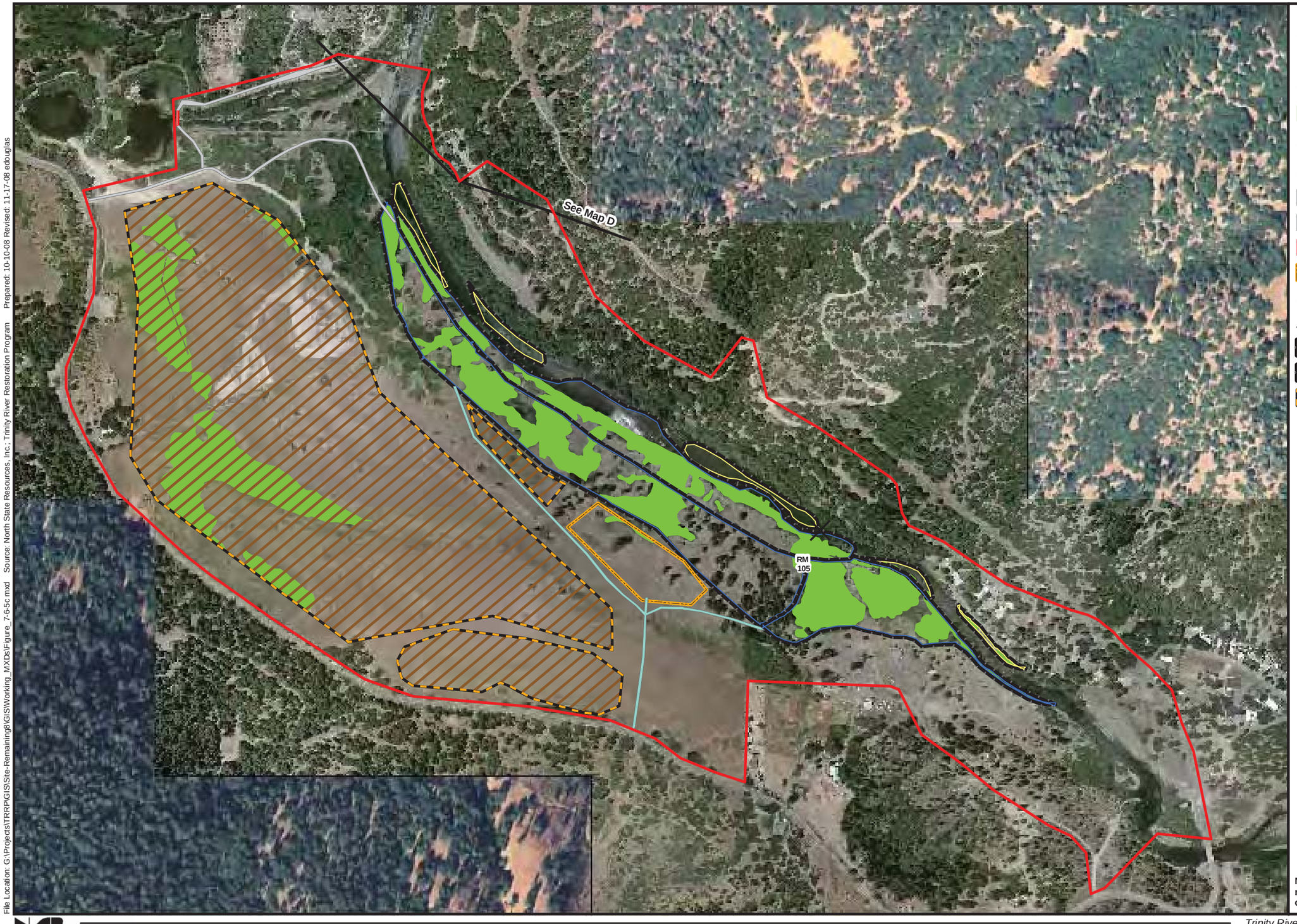
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\$\GIS\Working_MXDs\Figure_7-6-5b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-5b
Upper Rush Creek - Impacts of Alternative 1 on Riparian Area Habitat



Site Boundary (211.769 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (22.677 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:5,400

450 0 450

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-5c.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-5c
Lowden Ranch - Impacts of Alternative 1 on Riparian Area Habitat

Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (2.785 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Activity Areas

Area

In Channel

Riverine

Upland

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-5d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-5d
Trinity House Gulch - Impacts of Alternative 1 on Riparian Area Habitat

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (1.191 acres)

Construction Areas

Name

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:2,400

200 0 200

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-6-5e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-5e
Steel Bridge Day Use - Impacts of Alternative 1 on Riparian Area Habitat

Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Riparian Area Habitat Impacts (9.488 acres)

Construction Areas

Name

Access Road - Existing

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-6-5f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-10-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.6-5f
Reading Creek - Impacts of Alternative 1 on Riparian Area Habitat

service vehicles to cross up to several times per week; otherwise, vehicle crossing traffic would be kept to a minimum. Access for heavy equipment and service vehicles could be required in the event that small private access roads with small turning radiuses (e.g., through the Salt Flat community) are impassable by construction equipment. Temporary gravel fill work ramps and low-flow channel crossings would be constructed at various locations (activity area X) to extend across the width of the low-flow channel and are expected to be in place long enough to complete work in these activity areas. Construction in and near the active low-flow channel is planned to occur during the summer and fall months (between July and December); however, access in and out of the sites could be required during other low-flow times as well. Construction of the crossings would only be conducted during late-summer, low-flow conditions (e.g., July 15–September 15). However, river crossings may be used on a reoccurring basis during the construction period (e.g., October - December). Consequently, it is likely that some of this work would occur during the coho salmon spawning period.

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, the low-flow channel crossings would be dismantled and materials would be contoured to the river bottom. Fill materials would consist of appropriately sized spawning gravel.

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 as described in previous impact discussions.

Although the construction period could extend into the coho smolt emigration and coho salmon spawning season, the effect of the low-water crossings on fish passage is expected to be temporary and minimal. Adequate depth and velocities over the crossing will allow both juvenile and adult passage. While long-term beneficial changes to physical rearing habitat associated with implementing the Proposed Project are anticipated, the temporary impacts on fish passage are considered 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 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 site boundaries during the construction season. The temporary placement of gravel fill at low-flow channel crossings would not preclude fish passage since adequate depths and velocities will be maintained over the crossings.

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.

Pacific Lamprey

Potential fish passage 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 and Chinook salmon and steelhead.

Alternative 1

Coho Salmon, Chinook Salmon, Steelhead, and Pacific Lamprey

Potential fish passage impacts to these anadromous species would be less than those described for the Proposed Project. Specifically, the number of crossings would be reduced or excluded at five of the Remaining Phase 1 sites. Similar to the Proposed Project, adequate depth and velocities over the constructed crossing will allow both juvenile and adult passage. While long-term beneficial changes to physical rearing habitat associated with implementing Alternative 1 are anticipated, the temporary impacts on fish passage are considered significant.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.6-6 in the Master EIR apply (section 4.6.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.7

Vegetation, Wildlife, and Wetlands

7.7 Vegetation, Wildlife, and Wetlands

This section describes the vegetation, wildlife, and wetlands that are known to occur at the Remaining Phase 1 sites and evaluates the impacts of the Proposed Project and alternatives 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.

7.7.1 Affected Environment/Environmental Setting

Plant Communities

The thirteen plant communities known to occur at the Remaining Phase 1 sites are listed in Table 7.7-1 (Figures 7.7-1a-f) and they are discussed in detail in the Master EIR (section 4.7).

Table 7.7-1. Plant Community Types Present at the Remaining Phase 1 Sites

	Acres					
Plant Community Types	**Sawmill**	**Upper Rush Creek**	**Lowden Ranch**	**Trinity House Gulch**	**Steel Bridge Day Use**	**Reading Creek**
Annual grassland	9.01	4.66	84.17	3.65	4.48	10.29
Barren	7.95	9.37	12.00	1.98	0.46	18.89
Foothill pine	0.52	0.18	0.00	8.38	0.00	0.01
Fresh emergent wetland	2.09	3.39	0.22	0.00	0.00	0.00
Klamath mixed conifer	12.42	17.76	25.00	1.95	0.00	23.71
Mixed chaparral	0.53	0.04	0.27	0.56	0.00	0.01
Montane hardwood	0.14	0.15	3.15	0.57	0.06	1.03
Montane-hardwood conifer	32.41	9.41	3.38	7.55	4.20	28.33
Montane riparian	26.09	19.46	38.37	13.42	7.08	34.32
Open water	0.47	0.05	0.00	0.00	0.00	0.01
Perennial grassland	3.77	12.16	27.06	0.93	0.00	6.18
Ponderosa pine	0.12	0.03	6.43	0.05	0.00	1.11
Riverine	7.96	15.02	11.91	4.57	6.19	11.99
TOTAL	**103.48**	**91.68**	**211.96**	**43.61**	**22.47**	**135.88**

Wildlife Resources

The wildlife species typically found in the plant communities listed above are discussed in the Master EIR (section 4.7).

Special-Status Species

Special-status species potentially occurring within, or in close proximity to, the boundaries established for the Remaining Phase 1 sites are discussed in the Master EIR (section 4.7) and Appendix C. Those species potentially occurring at the Remaining Phase 1 sites (based on site-specific information, including special-status plant surveys) are addressed in Table 7.7-2.

Table 7.7-2. Potentially Occurring Special-Status Plant and Wildlife Species

Common Name *Scientific Name*	Status1 (Fed/State/ CNPS)	General Habitat	Comments
		Federally or State-Listed Species	
American peregrine falcon *Falco peregrinus anatum*	D/E, FP	Forages in many habitats; requires cliffs for nesting.	**Absent as breeder.** Project sites lack suitable nesting habitat, but species may occur as a forager.
Bald eagle *Haliaeetus leucocephalus*	D/E	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.** Dense woodlands adjacent to the Trinity River may provide suitable nesting habitat. Bald eagles have been recorded on Lewiston Reservoir, less than 2 miles from the Sawmill site.
Little willow flycatcher *Empidonax traillii brewsteri*	†—/E	Rare summer resident in wet meadow and montane riparian habitats at 2,000 to 8,000 feet elevation.	**May be Present.** The montane riparian community in the region provides suitable habitat and the species has been observed along the Trinity River corridor (Wilson 1995; Miller, Ralph, and Herrera 2003; Herrera 2006).
Pacific fisher *Martes pennanti pacifica*	*†C/SC	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.	**Absent as breeder.** Not expected to breed on the sites but may use the Trinity River as a travel corridor. The species was recorded along the Trinity River in 1997 less than 2 miles northwest of the Reading Creek site and in 1994 approximately 5 miles east of the Lowden Ranch and Trinity House Gulch sites (California Department of Fish and Game 2003).
		Other Special-Status Species	
Fox sedge *Carex vulpinoidea*	—/—/2	Freshwater marshes, swamps, and riparian woodlands (100-4,000 feet).	**Present.** Suitable habitat exists within the project study area. This species was detected in a large meadow complex at the Lowden Ranch site.
Foothill yellow-legged frog *Rana boylii*	*†—/SC	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 River (California Department of Fish and Game 2003).

Table 7.7-2. Potentially Occurring Special-Status Plant and Wildlife Species

Common Name *Scientific Name*	Status1 (Fed/State/ CNPS)	General Habitat	Comments
Western pond turtle *Actinemys marmorata*	†—/SC	Slow water aquatic habitat with available basking sites. Hatchlings require shallow water with dense submergent or short emergent vegetation. Require an upland oviposition (egg laying) site near the aquatic site.	**May be present.** The species is known to occur in the Trinity River throughout the project area (California Department of Fish and Game 2003).
Black swift *Cypseloides niger*	—/SC	Nests in moist crevices or caves or sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons; forages widely over many habitats.	**Absent as breeder.** The project sites do not provide suitable breeding habitat; however, the species may forage over the sites as a migrant.
California yellow warbler *Dendroica petechia brewsteri*	—/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	**May be present.** Montane riparian habitat along the Trinity River in the project area provides suitable nesting and foraging habitats.
Golden eagle *Aquila chrysaetos*	—/SC, FP	Breeds on cliffs or in large trees or electrical towers, forages in open areas.	**Absent as breeder.** Suitable nesting habitat is absent from the sites; however, the species may occur as a forager. It was recorded approximately 2 miles southeast of the Reading Creek site in 2003 (California Department of Fish and Game 2003).
Northern goshawk *Accipiter gentiles*	†—/SC	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.
Vaux's swift *Chaetura vauxi*	—/SC	Prefers redwood and Douglas-fir habitats; nests in hollow trees and snags or, occasionally, in chimneys; forages aerially.	**May be present.** Suitable habitat is present in the project area.
Yellow-breasted chat *Icteria virens*	—/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**May be present.** Montane riparian habitat along the Trinity River in the project area provides suitable nesting and foraging habitats.

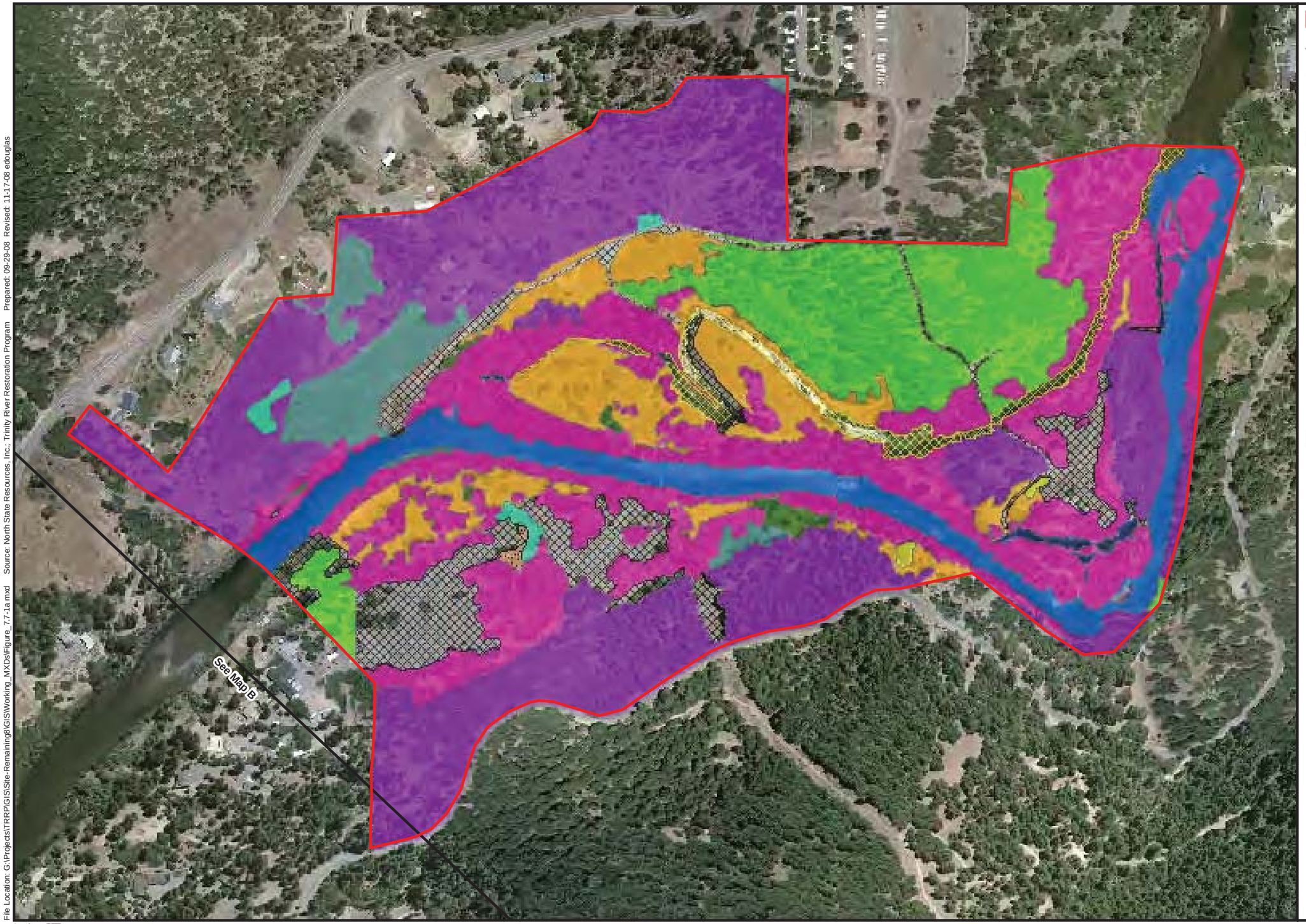
Table 7.7-2. Potentially Occurring Special-Status Plant and Wildlife Species

Common Name *Scientific Name*	Status1 (Fed/State/ CNPS)	General Habitat	Comments
Long-eared myotis *Myotis evotis*	*—/—	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.
Pallid bat *Antrozous pallidus*	*†—/SC	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. The species was recorded in 1939 in the immediate vicinity of the Lowden Ranch and Trinity House Gulch sites (California Department of Fish and Game 2003).
Ring-tailed cat *Bassariscus astutus*	—/FP	Occurs in riparian habitats and brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests.	**May be present.** Montane riparian habitat along the Trinity River in the project area provides breeding and foraging habitat.
Townsend's western big-eared bat *Corynorhinus townsendii*	*†—/SC	Roosts in colonies in caves, mines, bridges, buildings, and hollow trees in a range of habitats. 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 in the project area.
Yuma myotis *Myotis yumanensis*	*—/—	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. Common and widespread in California.	**May be present.** Suitable habitat is present along the Trinity River in the project area.

[1]Status Codes:

Federal and State Codes: E = Endangered; T = Threatened; D = Delisted; C = Candidate; SC = Species of Special Concern (State); FP = California Fully Protected species

* = BLM Sensitive † = USFS Sensitive



Site Boundary (103.421 acres)

Matchline

WHR Habitat Type

- Annual Grassland (9.008 acres)
- Barren (7.949 acres)
- Foothill Pine (0.518 acre)
- Fresh Emergent Wetland (2.092 acres)
- Klamath Mixed Conifer (12.415 acres)
- Mixed Chaparral (0.528 acre)
- Montane Hardwood (0.135 acre)
- Montane Hardwood - Conifer (32.361 acres)
- Montane Riparian (26.094 acres)
- Open Water (0.472 acre)
- Perennial Grassland (3.773 acres)
- Ponderosa Pine (0.118 acre)
- Riverine (7.958 acres)

N

1:3,600

300 0 300

Feet

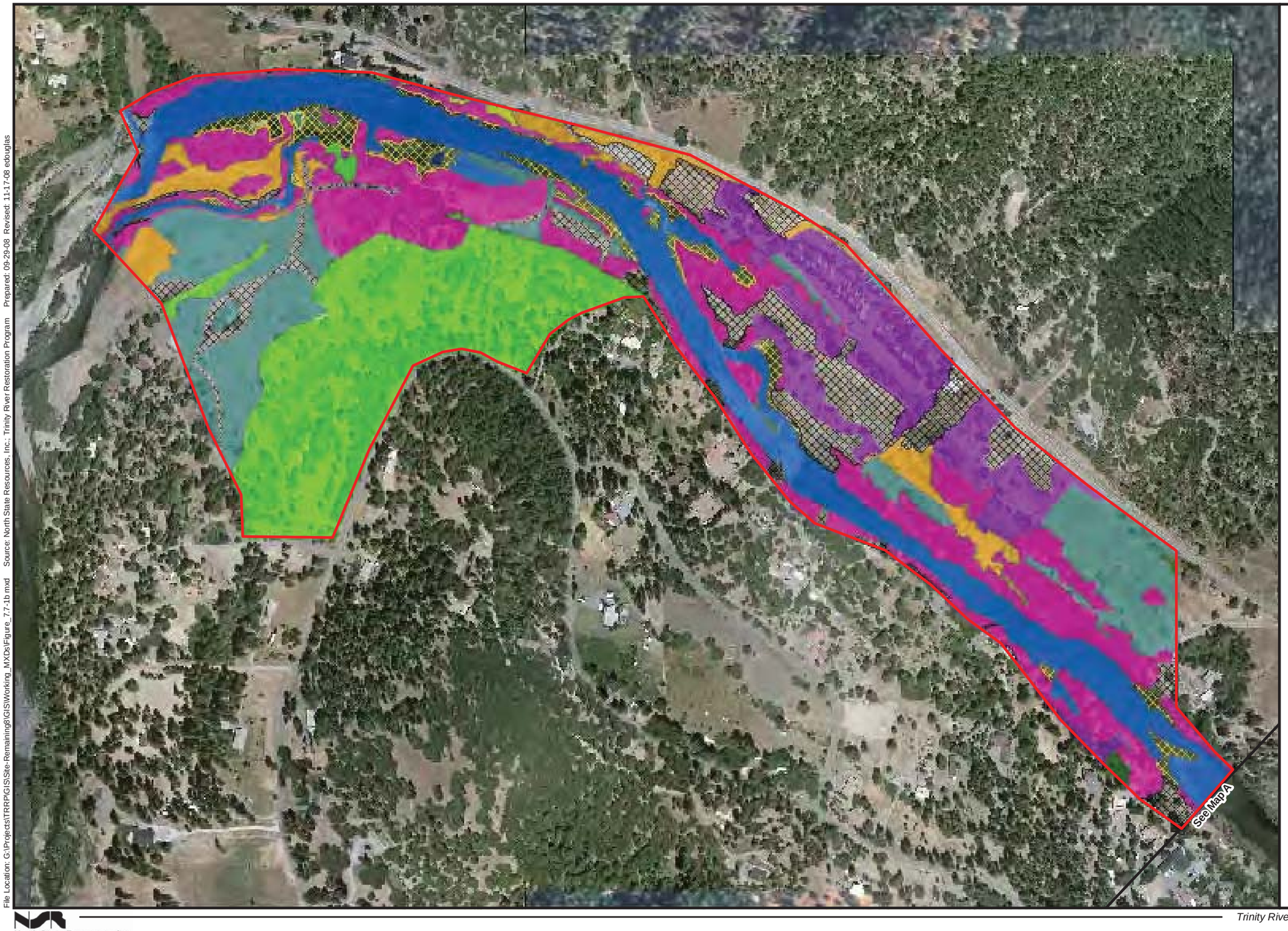
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining9\GIS\Working_MXDs\Figure_7.7-1a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-1a
Sawmill - WHR Habitats



Site Boundary (92.274 acres)
Matchline
Annual Grassland (4.693 acres)
Barren (9.561 acres)
Foothill Pine (0.201 acre)
Fresh Emergent Wetland (3.391 acres)
Klamath Mixed Conifer (17.760 acres)
Mixed Chaparral (0.039 acre)
Montane Hardwood (0.153 acre)
Montane Hardwood - Conifer (9.454 acres)
Montane Riparian (19.753 acres)
Open Water (0.049 acre)
Perennial Grassland (12.158 acres)
Ponderosa Pine (0.029 acre)
Riverine (15.033 acres)

N

1:4,200

350 0 350
Feet

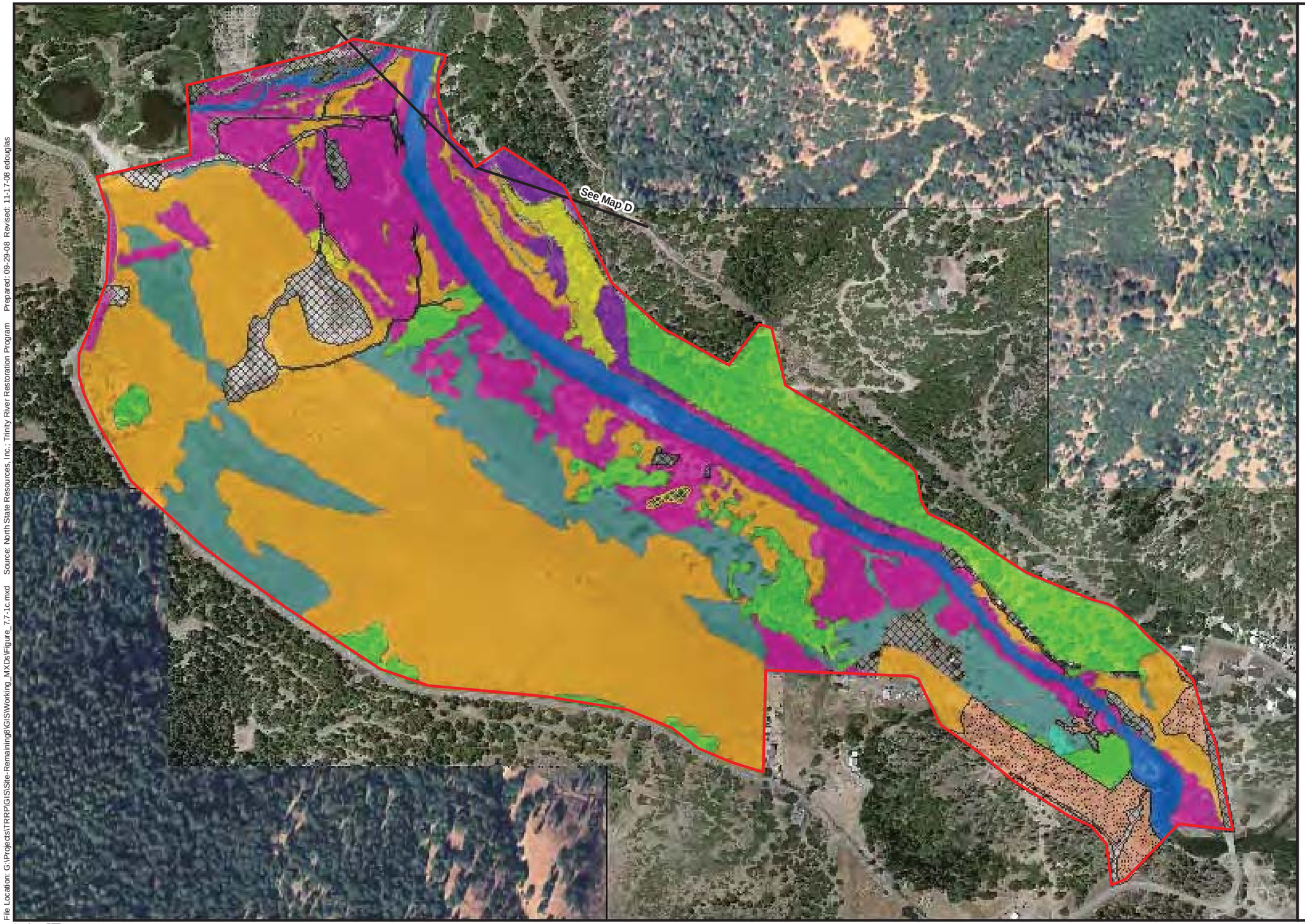
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7.7-1b.mxd Prepared: 09-29-08 Revised: 11-17-08 edouglas
Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-1b
Upper Rush Creek - WHR Habitats



Site Boundary (211.769 acres)
Matchline
Annual Grassland (83.966 acres)
Barren (12.002 acres)
Fresh Emergent Wetland (0.219 acre)
Klamath Mixed Conifer (25.001 acres)
Mixed Chaparral (0.274 acre)
Montane Hardwood (3.146 acres)
Montane Hardwood - Conifer (3.384 acres)
Montane Riparian (38.372 acres)
Perennial Grassland (27.064 acres)
Ponderosa Pine (6.433 acres)
Riverine (11.908 acres)

N

1:5,400

450 0 450
Feet

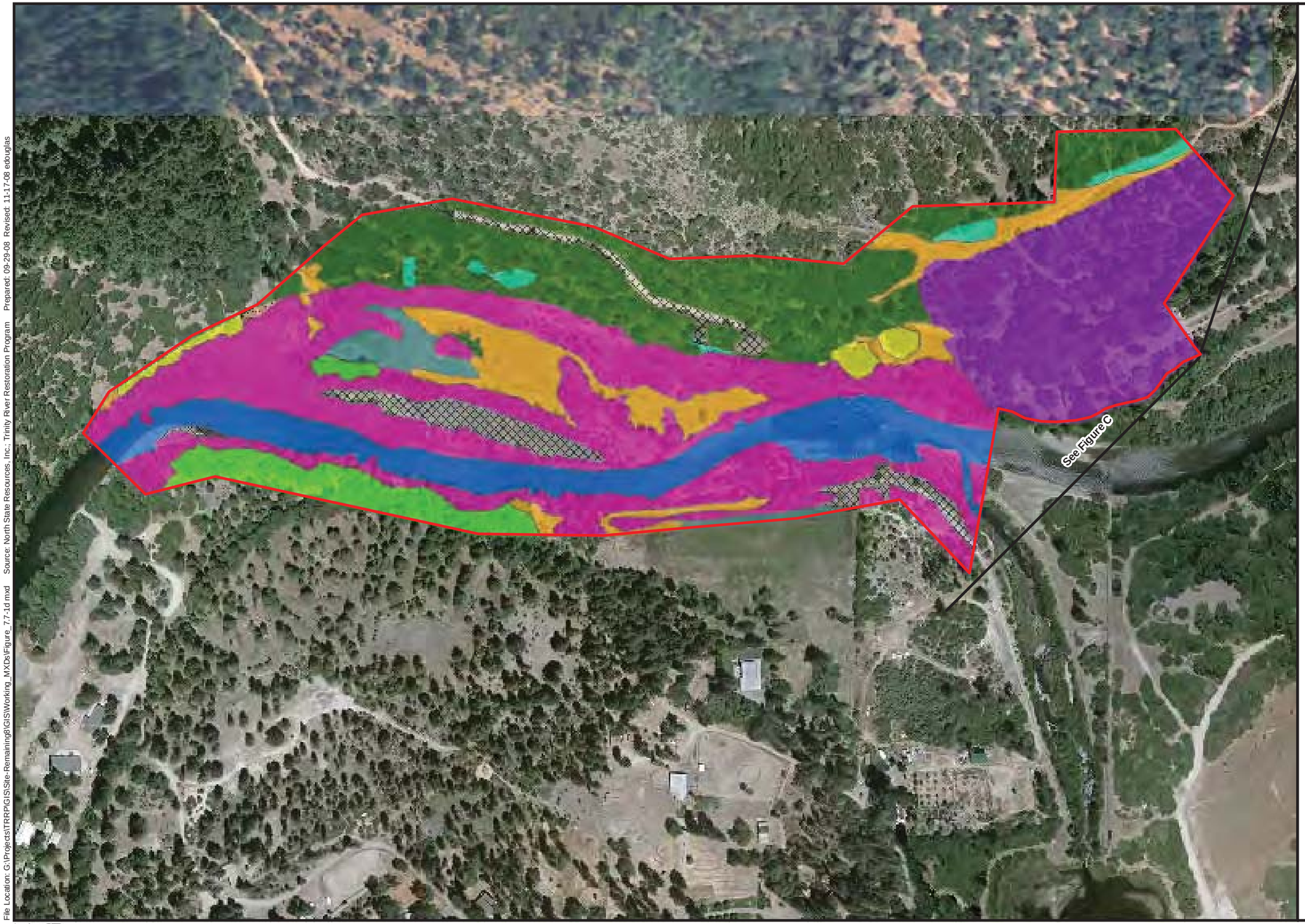
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining9\GIS\Working_MXDs\Figure_7.7-1c.mxd Prepared: 09-29-08 Revised: 11-17-08 edouglas
Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-1c
Lowden Ranch - WHR Habitats



Site Boundary (43.695 acres)
Matchline
Annual Grassland (3.651 acres)
Barren (1.983 acres)
Foothill Pine (8.375 acres)
Klamath Mixed Conifer (1.947 acres)
Mixed Chaparral (0.556 acre)
Montane Hardwood (0.571 acre)
Montane Hardwood - Conifer (7.546 acres)
Montane Riparian (13.423 acres)
Perennial Grassland (0.932 acres)
Ponderosa Pine (0.046 acres)
Riverine (4.665 acres)

N

1:3,000

250 0 250
Feet

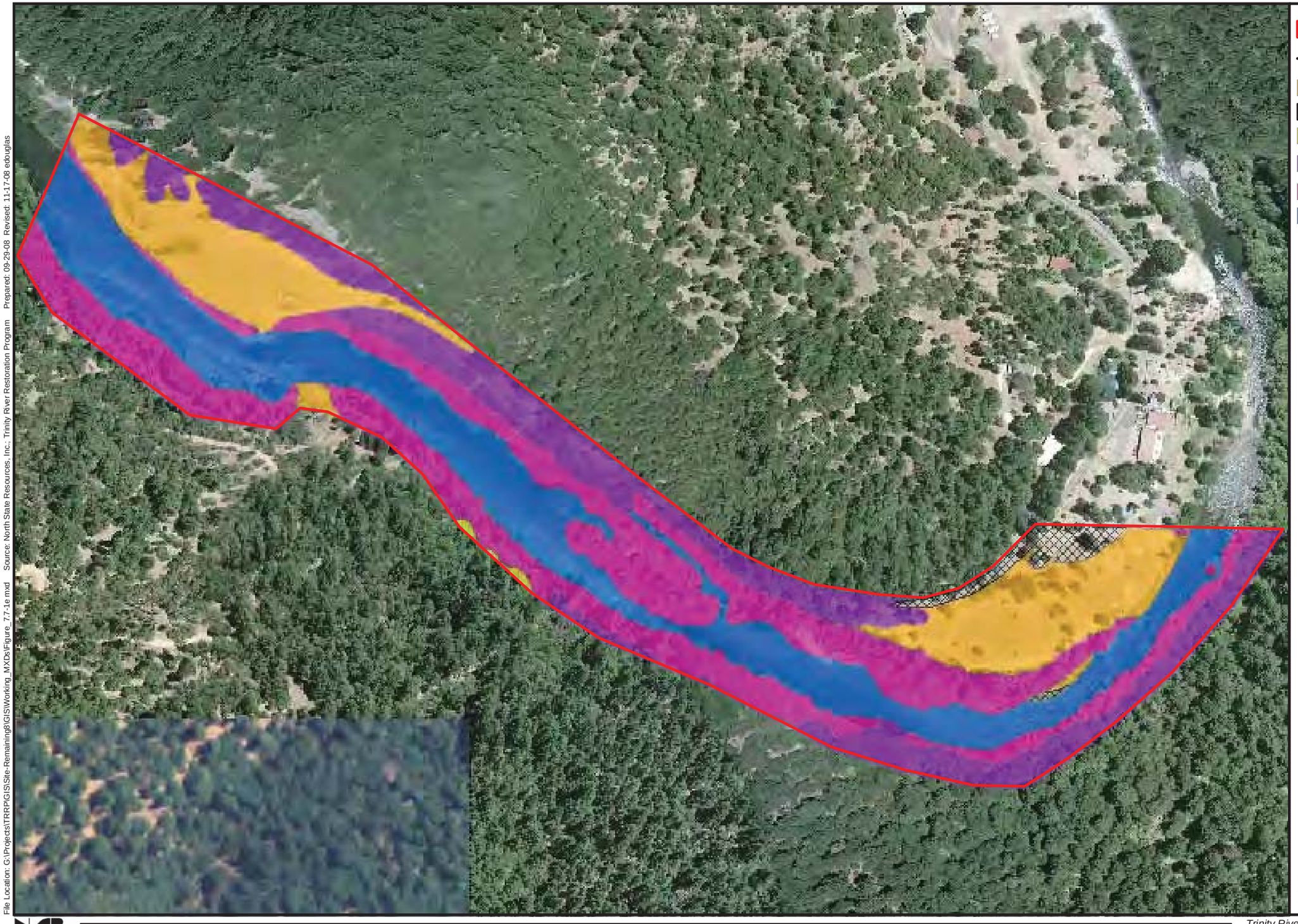
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.7-1d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-17-08 eduglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-1d
Trinity House Gulch - WHR Habitats



Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

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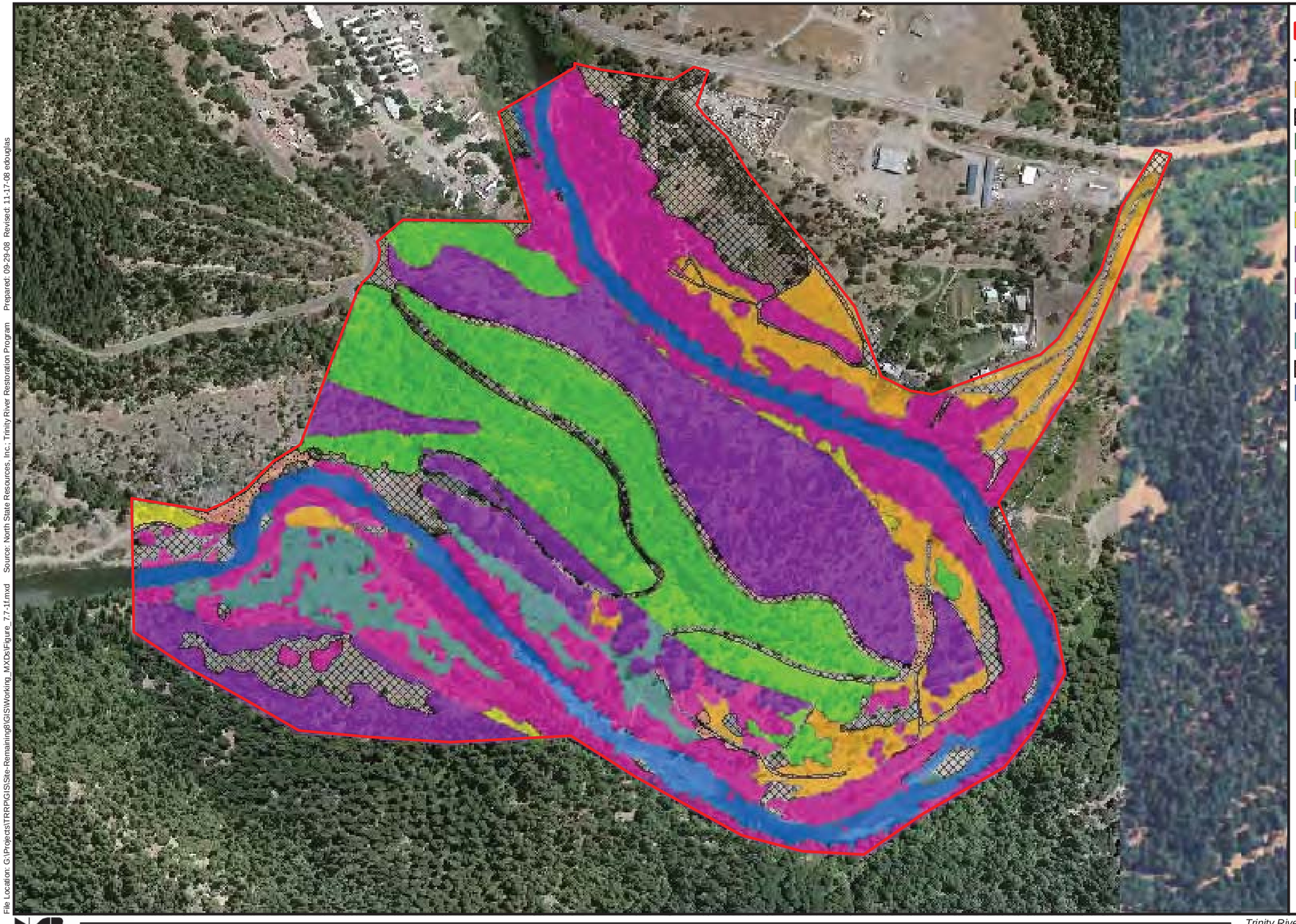
North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-1e
Steel Bridge Day Use - WHR Habitats



File Location: G:\Projects\TRRPGIS\Site-Remaining\GIS\Working_MXDs\Figure_7.7-1f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-17-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-1f
Reading Creek - WHR Habitats

Vegetation Surveys

Botanical investigations, including floristic (vegetation) inventories and special-status plant surveys, were conducted May 24, June 18 and 19, and August 9, 2007. These surveys covered extensive portions of all Remaining Phase 1 sites (the boundaries of the sites have been enlarged slightly since these surveys were performed). The botanical investigations were conducted in accordance with guidelines developed by the CDFG (2000). Surveys were conducted when special-status plant species were most likely to be identifiable (i.e., during the blooming period). A comprehensive list of plant species observed at the sites is included as Appendix K. One special-status plant species, fox sedge (*Carex vulpinoidea*) (CNPS list 2), was detected at the Lowden Ranch site.

Non-Native and Invasive Plant Species

Non-native and invasive species potentially occurring at the Remaining Phase 1 and Phase 2 sites are discussed in the Master EIR (section 4.7). Additional information regarding the known occurrence of these species at each of the Remaining Phase 1 sites is provided in Table 7.7-3.

Table 7.7-3. Non-Native and Invasive Plant Species Known to Occur at the Project Sites

	Present at Project Site				
Species	**Sawmill/ Upper Rush Creek**	**Lowden Ranch**	**Trinity House Gulch**	**Steel Bridge Day Use**	**Reading Creek**
Linaria genistifolia ssp. *dalmatica* Dalmatian toadflax	X	X	X	X	X
Rubus discolor Himalayan blackberry	X	X	X	X	X
Centaurea solstitialis Yellow star-thistle	X	X	X	X	X
Hypericum perforatum Klamathweed	X	X	X	X	X
Taeniatherum caput-medusae Medusahead	X	X			

Jurisdictional Waters (Including Wetlands)

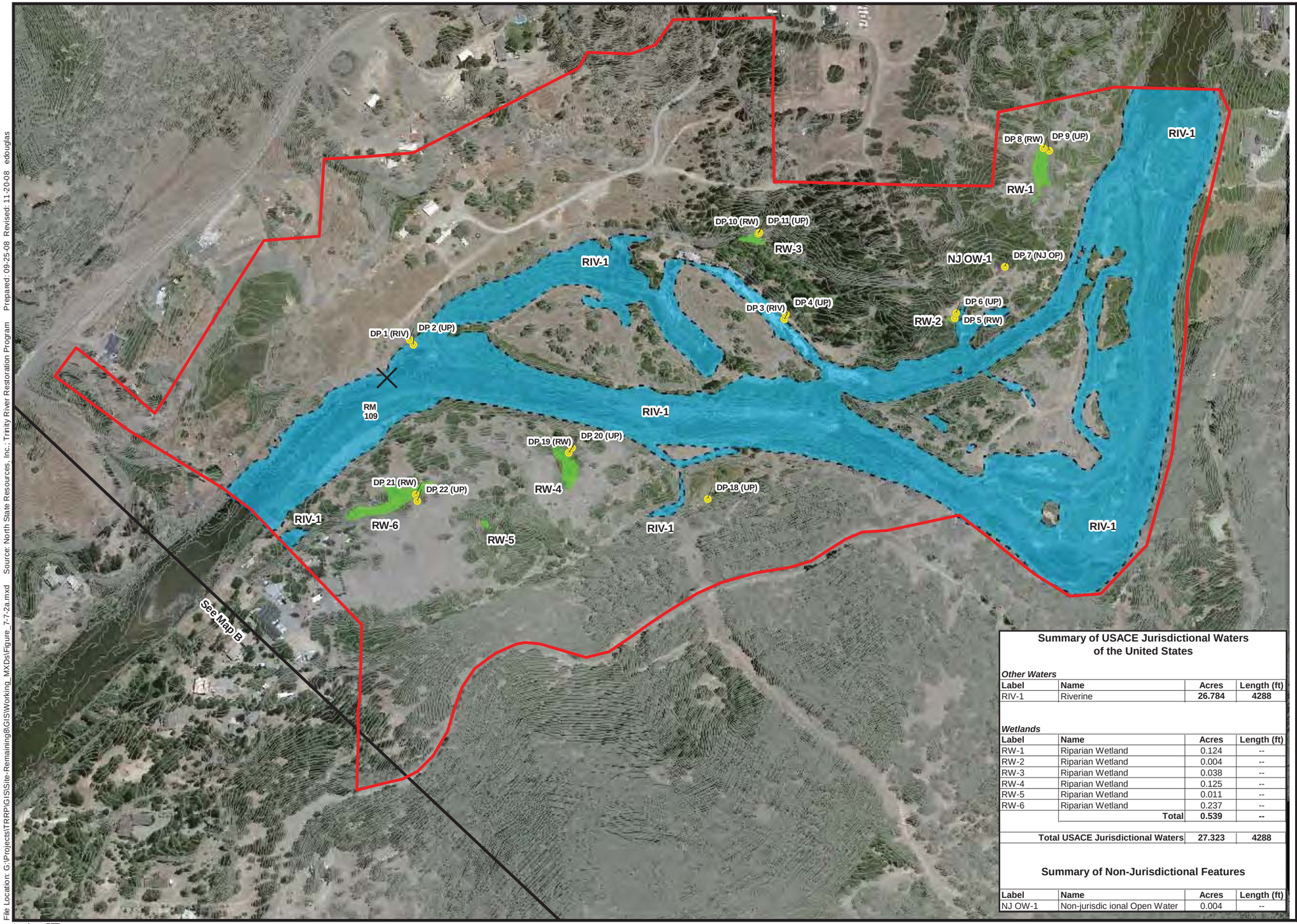
Eight jurisdictional water types, including wetlands and other waters, occur within the boundaries of the Remaining Phase 1 sites. Wetland types include riparian wetland, seasonal wet meadow, fresh emergent wetlands, and seasonal wetland. Other waters include riverine, intermittent stream, vegetated ditch, and non-vegetated ditch. These jurisdictional waters types are discussed in greater detail in the Master EIR (section 4.7). Table 7.7-4 summarizes the jurisdictional waters that occur at the Remaining Phase 1 sites as shown on Figures 7.7-2a-f.

Table 7.7-4. Summary of Jurisdictional Waters

	Sawmill	Upper Rush Creek	Lowden Ranch	Trinity House Gulch	Steel Bridge Day Use	Reading Creek
Wetlands (acres)						
Riparian wetland	0.54	0.00	3.31	3.56	0.00	3.40
Seasonal wet meadow	0.00	0.06	10.49	0.00	0.00	0.00
Fresh emergent wetland	0.00	0.00	1.43	0.00	0.00	0.00
Seasonal wetland	0.00	0.00	0.16	0.00	0.00	0.00
Total wetlands	**0.54**	**0.06**	**15.39**	**3.56**	**0.00**	**3.40**
Other Waters (acres)						
Trinity River (riverine)	26.78	39.83	34.16	10.67	15.07	31.50
Intermittent stream	0.00	0.01	0.04	0.04	0.00	0.00
Vegetated ditch	0.00	0.00	0.14	0.00	0.00	0.00
Non-vegetated ditch	0.00	0.00	0.03	0.00	0.00	0.00
Total other waters	**26.78**	**39.84**	**34.37**	**10.71**	**15.07**	**31.50**
Total Jurisdictional Waters (acres)	**27.32**	**39.90**	**49.76**	**14.27**	**15.07**	**34.9**

Other Biological Resources

Other biological resources (e.g., deer critical winter range, riparian habitat, and migratory birds) potentially occurring at the Remaining Phase 1 sites are discussed in the Master EIR (section 4.7).



Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
RIV-1	Riverine	**26.784**	**4288**

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	0.124	--
RW-2	Riparian Wetland	0.004	--
RW-3	Riparian Wetland	0.038	--
RW-4	Riparian Wetland	0.125	--
RW-5	Riparian Wetland	0.011	--
RW-6	Riparian Wetland	0.237	--
	Total	**0.539**	**--**
Total USACE Jurisdictional Waters		**27.323**	**4288**

Summary of Non-Jurisdictional Features

Label	Name	Acres	Length (ft)
NJ OW-1	Non-jurisdic ional Open Water	0.004	--

Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Riverine (26.784 acres)

Wetlands

Riparian Wetland (0.539 acre)

Non-Jurisdictional Features

Open Water (0.004 acre)

N

1:3,600

300 0 300
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

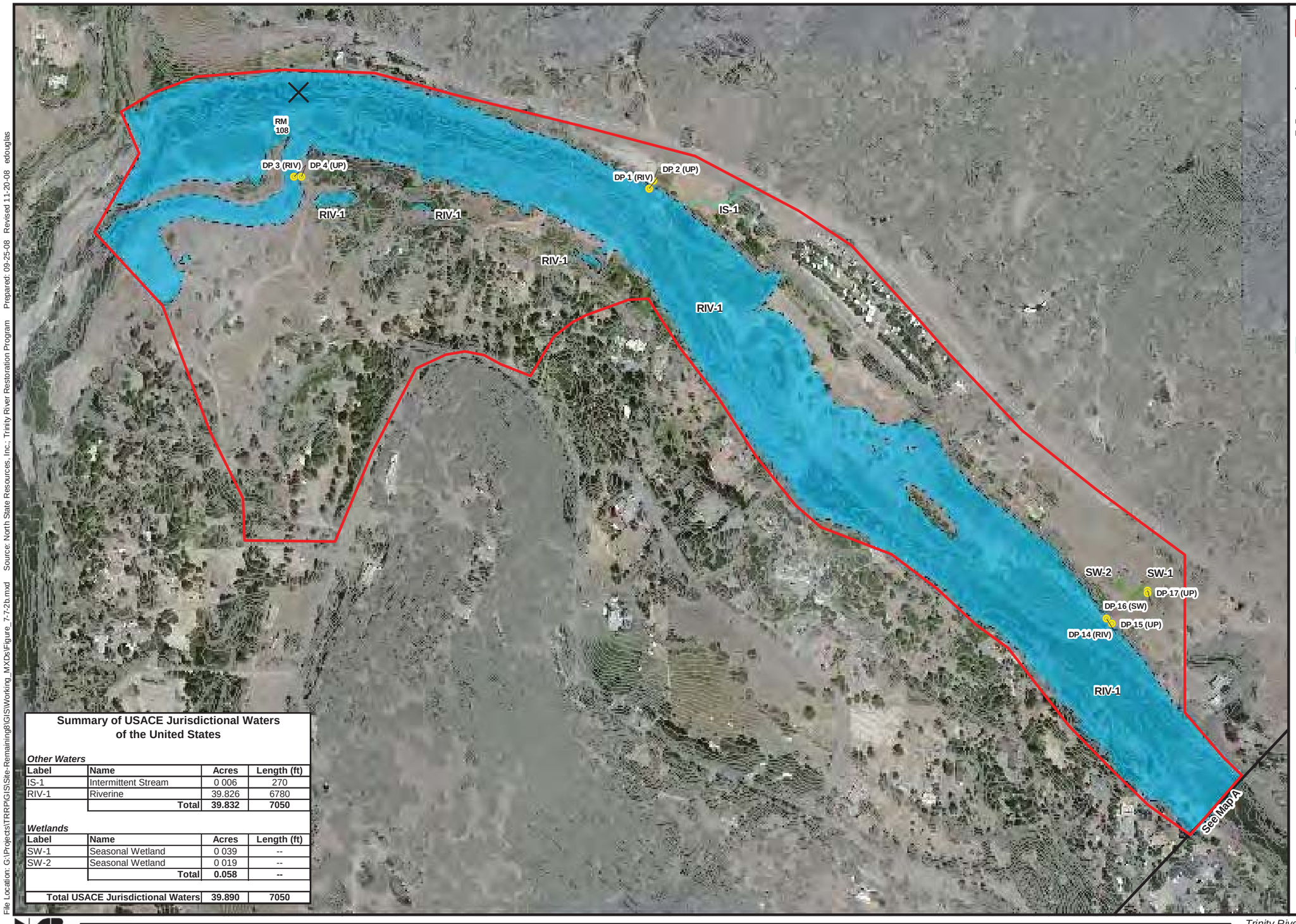
File Location: G:\Projects\TRRPG\SS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-2a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 Revised: 11-20-08 eduglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-2a

Sawmill - Boundaries of Waters of the United States, Including Wetlands



Site Boundary (92.274 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.006 acre)

Riverine (39.826 acres)

Wetlands

Seasonal Wetland (0.058 acre)

N

1:4,200

350 0 350
Feet

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
IS-1	Intermittent Stream	0 006	270
RIV-1	Riverine	39.826	6780
	Total	**39.832**	**7050**

Wetlands

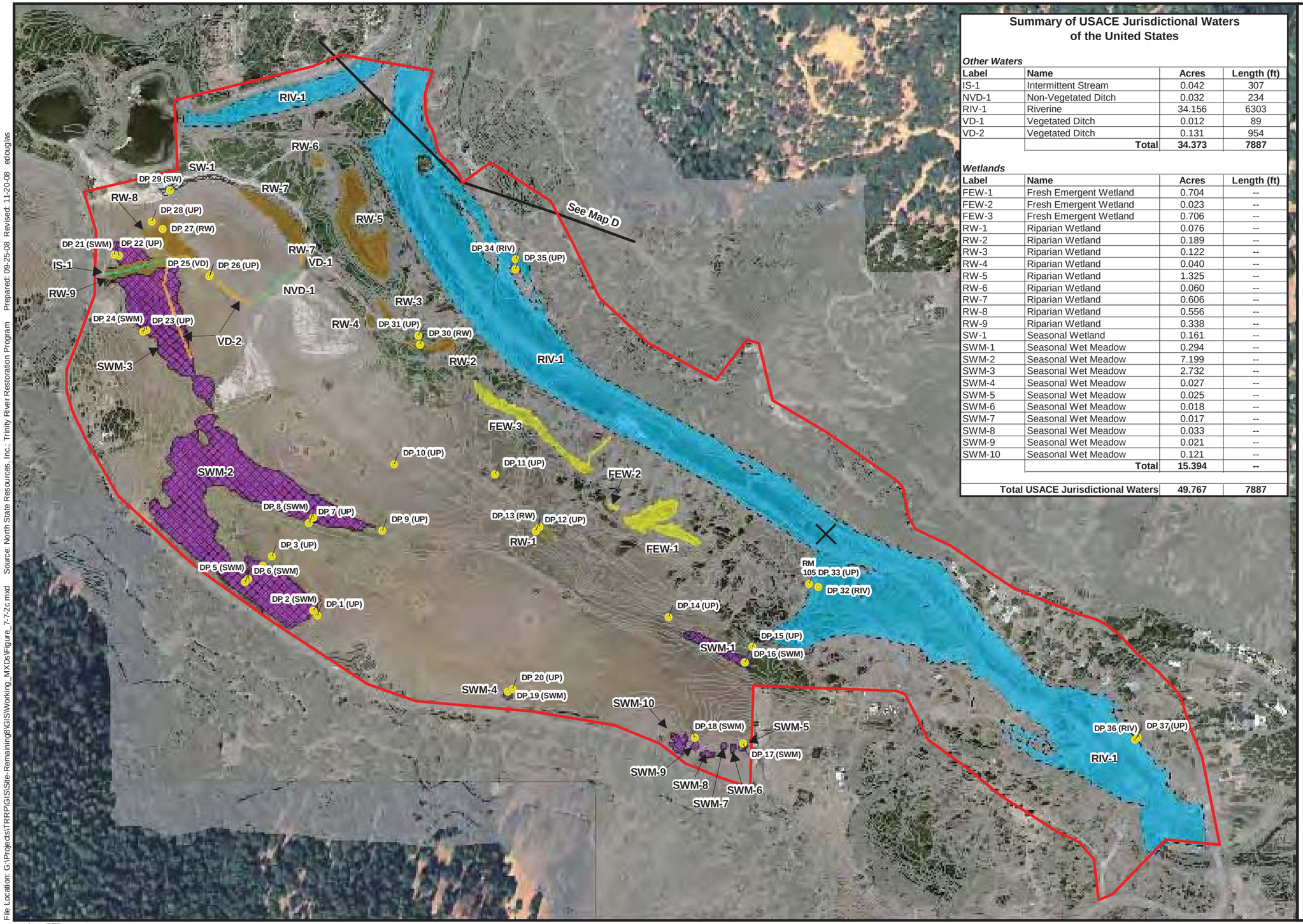
Label	Name	Acres	Length (ft)
SW-1	Seasonal Wetland	0 039	--
SW-2	Seasonal Wetland	0 019	--
	Total	**0.058**	**--**
Total USACE Jurisdictional Waters		**39.890**	**7050**

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-2b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 Revised 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-2b
Upper Rush Creek - Boundaries of Waters of the United States, Including Wetlands



Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
IS-1	Intermittent Stream	0.042	307
NVD-1	Non-Vegetated Ditch	0.032	234
RIV-1	Riverine	34.156	6303
VD-1	Vegetated Ditch	0.012	89
VD-2	Vegetated Ditch	0.131	954
	Total	**34.373**	**7887**

Wetlands

Label	Name	Acres	Length (ft)
FEW-1	Fresh Emergent Wetland	0.704	--
FEW-2	Fresh Emergent Wetland	0.023	--
FEW-3	Fresh Emergent Wetland	0.706	--
RW-1	Riparian Wetland	0.076	--
RW-2	Riparian Wetland	0.189	--
RW-3	Riparian Wetland	0.122	--
RW-4	Riparian Wetland	0.040	--
RW-5	Riparian Wetland	1.325	--
RW-6	Riparian Wetland	0.060	--
RW-7	Riparian Wetland	0.606	--
RW-8	Riparian Wetland	0.556	--
RW-9	Riparian Wetland	0.338	--
SW-1	Seasonal Wetland	0.161	--
SWM-1	Seasonal Wet Meadow	0.294	--
SWM-2	Seasonal Wet Meadow	7.199	--
SWM-3	Seasonal Wet Meadow	2.732	--
SWM-4	Seasonal Wet Meadow	0.027	--
SWM-5	Seasonal Wet Meadow	0.025	--
SWM-6	Seasonal Wet Meadow	0.018	--
SWM-7	Seasonal Wet Meadow	0.017	--
SWM-8	Seasonal Wet Meadow	0.033	--
SWM-9	Seasonal Wet Meadow	0.021	--
SWM-10	Seasonal Wet Meadow	0.121	--
	Total	**15.394**	**--**
Total USACE Jurisdictional Waters		**49.767**	**7887**

Site Boundary (211.769 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

- Intermittent Stream (0.042 acre)
- Non-Vegetated Ditch (0.032 acre)
- Riverine (34.156 acres)
- Vegetated Ditch (0.143 acre)

Wetlands

- Fresh Emergent Wetland (1.433 acres)
- Riparian Wetland (3.313 acres)
- Seasonal Wet Meadow (10.487 acre)
- Seasonal Wetland (0.161 acre)

N

1:5,400

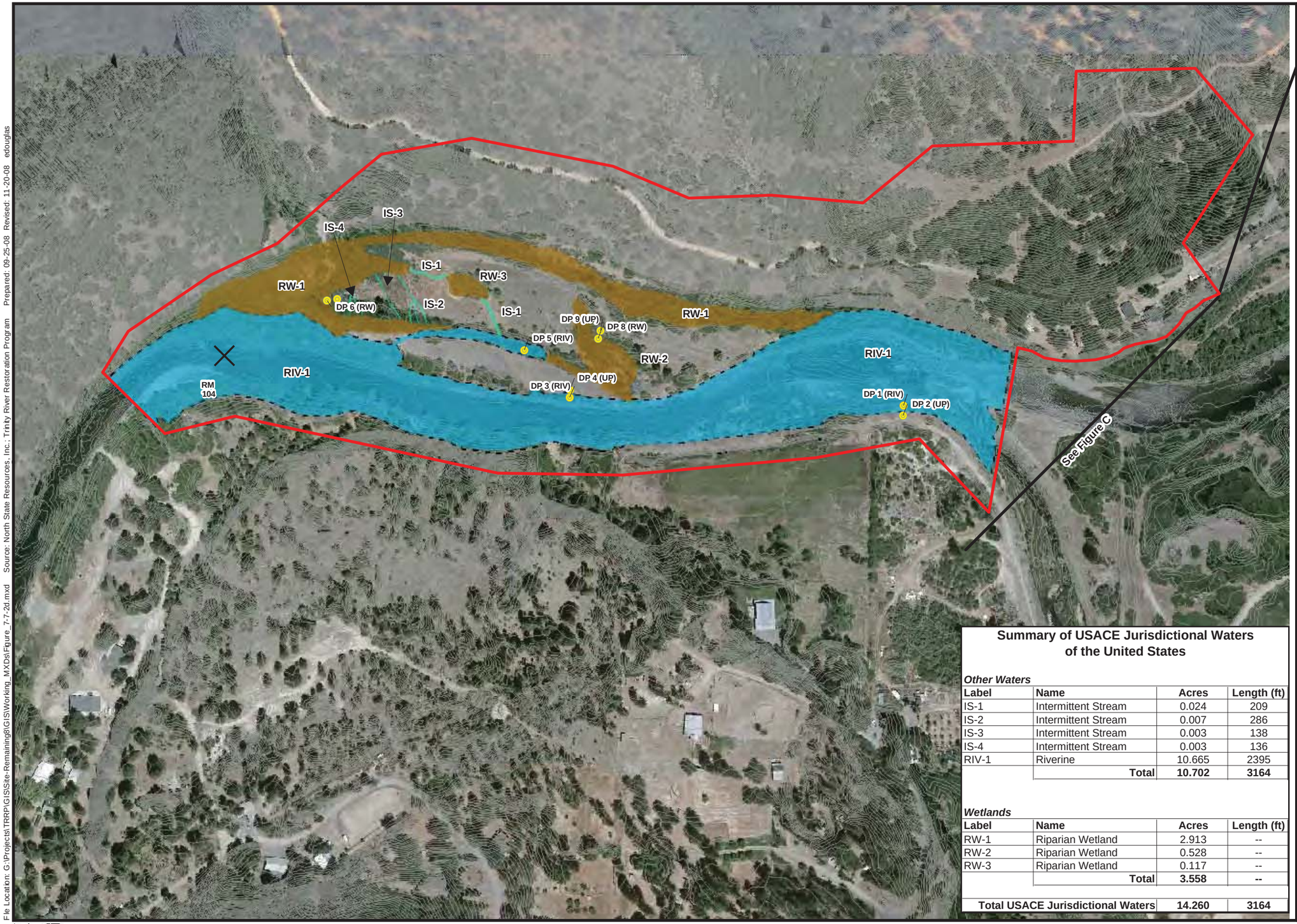
450 0 450
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.7-2c.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-2c
Lowden Ranch - Boundaries of Waters of the United States, Including Wetlands



Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.037 acre)

Riverine (10.665 acres)

Wetlands

Riparian Wetland (3.558 acres)

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
IS-1	Intermittent Stream	0.024	209
IS-2	Intermittent Stream	0.007	286
IS-3	Intermittent Stream	0.003	138
IS-4	Intermittent Stream	0.003	136
RIV-1	Riverine	10.665	2395
	Total	**10.702**	**3164**

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	2.913	--
RW-2	Riparian Wetland	0.528	--
RW-3	Riparian Wetland	0.117	--
	Total	**3.558**	**--**
Total USACE Jurisdictional Waters		**14.260**	**3164**

N

1:3,000

250 0 250

Feet

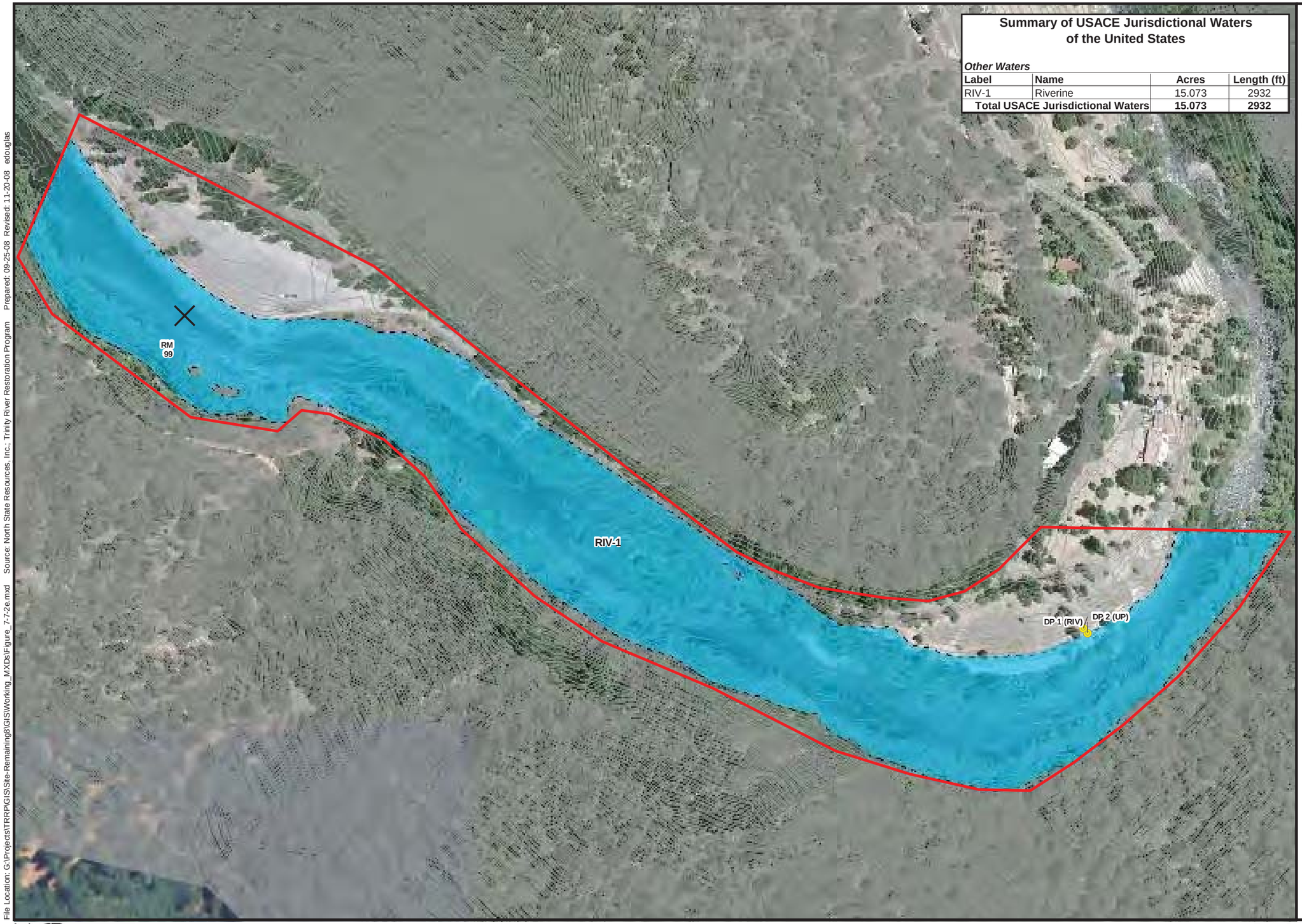
Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.7-2d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-2d
Trinity House Gulch - Boundaries of Waters of the United States, Including Wetlands



Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
RIV-1	Riverine	15.073	2932
Total USACE Jurisdictional Waters		**15.073**	**2932**

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Riverine (15.073 acres)

N

1:2,400

200 0 200

Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.7-2e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-2e
Steel Bridge Day Use - Boundaries of Waters of the United States, Including Wetlands

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
RIV-1	Riverine	31.494	9504
RIV-2	Riverine	0.010	--
	Total	**31.504**	**9504**

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	0.553	--
RW-2	Riparian Wetland	0.035	--
RW-3	Riparian Wetland	1.057	--
RW-4	Riparian Wetland	0.089	--
RW-5	Riparian Wetland	0.094	--
RW-6	Riparian Wetland	0.026	--
RW-7	Riparian Wetland	0.391	--
RW-8	Riparian Wetland	0.028	--
RW-9	Riparian Wetland	0.302	--
RW-10	Riparian Wetland	0.820	--
	Total	**3.396**	**--**
Total USACE Jurisdictional Waters		**34.900**	**9504**

RIV-1
DP 3 (RIV)
DP 1 (RIV)
DP 2 (UP)
RIV-2
DP 4 (UP)
DP 5 (RIV)
RW-1
RIV-1
DP 13 (RIV)
DP 14 (UP)
DP 7 (UP)
DP 6 (RW)
RW-2
RW-9
RW-8
RM 93
RW-4
DP 15 (RW)
RW-10
RW-6
RW-5
DP 8 (RW)
DP 9 (UP)
RW-3
RW-7
DP 12 (UP)
DP 10 (RIV)
DP 11 (RW)
RIV-1

Site Boundary (135.871 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs
1 ft Contour Interval
3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Riverine (31.504 acres)

Wetlands

Riparian Wetland (3.396 acres)

N

1:4,200

350 0 350
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.7-2a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 Revised: 11-20-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-2f
Reading Creek - Boundaries of Waters of the United States, Including Wetlands

7.7.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.7-5 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 7.7-5. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.7-1. Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-2. Implementation of the project would result in the loss of upland plant communities.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.7-3. Construction of the project could result in the loss of individuals of a special-status plant species.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-4. Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-5. Construction activities associated with the project could result in impacts to foothill yellow-legged frogs.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-6. Construction activities associated with the project could result in impacts to western pond turtles.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-7. Construction activities associated with the project could result in impacts to nesting Vaux's swifts, California yellow warblers, and yellow-breasted chats.				
No impact	Significant	Significant	Less than significant	Less than significant

Table 7.7-5. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.7-8. Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawks.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-9. Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.7-10. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.7-11. Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.7-12. Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.7-13. Implementation of the project could result in the spread of non-native and invasive plant species.				
No impact	Significant	Significant	Less than significant	Less than significant

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

Impact 7.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Table 7.7-6 lists acres of jurisdictional waters that would be affected by the Proposed Project (Figures 7.7-3a-f) and Alternative 1 (Figures 7.7-4a-f). Construction of the Proposed Project would result in a direct temporary impact to 57.74 acres of jurisdictional waters and construction of Alternative 1 would result in a direct temporary impact to 46.18 acres. This impact would be significant.

Mitigation Measures

No-Project Alternative

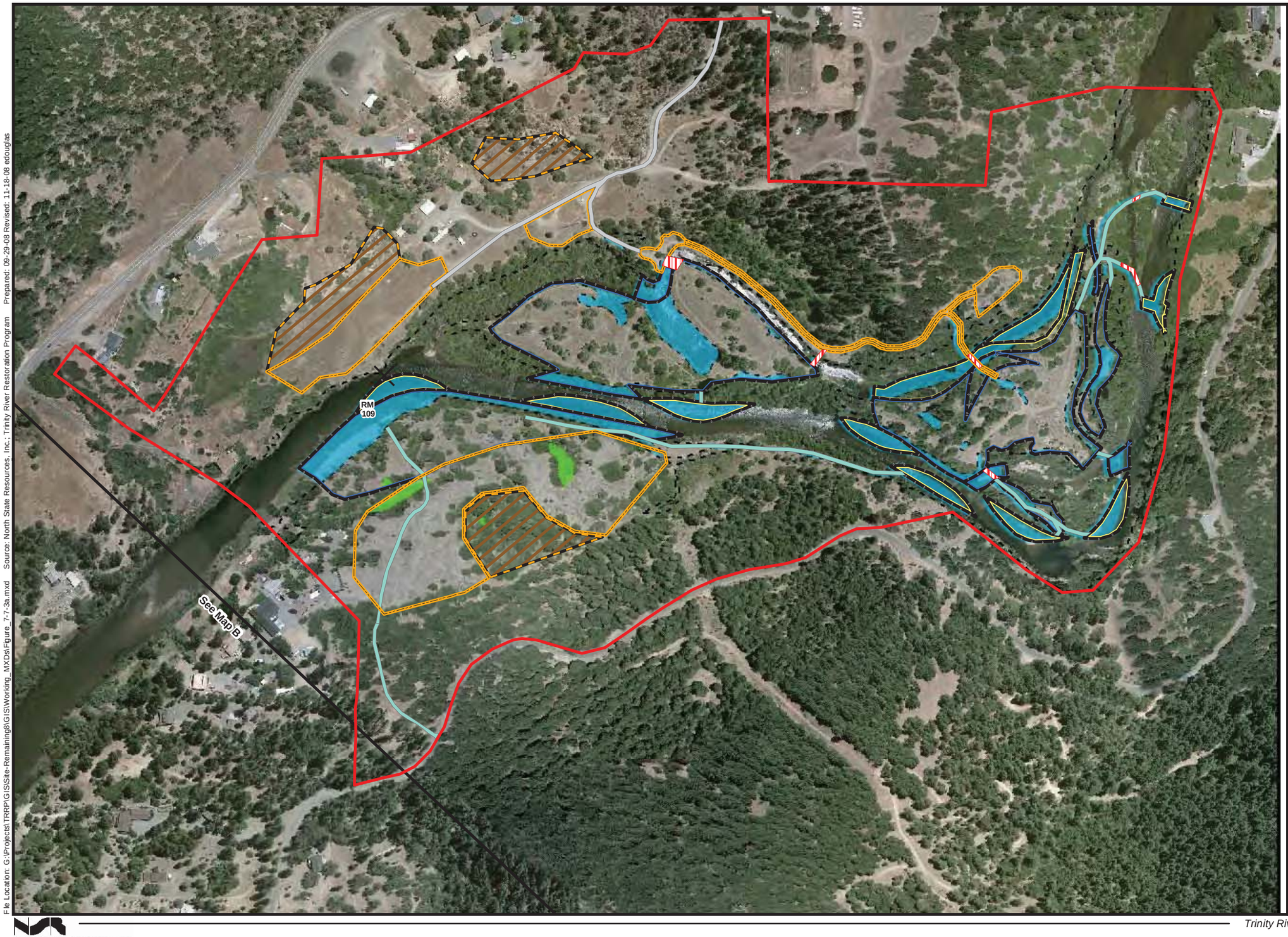
No significant impact was identified; therefore, no mitigation is required.

Table 7.7-6. Expected Maximum Areas of Temporary Impacts to Jurisdictional Waters

Jurisdictional Water Type	Approximate Area of Disturbance (Acres)	
	Proposed Project	Alternative 1
Sawmill		
Riparian wetland	0.28	0.28
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	6.87	6.87
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Sawmill Total	**7.15**	**7.15**
Upper Rush Creek		
Riparian wetland	0.00	0.00
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	10.07	6.47
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Upper Rush Creek Total	**10.07**	**6.47**
Lowden Ranch		
Riparian wetland	1.06	1.06
Fresh emergent wetland	1.33	1.33
Seasonal wetland	0.00	0.00
Seasonal wet meadow	7.54	7.54

Table 7.7-6. Expected Maximum Areas of Temporary Impacts to Jurisdictional Waters

Jurisdictional Water Type	Approximate Area of Disturbance (Acres)	
	Proposed Project	Alternative 1
Trinity River (riverine)	16.68	11.67
Intermittent stream	0.02	0.02
Vegetated ditch	0.14	0.14
Non-vegetated ditch	0.03	0.03
Lowden Ranch Total	**26.80**	**21.79**
Trinity House Gulch		
Riparian wetland	0.73	0.73
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	1.40	1.40
Intermittent stream	0.03	0.03
Open water	0.00	0.00
Ephemeral drainage	0.00	0.00
Trinity House Gulch Total	**2.16**	**2.16**
Steel Bridge Day Use		
Riparian wetland	0.00	0.00
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	2.37	2.06
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Steel Bridge Day Use Total	**2.37**	**2.06**
Reading Creek		
Riparian wetland	1.17	1.17
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	8.02	5.38
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Reading Creek Total	**9.19**	**6.55**



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (6.866 acres)

Wetlands

Riparian Wetland (0.284 acre)

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

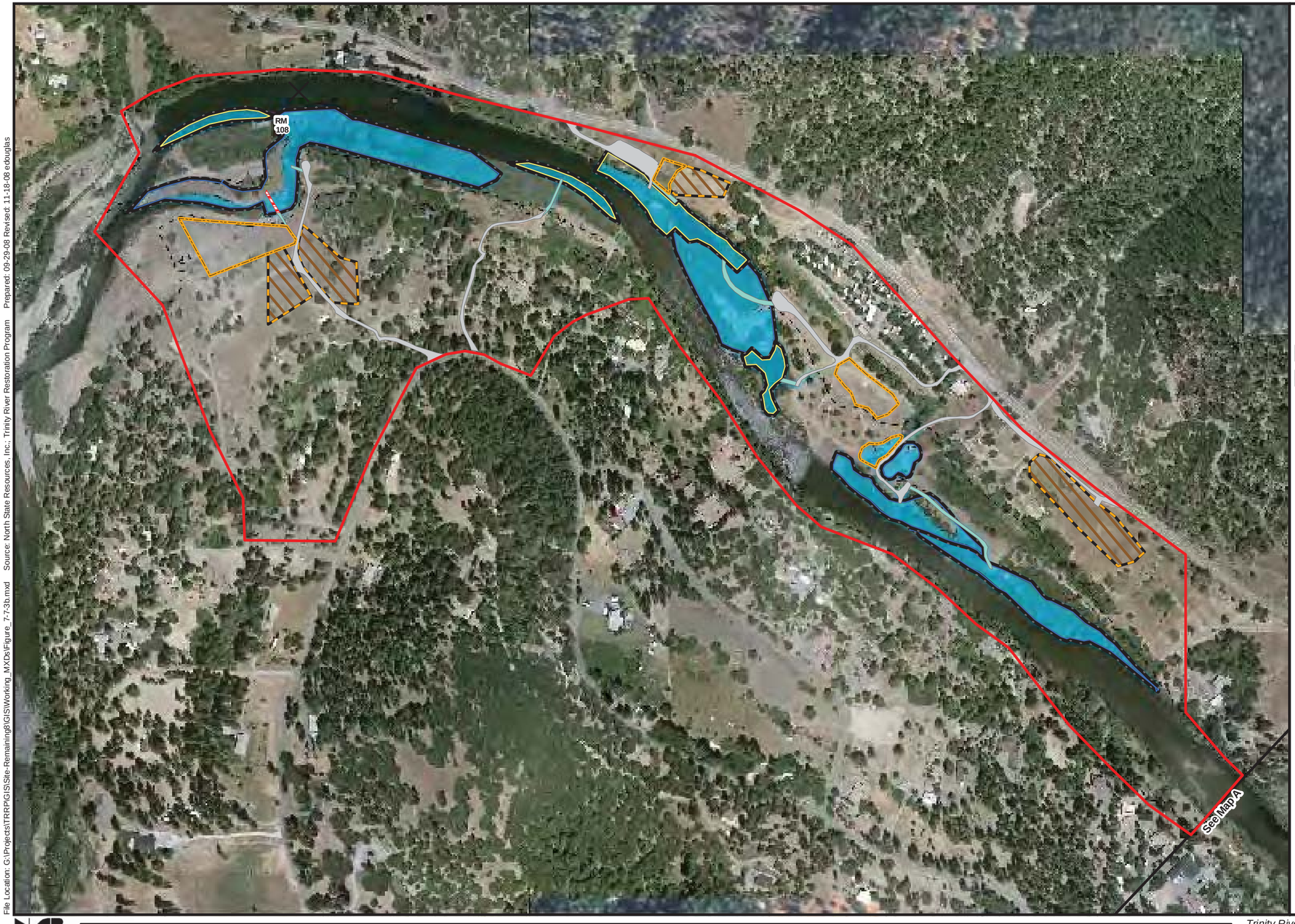
File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-3a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-3a
Sawmill - Impacts of Proposed Project to Waters of the United States, Including Wetlands

NOTE: Impacts to riparian wetlands have been avoided in design as indicated in complete design drawings



Site Boundary (92.274 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (10.074 acres)

N

1:4,200

350 0 350

Feet

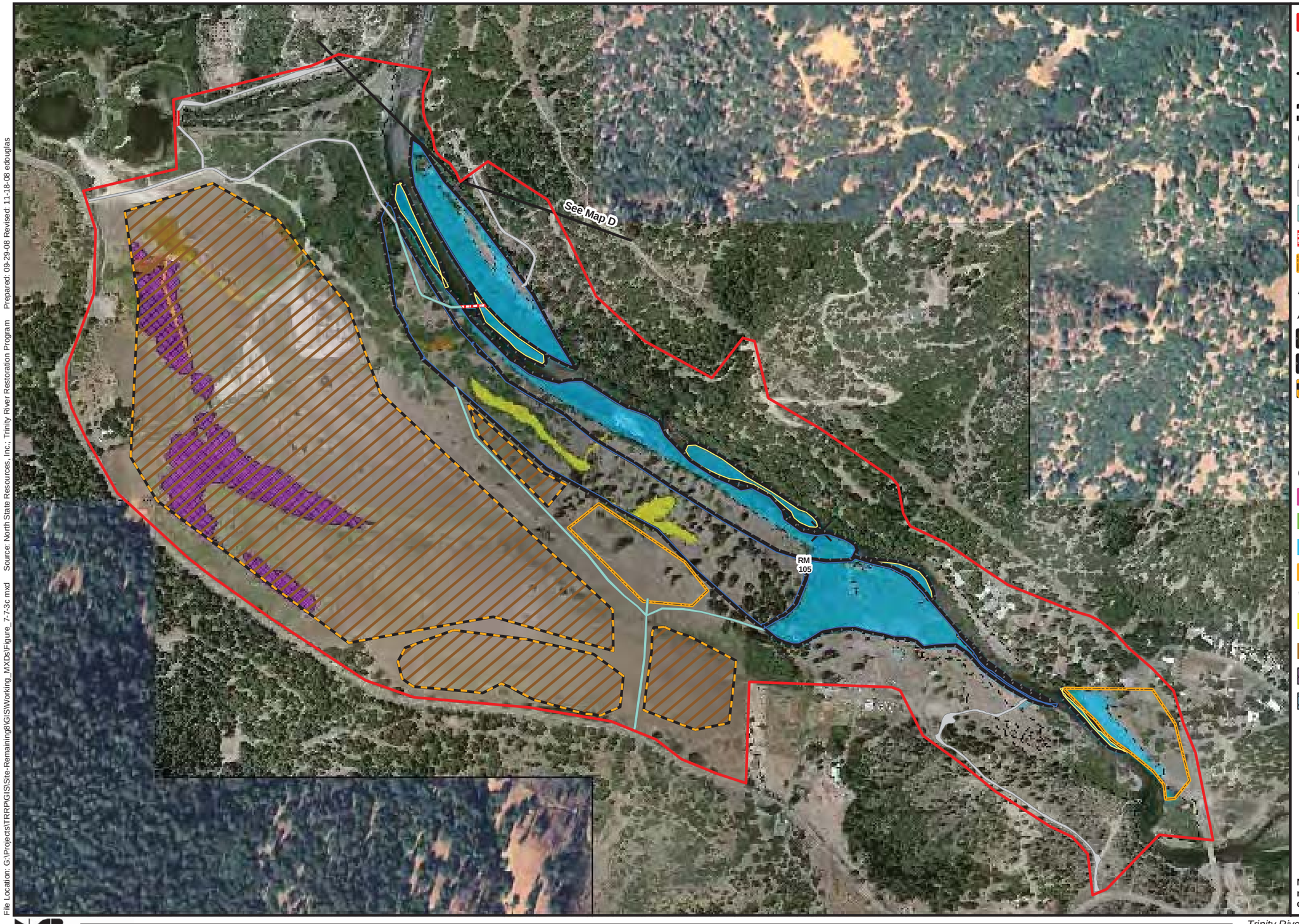
Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-3b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-3b
Upper Rush Creek - Impacts of Proposed Project to Waters of the United States, Including Wetlands



Site Boundary (211.769 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing
Access Road - New
Crossing
Staging Area

Activity Areas

Area

In Channel
Riverine
Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.023 acre)
Non-Vegetated Ditch (0.032 acre)
Riverine (16.677 acres)
Vegetated Ditch (0.143 acre)

Wetlands

Fresh Emergent Wetland (1.327 acres)
Riparian Wetland (1.063 acres)
Seasonal Wet Meadow (7.536 acre)
Seasonal Wetland (0.001 acre)

N

1:5,400

450 0 450
Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-3c.mxd Prepared: 09-29-08 Revised: 11-18-08 edouglas
Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-3c
Lowden Ranch - Impacts of Proposed Project to Waters of the United States, Including Wetlands

Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.030 acre)

Riverine (1.404 acres)

Wetlands

Riparian Wetland (0.729 acre)

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-3d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-3d

Trinity House Gulch - Impacts of Proposed Project to Waters of the United States, Including Wetlands

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (2.373 acres)

N

1:2,400

200 0 200

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-3e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-3e

Steel Bridge Day Use - Impacts of Proposed Project to Waters of the United States, Including Wetlands

Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (8.023 acres)

Wetlands

Riparian Wetland (1.169 acres)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

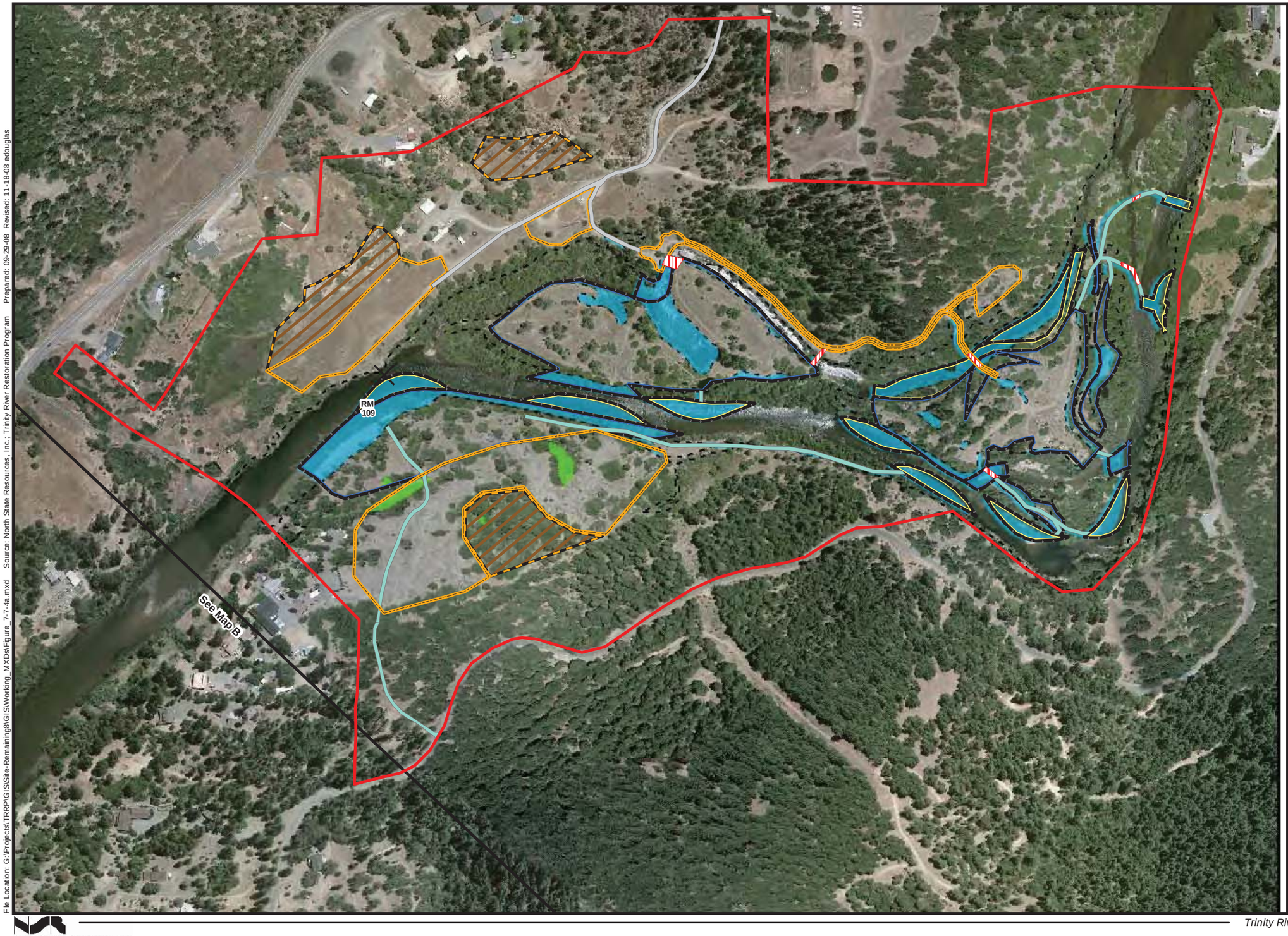
File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-3f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-3f

Reading Creek - Impacts of Proposed Project to Waters of the United States, Including Wetlands



Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (6.866 acres)

Wetlands

Riparian Wetland (0.284 acre)

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-4a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-4a
Sawmill - Impacts of Alternative 1 to Waters of the United States, Including Wetlands

Site Boundary (92.274 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (6.474 acres)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

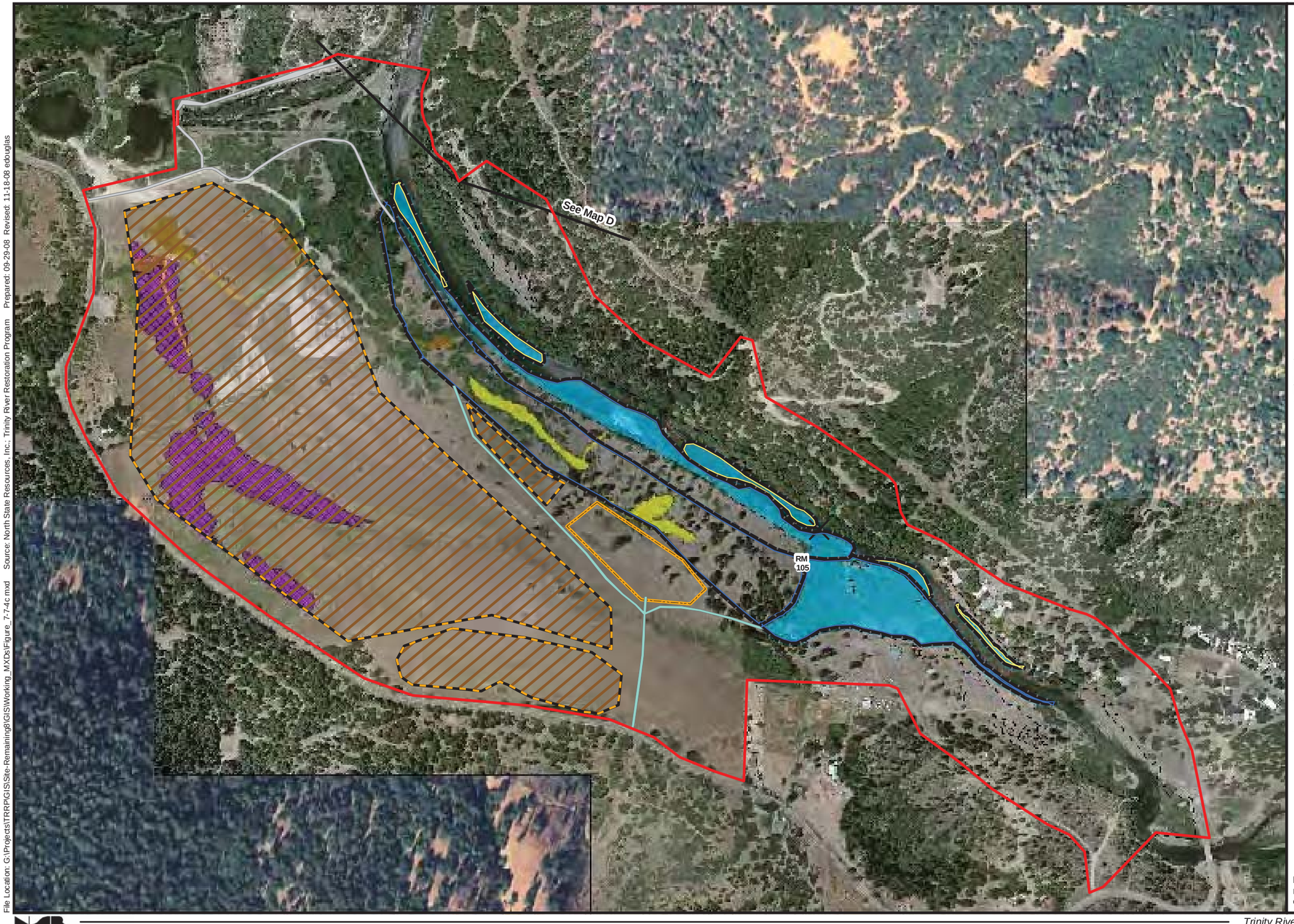
File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-4b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-4b

Upper Rush Creek - Impacts of Alternative 1 to Waters of the United States, Including Wetlands



Site Boundary (211.769 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.023 acre)

Non-Vegetated Ditch (0.032 acre)

Riverine (11.665 acres)

Vegetated Ditch (0.143 acre)

Wetlands

Fresh Emergent Wetland (1.327 acres)

Riparian Wetland (1.063 acres)

Seasonal Wet Meadow (7.536 acre)

Seasonal Wetland (0.001 acre)

N

1:5,400

450 0 450

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-4c.mxd Prepared: 09-29-08 Revised: 11-18-08 edouglas

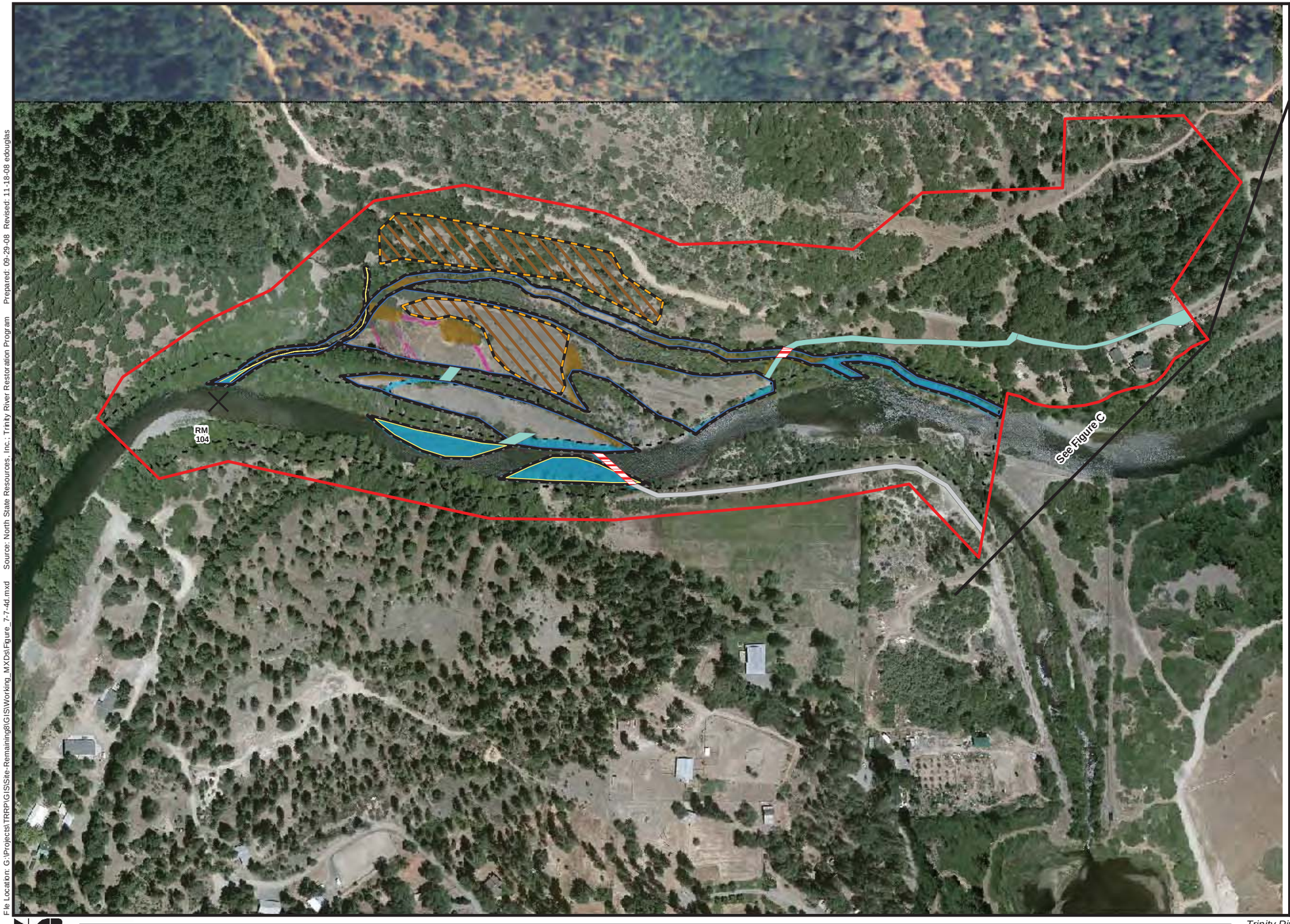
Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-4c

Lowden Ranch - Impacts of Alternative 1 to Waters of the United States, Including Wetlands



Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.030 acre)

Riverine (1.404 acres)

Wetlands

Riparian Wetland (0.729 acre)

N

1:3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-4d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-4d

Trinity House Gulch - Impacts of Alternative 1 to Waters of the United States, Including Wetlands

Site Boundary (22.475 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (2.061acres)

N

1:2,400

200 0 200

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-4e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-4e

Steel Bridge Day Use - Impacts of Alternative 1 to Waters of the United States, Including Wetlands

Site Boundary (135.871 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (5.381acres)

Wetlands

Riparian Wetland (1.169 acres)

N

1:4,200

350 0 350

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-4f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.7-4f

Reading Creek - Impacts of Alternative 1 to Waters of the United States, Including Wetlands

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-1 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-2: Implementation of the project would result in the loss of upland plant communities. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

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

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.7-3: Construction of the project could result in the loss of individuals of a special-status plant species. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

No federal or state listed plant species are expected to occur within the boundaries of any of the Remaining Phase 1 sites. However, one special-status plant, fox sedge, is known to occur at the RC site and additional occurrences of this or other special-status species (see Table 4.7-1) may occur in the

unsurveyed portions of the project sites. Because these species are considered special-status pursuant to CEQA, removal of individuals or habitat for these species could result in a potentially significant impact.
Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-3 in the Master EIR apply (section 4.7.2). Mitigation measure 4.7-3a shall apply only to those portions of the sites not previously surveyed. No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-4 in the Master EIR apply are (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-5 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-6: Construction activities associated with the project could result in impacts to the western pond turtle. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

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

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-6 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-7: Construction activities associated with the project could result in impacts to nesting Vaux's swifts, California yellow warblers, and yellow-breasted chats. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts would occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-7 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawks ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-8 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-9 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-10: Construction activities associated with the project could result in the temporary loss of non-breeding habitat for special-status birds. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no construction-related impacts to non-breeding habitat for sensitive species would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be less than significant.

Mitigation

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species (Pacific fisher). ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1 except for the Pacific fisher, and less-than-significant impact for the Proposed Project and Alternative 1 for the Pacific fisher.***

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 and Alternative 1

Several of the special-status wildlife species with potential to occur at the sites 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.

The impact to the Pacific fisher is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. The impact to the Pacific fisher would be less than significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project, and Alternative 1

Mitigation measures detailed under Impact 4.7-11 in the Master EIR for special-status species apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.7-12: Construction activities associated with the project could restrict terrestrial wildlife movement through the project area. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, construction-related restriction of terrestrial wildlife movement through the sites would not occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.7-13: Implementation of the project could result in the spread of non-native and invasive plant species. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.7.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.7-13 in the Master EIR apply (section 4.7.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.8

Recreation

7.8 Recreation

This section describes the recreation resources that are known to occur within the boundaries of the Remaining Phase 1 sites and evaluates the effects of the Proposed Project and its alternatives on these resources. The project's conformance with the federal and state Wild and Scenic Rivers Acts (WSRAs) is also evaluated.

7.8.1 Affected Environment/Environmental Setting

There are a variety of residential subdivisions, commercial enterprises, and public facilities along the corridor of the Trinity River in the vicinity of the Remaining Phase 1 sites. Developed and dispersed recreation facilities located within, or in close proximity, to the boundaries of the Remaining Phase 1 sites are shown in Figure 7.8-1 and are summarized in Table 7.8-1.

Table 7.8-1. Recreation Facilities in the Vicinity of the Remaining Phase 1 Sites

Developed Recreation	
Trinity River Resort and RV Park	Privately owned facility that provides overnight accommodations (RV and tent camping), restrooms, laundry, convenience store, phone, and recreation area, as well as river access and boat launch ramp.
Rush Creek River Access	BLM-owned river access point that provides public restrooms and trash receptacles.
Bucktail Hole River Access	BLM river access point that provides public restrooms and trash receptacles.
Steel Bridge Day Use Area	BLM-owned river access point that provides public restrooms, picnic tables, and trash receptacles.
Steel Bridge Campground and river access site	BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site.
Franks Trinity River Mobile Home and RV Park	Privately owned facility that provides overnight accommodations.
Trinity Island Resort	Privately owned facility that provides overnight accommodations (RV and tent camping).
Douglas City River Access	BLM-owned river access point that provides public restrooms and trash receptacles.
Douglas City Campground	BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site.
Dispersed Recreation	
River access sites	There are numerous undeveloped river access sites located within the project boundaries. Situated on both private and public lands, these sites provide fishing access and primitive boat launch sites for rafts, canoes, kayaks, and other watercraft that can be carried to the Trinity River's edge.

7.8.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.8-2 summarizes the potential recreation impacts resulting from implementation of the project.

Table 7.8-2. Summary of Potential Recreation Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.8-1. Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.8-2. 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	Significant	Less than significant	Less than significant
Impact 7.8-3. Construction activities associated with the project could lower the Trinity River's aesthetic value for recreationists by increasing its turbidity.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.8-4. Implementation of the project could affect Wild and Scenic River values.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

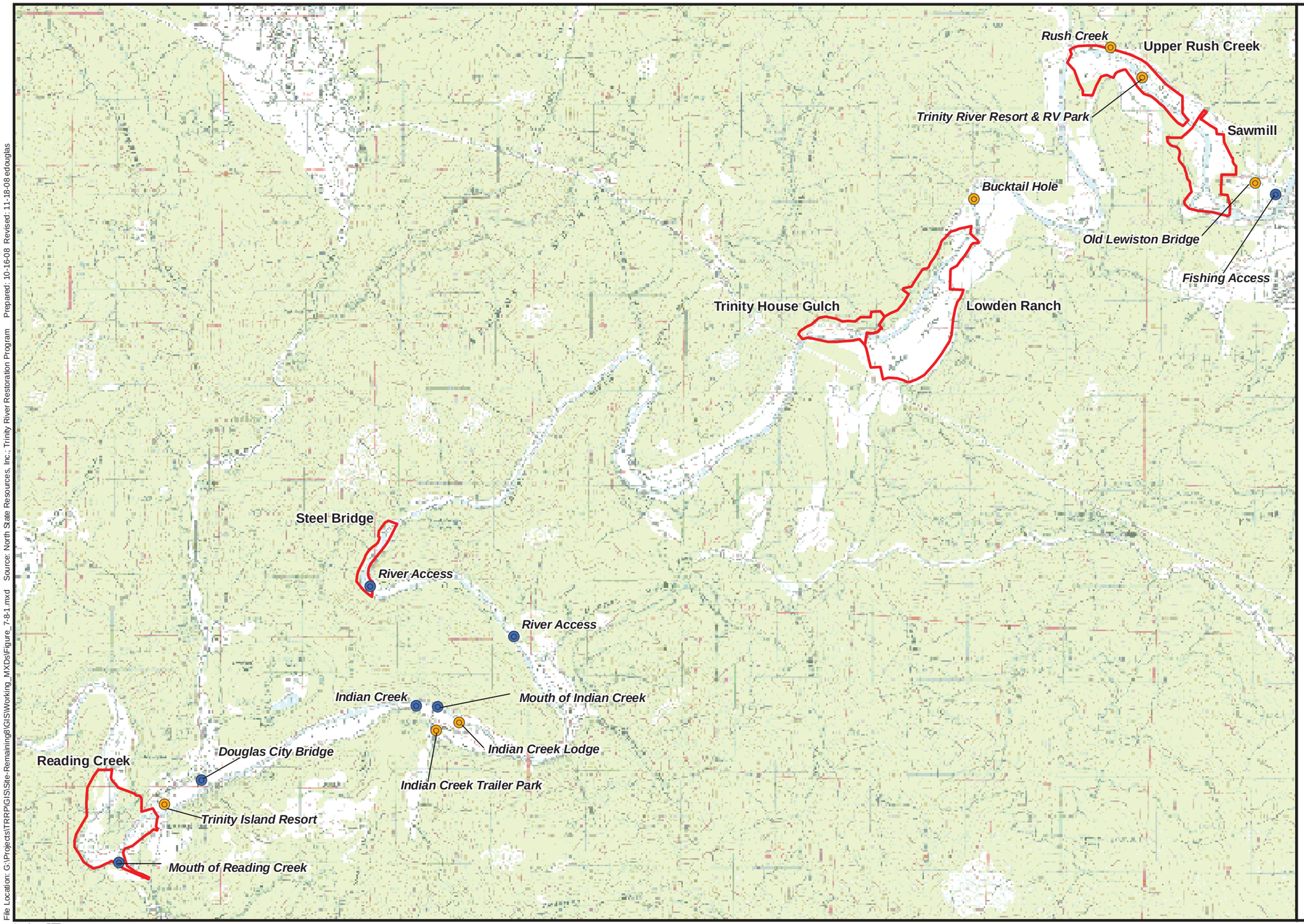
Impact 7.8-1: Construction associated with the project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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

This impact is evaluated in detail in the Master EIR (section 4.8.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is significant.



Site Boundary

Recreation Access Type

- Developed
- Dispersed

N

1:40,000

3,500 0 3,500

Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-8-1.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-16-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.8-1
Recreation Sites

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Alternative 1

As discussed in section 4.8, Impact 4.8.1, Alternative 1 is, in general, a reduced activity impact. Under this alternative, all but the SMl site (which would involve the same level of activities under either action alternative) would involve significantly fewer construction activities. As shown in Figures 2.2a-f, the number of crossings would be decreased. Crossings would not be constructed at the UR, LR, and RC sites. In the absence of these river crossings, Alternative 1 would not include construction activities in the uplands and along the bank of the left side of the river at the UR and RC sites. Construction activities would be significantly reduced on the right side of the LR site as well as on the right side of the THG site. Under Alternative 1, the proposed upstream activity areas at the SB site would be eliminated.

Although the footprint of the proposed activity areas would be reduced in each of the sites (with the exception of the SM site), project construction would still have a temporary, but significant impact on recreational activities.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.8-1 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 boundaries because the project would not be constructed. Therefore, there would be no impact.

Proposed Project

Low water river crossings proposed at five of the Remaining Phase 1 sites would be maintained for the duration of construction at each site. These crossings would consist of a gravel pad wide enough to

accommodate construction equipment and vehicles moving from one side of the river to the other. Crossings would be approximately 18 inches below the low-flow water surface (under flows of approximately 300 to 450 cfs) to allow enough freeboard for the safe passage of drift boats, rafts and kayaks. Access to these crossings will be restricted to authorized personnel during construction. Upon completion of construction activities, the pad would be modified to prevent any further use as a vehicle crossing; fluctuations in river flows would be used to disperse the gravel downstream over time.

Steel Bridge Road, which leads into the SB site, is a particularly narrow, winding road that passes through a residential neighborhood. For this reason, the Proposed Project would utilize onsite gravel processing rather than the transport of excavated material through this residential area. While the presence of such an onsite activity could further impede temporary recreational use of this site, it would benefit public safety by minimizing the number of project-related trips via Steel Bridge Road.

All other potential impacts are described in the Master EIR (section 4.8.2). No additional impacts are anticipated. Potential impacts would be temporary, but significant.

Alternative 1

The potential effects of Alternative 1 on recreational users and resources occurring on recreational lands within the project boundaries are similar to those described under the Proposed Project. However, the reduced scope of activities proposed under Alternative 1, including the elimination of in-channel crossings at the UR, LR, and RC sites would reduce the potential hazard to boaters and rafters passing through these sites. In-channel construction activities and the movement of construction equipment and vehicles throughout the project area would continue to pose a safety threat to recreational users.

Under this alternative, gravel would be processed onsite at the SB site and the location, type, and magnitude of activity would be reduced relative to the Proposed Project. There would be no construction activities in the uplands and along the bank of the left side of the river at the UR and RC sites. Construction activities would be significantly reduced on the right side of the LR site as well as on the right side of the THG site. These reductions in project actions would reduce the safety threat to land-based recreationists using these specific portions of the sites, but the overall potential safety hazard to recreationists posed by project activities would remain significant.

This impact would be temporary, but significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.8-2 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.8.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is temporary, but significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.8-3 in the Master EIR apply (section 4.8.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.8-4: Implementation of the project could affect Wild and Scenic River values. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.8.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.9

Socioeconomics, Population, and Housing

7.9 Socioeconomics, Population, and Housing

This section evaluates potential impacts on socioeconomic conditions, population, and housing from implementation of the Proposed Project and its alternatives for the Remaining Phase 1 sites. A detailed discussion of regional socioeconomic conditions, population, and housing is provided in the Master EIR (section 4.9). Information regarding poverty rates and population by race and ethnicity is included in section 4.18, Environmental Justice. Much of the information in this section is derived from Trinity County 2007: Economic and Demographic Profile (Center for Economic Development 2007).

7.9.1 Affected Environment/Environmental Setting

Labor Market, Population, Housing

The labor market, population, and housing discussions in the Master EIR (section 4.9) provide general information that applies to the Remaining Phase 1 project sites.

7.9.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.9-1 summarizes the potential socioeconomic impacts that could result from implementation of the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 7.9-1. Summary of Potential Impacts on Socioeconomics for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
7.9-1. Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.				
No impact	Beneficial	Beneficial	Not applicable[1]	Not applicable[1]
7.9-2. Implementation of the project could result in the disruption or displacement of local businesses.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
7.9-3. Implementation of the project would result in an increased demand for housing during construction.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
7.9-4. Implementation of the project would result in concentrated population growth.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.9-1: Construction of the project would provide temporary employment opportunities for construction workers in Trinity County. ***No impact for No-Project Alternative; beneficial impact for Proposed Project and Alternative 1.***

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 and Alternative 1

Implementation of both the Proposed Project and Alternative 1 at the Remaining Phase 1 sites would generate temporary construction-related employment in Trinity County. The generation of employment would be a beneficial effect in the local economy, even if the employment is short-lived. The number of design, construction, and clerical positions required to complete the Proposed Project at the Remaining Phase 1 sites is undetermined, but implementation of the rehabilitation activities is expected to add a small percentage to existing local jobs annually for approximately three to five years. The duration of employment would be dependent on the length of the contracting and construction period (anticipated to be approximately six to ten months). Alternative 1 would generate similar types of employment opportunities as the Proposed Project; however, the duration and/or extent of these opportunities for Alternative 1 would be less due to reduced construction activity. Although the Proposed Project and Alternative 1 would provide direct local employment opportunities only if workers are hired from the local labor force, this potential impact would be beneficial.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.9-2: Implementation of the project could result in the disruption or displacement of local businesses. ***No impact for No-Project Alternative, less-than-significant impact for Proposed Project, and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no disruption or displacement of local businesses would take place because the project would not occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

Several existing businesses are located within or directly adjacent to the boundaries of the Remaining Phase 1 sites. However, local businesses in the vicinity of these sites would not be disrupted or displaced by activities associated with either the Proposed Project or Alternative 1. Construction equipment and

vehicle access would not impair access to these local businesses, and business operations would not be impaired. Businesses that operate on the river, such as rafting and fishing guides, would not be able to use certain river access points along the Trinity River for short periods during construction activity at specific sites (i.e., Rush Creek river access, portions of the Steel Bridge Day Use area, and the Douglas City campground). However, Remaining Phase 1 activities would take place over the course of three to five years and would leave the majority of the river access sites in these communities available. Therefore, the impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.9-3: Implementation of the project would result in an increased demand for housing during construction. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project, and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no increased demand for housing during construction would take place because the Proposed Project would not occur. Therefore, there would be no impact.

Proposed Project, Alternative 1

The area surrounding the communities of Lewiston and Douglas City is primarily a rural residential area, 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 either the Proposed Project or Alternative 1 for the Remaining Phase 1 sites would not result in the displacement of any individual from his or her home. A short-term increase in the demand for housing in Weaverville could occur as a result of construction workers seeking lodging during the project staging and construction period (primarily April through October). However, based on the estimated increase in annual employment generated by the project (approximately 20 to 30 persons), 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.

Mitigation Measures

No-Project Alternative, Proposed Project, Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.9-4: Implementation of the project would result in concentrated population growth. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project, and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no population increases would occur during or after activities are implemented because the Proposed Project would not occur. Therefore, there would be no impact.

Proposed Project and Alternative 1

Implementation of either the Proposed Project or Alternative 1 for the Remaining Phase 1 sites would require about 20 to 30 individuals at any given rehabilitation site during implementation. Any increase in population would likely occur annually on a seasonal 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 1 percent on a periodic basis. This amount would not constitute a significant change in population.

Workers could also be drawn from the local work force, which would further lessen population growth associated with project implementation. Overall, this impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.10

Cultural Resources

7.10 Cultural Resources

This section provides a detailed discussion of cultural resources within the Remaining Phase 1 sites and summarizes the findings of a cultural resources records search and cultural resources report relevant to this area prepared by Reclamation. Section 4.10 describes the prehistory, ethnography, and history of the Trinity River basin in the vicinity of the Remaining Phase 1 sites. It also provides a general context for understanding the importance, origin, and types of cultural resources that are located within the APEs established for the Remaining Phase 1 sites. Specific archaeological details of the Remaining Phase 1 sites are discussed in a confidential report, entitled *Archaeological Investigation of the Remaining Phase I Sites of the Trinity River Restoration Program, Trinity County, California*, Report #08-NCAO-148 (U.S. Bureau of Reclamation 2008). This report is on file at the Bureau of Reclamation, Sacramento, California. The results of this investigation are summarized in this chapter.

7.10.1 Affected Environment/Environmental Setting

Site Assessment

An APE for cultural resources was defined for each Remaining Phase 1 site. The field survey and inventory of the APE, performed by Reclamation archaeologists from July 29–31, 2008, were intended to identify and subsequently evaluate any cultural resources eligible for listing on the National Register of Historic Places (NRHP). Eleven new cultural resource sites were recorded and site CA-TRI-1464H was relocated in the APE established for the SB site. Nine of the newly recorded sites are derived from placer mining; a component of site 08-TRRP-002 is a localized scatter of historic artifacts, and site 08-TRRP-009 is the remains of a river crossing near Lowden Ranch. Table 7.10-1 summarizes the identified cultural resources.

Table 7.10-1. New Cultural Resources Recorded in the APE

Field Number	Site Description
08-TRRP-001	Drag-line dredge tailings near Reading Creek
08-TRRP-002	Ground sluice placer tailings and historic artifacts near Reading Creek
08-TRRP-003	Drag-line dredge tailings near Reading Creek
08-TRRP-004	Drag-line dredge tailings near Reading Creek
08-TRRP-005	Hydraulic mining cut at Sawmill west of Lewiston
08-TRRP-006	Placer tailings at Sawmill west of Lewiston
08-TRRP-007	Drag-line dredge tailings at Sawmill west of Lewiston
08-TRRP-008	Bucket-line dredge tailings at Sawmill west of Lewiston
08-TRRP-009	River crossing near Lowden Ranch in Grass Valley
08-TRRP-010	Drag-line dredge tailings near Lowden Ranch in Grass Valley
08-TRRP-011	Drag-line dredge tailings near Trinity House Gulch in Grass Valley

08-TRRP-001 Reading Bar Drag-line Tailings

This site comprises about 8.8 acres of drag-line dredge tailings near the mouth of Reading Creek. This feature is situated in a slightly crescent-shaped arrangement generally paralleling the Trinity River on the

right bank around the bend. The feature averages 160 feet to 370 feet wide and is about 1,600 feet long, as measured down the long axis. The characteristic drag-line pattern with rows of cone-shaped tailings is visible in various portions throughout the site. The visible rows of the feature are generally oriented perpendicular to the river. The height of the tailings averages between 20 and 25 feet. The center portion of the site has retained the most intact features characteristic of drag-line dredging. The site is about 40 percent overgrown with pine trees, grasses, and blackberries, mostly located in the low points among the tailings. The tailings may be reasonably attributed to the Placer Exploration Company, Viking Dredging Company, and Sunshine Company, which are documented to have operated in this area from about 1939 to the 1940s (California Division of Mines and Geology 1964, Trinity County Historical Society 1974, Jones 1981, U.S. Bureau of Reclamation 2007). Additional details are provided in the confidential site record.

Integrity Considerations

The entire feature is within the APE established for the RC site in close proximity to BLM's Douglas City Campground. The campground was developed around and through the tailings feature. The central portion of the tailings has been flattened in several places and roads have been graded through and around the margins of the site. The western margin of the feature, along the river, shows evidence of erosion from flooding.

08-TRRP-002 Reading Ground Sluice Placer Tailings and Historic Artifacts

This site, characteristic of ground sluice mining, consists of a 2.4-acre area of placer tailings and features within the APE established for the RC site. Ditches, drains, and tailing features (i.e., hand-stacked stones) are located on a terraced hillside with drain outlets along the edge to the lower terrace. The terrace is roughly square, measuring about 400 feet long at the base of the west hillside and about 190 feet long at the southwest terrace margin. From the hillside, the terrace extends southwest about 370 feet to the terrace edge through the center of the site. The excavated area in the hillside measures about 40 feet high on average. The ditches and drains appear to have been constructed to support placer mining activities; features also include stacked stones or bedrock excavations. One feature has a very vertical profile of stacked stones characteristic of a wall. There are four clearly defined drain outlets (ditches) at the terrace edge, into which connect other portions of the water delivery/drainage system. The first ditch (southeast terrace margin nearest the historic artifact scatter) is about 15 feet deep and 15 feet wide, with an opening of about 6 feet at the terrace edge. The second ditch is about 8 feet deep and 8 feet wide. The third ditch is about 10 feet deep by 10 feet wide. The fourth ditch is a 3-way drain that has eroded to look more like a natural drainage, though one opening has a stacked-stone check dam structure. A segment of ditch is located around the base of the terrace below the fourth ditch. The site is moderately overgrown; primarily with conifers, hardwoods, shrubs, and grass. Several trees with diameters in excess of 2 feet were observed within the boundaries of this site.

There is a very localized historic artifact scatter located in a small flat space on the southeastern margin on the terrace edge near the first ditch. Artifacts include fragments of a lap-seam metal can, metal stove pipe (flattened), other metal fragments, a glazed brownware lip and base, painted white porcelain (pink and green floral), an off-white porcelain Chinese bowl base, and milled lumber. The Chinese bowl base

has a partial painted pattern. The lap-seam can is diagnostic to the late 1800s, which would coincide with the adjacent ground sluice placer mining. There is also a lens of broken brownware (dark brown) ceramic shards. The scatter appears to be limited to a surface deposit with no sub-surface deposition. Several artifacts were observed over the edge of the terrace on the slope. The site was moderately vegetated with short grasses growing out of a cobble-gravel matrix with little soil development. Additional details are provided in the confidential site record.

Integrity Considerations

An existing access road cuts through the northwest portion of this site. There is also evidence of grading within the stacked stone piles. Subsequent to the initial placer mining activities, a steep road/trail was constructed to access the lower terrace in the southeast portion of the site and may have destroyed a drain feature. Given the extent of the surrounding mining features, it seems likely that the historic artifacts were deposited around the time placer mining took place at this site. Erosion may have removed historic artifacts on the edge of the terrace.

08-TRRP-003 Poverty (Mud) Bar Drag-line Tailings

The site is composed of a 1-acre area of drag-line dredge tailings within the APE established for the RC site. It is located downstream of the Douglas City Campground on the left side of the river. The tailings are located on an upper terrace downstream of the campground. The conical piles of closely stacked tailings are arranged in parallel rows perpendicular to the river. The rows average about 8 feet high and 8 feet wide and are roughly oriented east-west. The visible tailings cover an area averaging 600 feet long by 200 feet wide. The east side of the feature extends downslope onto a lower terrace that transitions into the floodplain. The west margin of the feature abuts the base of the hill. The tailings may be reasonably attributed to the Placer Exploration Company, Viking Dredging Company, and Sunshine Company, which operated in this area from about 1939 to the 1940s (California Division of Mines and Geology 1964, Trinity County Historical Society 1974, Jones 1981, U.S. Bureau of Reclamation 2007). Additional details are provided in the confidential site record.

Integrity Considerations

Much of the tailings have been mechanically flattened to the west and south. Some grading has also occurred in the northern portion of the site.

08-TRRP-004 Smith Flat Drag-line Tailings

This site consists of a 5.3-acre area of drag-line dredge tailings within the APE established for the RC site. It is located on the left bank upstream of the confluence of the Trinity River and Reading Creek. The cone-shaped piles are arranged in closely stacked, parallel rows that are perpendicular to the river on an elevated terrace. The rows average about 10 feet high by 10 feet wide and range between 40 and 150 feet long. The deposit roughly measures about 230 feet by 170 feet. The southeastern margin of the feature abuts the base of a hill, and the northwest margin extends downslope towards the lower terrace. Ponderosa pine trees ranging from 6 inches to 1 foot in diameter are growing out of the tailings. One 2-foot diameter ponderosa pine was observed growing within the perimeter of the feature. The edges of the

feature are completely vegetated. The tailings may be reasonably attributed to the Placer Exploration Company, Viking Dredging Company, and Sunshine Company, whose operations are documented in this area from about 1939 to the 1940s (California Division of Mines and Geology 1964, Trinity County Historical Society 1974, Jones 1981, U.S. Bureau of Reclamation 2007). Additional details are provided in the confidential site record.

Integrity Considerations

Residential development north and south of this site has likely eliminated the actual extent of the tailings deposit.

08-TRRP-005 Sawmill Hydraulic Cut

This site consists of a 1.5-acre area associated with hydraulic mining within the APE established for the SM site. The hydraulic cut face, adjacent to Lewiston Cemetery Road, is oriented roughly north-south and averages about 770 feet long and 30 feet high. One ditch remnant, measuring about 2 feet deep by 4 feet wide, parallels the cut face on top. Other small ditch remnants are also present. No associated artifacts were observed, only landscape features. This site coincides with the Sulphur Spring Mine patented in 1899 by Virgil M. Chamberlain, who leased the claim to a group of Chinese to conduct hydraulic mining. Chamberlain established the first ranch at the junction of Rush Creek and the Trinity River in 1850, known as the Chamberlain Ranch. The ranch was later bought by Jacob and Louisa Paulsen in 1874 (Jones 1981). Additional details are provided in the confidential site record.

Integrity Considerations

This site has been eroded by run-off over the cut face that has created multiple drainage channels. Construction of a 3-pole power line (oriented east-west) and Rush Creek Road have erased much of the ditch network that likely connected to the uphill portion of the site. Adjacent residential construction has also probably eliminated the actual extent of hydraulic mining at this site.

08-TRRP-006 Sawmill Placer Tailings

This site includes two discernable areas of placer tailings, totaling 2 acres within the APE established for the SM site. The most obvious remnants are in the center of the south (0.3 acre) and north (1.7 acres) portions of a north-south river bar on river right. Given the proximity to the river and site no. 08-TRRP-008, the tailings likely resulted from dredge mining, though it is unclear what kind of dredge produced these tailings. The visible tailings are mounded with no defining features, except for the massive quantity of gravel and cobbles. The tailings may be reasonably attributed to the Gold Bar dredge, operated between 1933 and 1939, undocumented drag-line dredging, or both. Additional details are provided in the confidential site record.

Integrity Considerations

Portions of the SM site have been subjected to previous channel restoration and fish improvement projects. Specifically, the side-channels on the right side of the river were modified extensively over the past several decades to enhance salmon spawning habitat. An east-west constructed channel nearly

bisects the north-south river bar. Roads have been graded around the constructed channel and portions of the river bar have been flattened. Tailings are clearly present, but no longer exhibit characteristics that would identify the type of dredging that produced them.

08-TRRP-007 Sawmill Drag-line Tailings

This site consists of a 1.5-acre area of drag-line dredge tailings within the APE established for the SM site. The tailings deposit is located at a 90-degree bend on a river bar at river right. The visible tailings consist of mostly conical piles 10 to 20 feet high with an average width of about 10 feet arranged in linear rows roughly perpendicular to the river (about NE-SW). Most of the tailings are situated on the southwest tip of the river bar. No drag-line dredges have been documented to have worked in this area. Additional details are provided in the confidential site record.

Integrity Considerations

These tailings have been mined for gravel and otherwise altered by grading as well as flooding. Roads have been graded through the site, and the remnant tailings show evidence that gravel has been mechanically removed.

08-TRRP-008 Sawmill Bucket-line Tailings

The site consists of a 10.5-acre area of bucket-line dredge tailings within the APE established for the SM site. Located on the left side of the river, the tailings deposit is roughly oblong, measuring about 1,000 feet long (slightly northwest to southeast) and 480 feet at the widest point. The tailings average about 35 feet high, have vaguely defined rows roughly oriented north-south, and a weak washboard pattern of closely stacked individual piles. The crest length of the individual piles averages about 20 feet in length. The western margin of the site abuts the hillside, while the western margin looks like it has been flattened, forming a terrace above the floodplain. The tailings may be reasonably attributed to the Gold Bar dredge, which was operational between 1933 and 1939 (Trinity County Historical Society 1974, Jones 1981, U.S. Bureau of Reclamation 2007). Additional details are provided in the confidential site record.

Integrity Considerations

Residential development on the north side has probably eliminated the northern extent of the tailings. Roads have been graded on the sides to access the top of the tailings deposit and continue along the long axis of the site.

08-TRRP-009 Lowden Crossing

This site consists of bridge and road features within the APE established for the THG site, immediately downstream of the LR site. This site extends over an area of about 0.6 acres. A concrete and river cobble formed pier (intact) is located on right side of the river. The pier measures about 20 feet tall, 10 feet wide, and 6 feet thick in the center with vertical iron bands and bolts reinforcing the structure. The pier is roughly diamond-shaped and appears to have been built, in whole or in part, with forms. The structure is composed of stacked cobbles in mortar. Remnants of a possible pier or abutment were observed on the right bank, closer to the river. The base fragments of this second feature appear to be about 10 feet wide

with similar construction. Also on the right bank north of the intact pier is a terrace with two walls. The lower wall is about 8 feet high, 40 feet long, and 2 feet wide and is made of mortared cobbles. This wall has a 4-foot terrace on top and another wall measuring 3 feet high, 40 feet long, and 2 feet wide. The larger terrace on top is roughly square, measuring 65 feet by 90 feet, and is cut into the hillside. The materials for constructing the pier and retaining walls appear to have been locally obtained from a conglomerate outcrop on the north bank of the river near the terrace and existing access road.

A raised road grade is located on the left side of the river and is about 6 feet high and 15 feet wide nearest the river. It is composed of earth and gravels and is overgrown with grasses near the river. Ponderosa pine trees, including a 2-foot-diameter tree, are growing out of the southern portion of the remnant road, which is also densely overgrown by blackberry. A straight line can be drawn along the alignment of the road bed to the pier. The east boundary of the walled terrace is about 40 feet west of this alignment.

It is likely that these are the remains of *Lowden's Crossing* referenced in the General Land Office records. The Trinity County Historical Society had several bridge drawings in their archive identifying Lowden's Crossing. Additionally, General Land Office records illustrate a road and bridge crossing the Trinity River in this general location. Additional details are provided in the confidential site record.

Integrity Considerations

Very few structural remains of a bridge crossing are physically present. After the bridge stopped being maintained, materials were probably scavenged and flood events eroded what remained.

08-TRRP-010 Lowden Drag-line Tailings

This site includes about 6 acres of drag-line dredge tailings within the APEs established for the LR and THG sites. The conical tailings are about 5 to 6 feet high and closely stacked in rows roughly perpendicular (NW-SE) to the river. These rows average between 70 and 100 feet in length, 10 feet tall, and 20 feet wide at their base. There is an L-shaped, densely vegetated drainage that bisects these tailings. There is a round metal culvert that allows water to drain to the river. The tailings south of this drainage cover an area about 490 feet long and 350 feet wide, while those north of the drainage are 380 feet long and 350 feet wide. Two oblong-shaped ponds are located just northeast of this drainage; the larger of the two, approximately 230 feet long by 40 feet wide, abuts the rows of drag-line tailings on the SE side. The smaller pond measures approximately 150 feet long and 25 feet wide. Southeast of the bend in this drainage, there is a single conical pile of tailings that is about 70 feet in diameter and 55 feet tall with conifers growing out of it.

Another set of tailings upstream of the drag-line tailings covers about 1 acre. This feature is arranged in two rows that parallel the river. The rows are about 20 feet high, 40 feet wide, and range in length from 50 to 500 feet long. The tops of the piles have been flattened, and it is unclear if this deposit is a result of drag-line or bucket-line dredging. There are conifers growing out of and adjacent to this feature. The tailings may be reasonably attributed to the Poker Bar Mining Company, operational between 1923 and 1940, and possibly the Gardella Dredge between 1922 and 1925 in the northern portion of the site (Jones

1981, Trinity County Historical Society 1974, O'Brien 1965, U.S. Bureau of Reclamation 2007, U.S. Bureau of Land Management 2008). Additional details are provided in the confidential site record.

Integrity Considerations

An unknown quantity of these tailings appears to have been bladed flat for a road and other purposes. Flattened gravels extend north from the main group of drag-line tailings along the river. The upstream set of tailings has been similarly affected by grading and erosion associated with episodic flooding.

08-TRRP-011 Trinity House Gulch Tailings

This site consists of a 0.2-acre area of remnant drag-line dredge tailings on the right side of the river within the APE established for the THG site. It appears that these tailings were probably more extensive, but have been eroded over time. One area of drag-line dredge tailings measures 4 feet high with an approximate diameter of 8 feet. There are several discernible parallel rows of closely stacked conical piles perpendicular to the river, oriented slightly northeast-southwest. The remnant rows measure between 15 and 40 feet in length. Overall, the visible remains cover a triangular area generally measuring about 200 feet by 160 feet by 170 feet. The visible tailings may be reasonably attributed to the Poker Bar Mining Company, operational between 1923 and 1940 (Jones 1981, Trinity County Historical Society 1974, O'Brien 1965, U.S. Bureau of Reclamation 2007, U.S. Bureau of Land Management 2008). Additional details are provided in the confidential site record.

Integrity Considerations

The evidence of dredge mining seems to have been erased by subsequent grading and flood events. The site is situated entirely within the floodplain.

Steel Bridge Water Works for Union Hill Ditch (CA-TRI-1464H)

A concrete pier on the east bank of the Trinity River was relocated as part of the referenced site (CA-TRI-1464H). This feature is within the APE established for the SB site. The steel bridge water works was recorded as part of the Union Hill Ditch by Trudy Vaughan in 1999. No other features associated with this site remains within the APE. The steel bridge supported an inverted siphon crossing the Trinity River, connecting the Union Hill Ditch from Grass Valley Creek to the Union Hill Mine. The bridge was a 165-foot-long steel span on two concrete piers and wide enough for a 30-inch pipe and a wagon. The bridge was dismantled for scrap during World War II (Jones 1981). One of the bridge piers is still standing within the APE. The bridge complex was recorded as part of site CA-TRI-1464H by Eric W. Ritter in 1991.

Determinations of Eligibility

Reclamation applied the NRHP criteria of evaluation to sites 08-TRRP-001 and 08-TRRP-003 through 08-TRRP-011 pursuant to 36 CFR Part 60 and determined that they were not eligible for listing on the NRHP. Sites 08-TRRP-001 and 08-TRRP-003 through 08-TRRP-011 do not convey a significant association with, nor illustrate, the pattern and type of placer mining that contributed to the economic growth of Trinity County. Site 08-TRRP-002 was determined eligible for listing on the NRHP because

the historic artifacts and associated ground sluice placer mining are diagnostic of a period and type of mining activity related to the settlement and economy of Trinity County in the late 1800s.

08-TRRP-002 Ground Sluice Tailings and Historic Artifacts

Site 08-TRRP-002 has retained integrity of location and design in that the site has experienced little modification since the last episode of mining. The small deposit of historic artifacts with two diagnostic features, a broken Chinese bowl and lap-seam can dating to the late 1800s, is consistent with the period of mining at this site. Site 08-TRPP-002 is a typical example of ground sluice mining associated with the broad patterns of settlement, mining, and economic development in Douglas City and Trinity County. The site is, therefore, eligible under Criterion A. While the site is clearly associated with the historic pattern of ground sluice mining, neither the physical characteristics nor the documented mining on the Trinity River, relate the site to a notable individual or company; therefore, the site is not eligible under Criterion B. The layout of the ground sluice mining with regular drains, channels, and hand-stacked stone features embodies the distinct characteristics of the ground sluicing method of mining. Given the integrity and organization of features, the site is eligible for listing on the NRHP under Criterion C. Site 08-TRRP-002 is located on a steep hillside and appears to have been mostly excavated into bedrock. The historic artifacts appear to be limited to a surface deposit with little or no soil development. It is unlikely that a subsurface component exists at this site. Recording this site in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation has exhausted the information potential. Therefore, this site is not eligible for listing on the NRHP under Criterion D.

Dredge Mining Sites

Sites 08-TRRP-001, 08-TRRP-003, 08-TRRP-004, 08-TRRP-006, 08-TRRP-007, 08-TRRP-008, 08-TRRP-010, 08-TRRP-011 do not demonstrate integrity of design, materials, workmanship, and feeling that would have characterized the sites at the time they were dredged. Gravel mining, flood events, and residential and recreational development subsequent to the last episode of placer mining in the respective APEs have compromised site integrity. Tailings have been removed or graded flat in the course of gravel mining, and residential development has modified their characteristics of depositional form and distribution. Periodic flood events have also physically altered the tailings deposits. Given this lack of integrity, the site is not eligible under Criterion A. While these sites are clearly associated with the historic pattern of dredge mining on the Trinity River that helped shape the economy and development of Trinity County, the sites themselves have no specific characteristics that associate them with that event. Neither the physical characteristics nor the documented mining on the Trinity River specifically relate the tailings at these sites to a notable individual or dredge company (Jones 1981, Trinity County Historical Society 1974, U.S. Bureau of Reclamation 2007). The physical features also do not illustrate how the actual gold recovery process worked. Therefore, the sites are not eligible under Criteria B or C. Given the nature of the tailings deposits and their lack of integrity, these sites have no potential to yield information important to the history of mining on the Trinity River and are, therefore, ineligible under Criterion D (U.S. Park Service 1997).

08-TRRP-005 Sawmill Hydraulic Cut

Much of site 08-TRRP-005 has been destroyed by erosion as well as utility, road, and residential construction since the last episode of hydraulic mining around 1900. This site coincides with a placer mineral patent identified as the Sulphur Spring Mine owned by Virgil M. Chamberlain. The hydraulic mining at this site was a relatively small operation and would have had little importance compared to other such operations along the Trinity River. Therefore, the site is not eligible for listing on the NRHP under Criterion A. Chamberlain leased the claim to a group of Chinese, who conducted hydraulic mining. Chamberlain established the first ranch at the junction of Rush Creek and the Trinity River in 1850, known as the Chamberlain Ranch. The ranch was later bought by Jacob and Louisa Paulsen in 1874 (Jones 1981). Chamberlain does not stand out as an important person in history, nor is there evidence documenting the contribution of Chinese miners to the development of mining. Therefore, the site is not eligible for listing on the NRHP under Criterion B. The hydraulic mining at site 08-TRRP-005 is neither unique nor illustrates the process of gold recovery using hydraulic techniques. Therefore, the site is not eligible for listing on the NRHP under Criterion C. The methods and techniques of hydraulic mining are well documented, and there is no additional information that this site can add to the existing body of knowledge. Recording this site in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation has exhausted the information potential. Therefore, the site is not eligible for listing on the NRHP under Criterion D.

08-TRRP-009 Lowden Crossing

Site 08-TRRP-009 does not demonstrate integrity of design, materials, workmanship, and feeling that would have characterized the site when it was built and subsequently utilized and maintained. The site consists of a bridge footing and a portion of raised road bed that mark the location identified as "Lowden's Crossing" in the General Land Office, Trinity County Courthouse, and Trinity County Historical Society records. While it is associated with the first wagon road in the county, it does not retain the structural features and characteristics associated with that early river crossing. Therefore, the site is not eligible for listing under Criterion A. William Lowden, who built the bridge and wagon road, was a prominent person who significantly contributed to the survey and development of transportation in Trinity County. Even though the bridge can be reasonably associated with Lowden, very little of the physical bridge remains intact and it cannot be directly associated with Lowden. Therefore, the site is not eligible for listing on the NRHP under Criterion B. The bridge pier and raised road grade do not constitute an architectural example of the form and function characteristic of an early bridge crossing the Trinity River and is not eligible for listing on the NRHP under Criterion C. Given that there are so few physical remains left of the bridge crossing, the site has no potential to yield information important to the development of transportation in Trinity County. Recording this site in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation has exhausted the information potential. Therefore, the site is not eligible for listing on the NRHP under Criterion D.

CA-TRI-1464H Steel Bridge Water Works for Union Hill Ditch

The Union Hill Ditch/Steel Bridge Water Works was determined eligible for listing on the NRHP through a consensus determination with the State Historic Preservation Officer in 1999.

7.10.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.10-2 summarizes the potential cultural resource impacts resulting from construction and operation of the project.

Table 7.10-2. Summary of Potential Cultural Resources Impacts for the No-Project Alternative, the Proposed Project and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.10-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a known cultural resource.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.				
No impact	Potentially significant	Potentially significant	Less than significant	Less than significant

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

Impact 7.10-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a known cultural resource. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no effects on cultural resources. Therefore, there would be no impact.

Proposed Project and Alternative 1

Implementation of either the Proposed Project or Alternative 1 would not adversely affect historic properties pursuant to 36 CFR Part 800.5(b). As previously discussed, the APEs were surveyed for the presence of cultural resources. Eleven new cultural resources were recorded, and site CA-TRI-1464H was relocated. Given that the proposed river restoration activities, test pits, and piezometer installation within the APEs established for the SB and RC sites will not affect the remaining concrete pier of site CA-TRI-1464H or the placer mining features and historic artifacts at site 08-TRRP-002, there will be no adverse affects to historic properties from the proposed river restoration activities. Any impacts associated with the Proposed Project or Alternative 1 would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources. ***No impact for No-Project Alternative; potentially significant impact for Proposed Project and Alternative 1.***

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 and Alternative 1

In the unlikely event that any cultural resources or human remains are encountered during project implementation, all work in the area of the find will halt and Reclamation's Regional Archeologist will be immediately notified. Reclamation will follow the stipulations of the Programmatic Agreement for compliance with the National Historic Preservation Act. If the discovery is determined to be a historic property that would be adversely affected by the rehabilitation activities, Reclamation will resolve the adverse affect by preparing a Historic Property Treatment Plan (HPTP) in accordance with Section III(d) of the Programmatic Agreement. If human remains are discovered and identified as Native American, they will be treated according to provisions set forth in Section IV of the Programmatic Agreement as well as the Native American Graves Protection and Repatriation Act. Any such impact related to the Proposed Project or Alternative 1 would be potentially significant.

Mitigation Measures

No-Project Alternative

No significant impacts have been identified; therefore, no mitigation is required.

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.10-2 apply (section 4.10.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.11

Air Quality

7.11 Air Quality

This section evaluates the air quality impacts associated with implementation of the No-Project Alternative, Proposed Project, and Alternative 1 for the Remaining Phase 1 sites. Air emissions from project activities are measured against federal and state standards.

7.11.1 Affected Environment/Environmental Setting

Climate and Topography

Climate and topography in the vicinity of the Remaining Phase 1 sites are discussed in detail in the Master EIR (section 4.11.1). As discussed in section 4.11, specific local ambient air quality data is not available for Lewiston or Douglas City. However, ambient air quality data is available from the Weaverville air monitoring station, which is located approximately 6 miles from the Remaining Phase 1 sites.

The Lewiston and Douglas City community plans note that air quality in these communities is generally good. According to these community plans, current commercial use and vehicle emissions do not significantly affect the overall air quality in Lewiston or Douglas City. However, certain activities, such as slash burning, fire wood burning, driving on dirt roads, and wildland fires, cause temporary declines in air quality in the Lewiston and Douglas City communities (Trinity County 1986,1987).

7.11.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.11-1 summarizes the potential air quality impacts that would result from the No-Project Alternative, the Proposed Project, and Alternative 1.

Table 7.11-1. Summary of Potential Air Quality Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
7.11-1. 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	Significant	Less than significant	Less than significant
7.11-2. Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.				
No impact	Significant	Significant	Less than significant	Less than significant

Table 7.11-1. Summary of Potential Air Quality Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
7.11-3. Construction activities and removal of vegetation associated with the project could result in vegetative materials that managers will decide to burn.				
No impact	Significant	Significant	Less than significant	Less than significant
7.11-4. 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	Less than significant	Not applicable[1]	Not applicable[1]
7.11-5. 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	Significant	Less than significant	Less than significant

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

Impact 7.11-1: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1***

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

This impact is evaluated in detail in the Master EIR (section 4.11.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.11-1 apply (section 4.11.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.11.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.11-2 apply (section 4.11.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.11-3: Construction activities and removal of vegetation associated with the project could result in vegetative waste materials that managers may decide to burn. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.11.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.11-3 apply (section 4.11.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.11-4: Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change. ***No Impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

Transportation and construction activity associated with implementation of the Proposed Project would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. Burning vegetation would also emit CO_2, which is a GHG. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the combustion of fossil fuels. Use of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 38 percent of the total GHG emissions in the state (California Environmental Protection Agency Climate Action Team 2006). A byproduct of fossil fuel combustion is CO_2.

In order to determine the significance of the impact, a "carbon foot-print" was estimated based on the Proposed Project's generation of GHGs (primarily CO_2) at the Remaining Phase 1 sites. Project activities that would offset potential impacts were weighed into the equation. The following quantities of combustible fuel and vegetation disturbance were used to determine the carbon foot-print: an average of

285 gallons/day of diesel fuel would be used by construction equipment[1] and a total of 212 acres of vegetation could be removed. It would take approximately 140 days to complete construction activities for the Remaining Phase 1 sites.

Based on these estimates, the Proposed Project would produce approximately 3 metric tons of CO_2 per day over the life of the project. Total GHG emissions resulting from the Remaining Phase 1 activities would be approximately 424 metric tons of CO_2.[2] Vegetation replanting and natural re-seeding within the existing riparian area would offset approximately 4 metric tons of CO_2 over a five-year period. Additionally, project activities may result in opportunities to increase the amount of riparian and upland vegetation.

Based on the above calculations, which estimate the project's carbon emission, the Proposed Project 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 the project's GHG emissions associated with the use of heavy equipment would be measurable over the course of the project, GHG emissions would be similar to the types of construction and forest management activities that take place on a reoccurring basis throughout Trinity County and would not result in a significant increase in the GHG level in the atmosphere nationally or globally. This impact would be less than significant.

GHG emissions associated with Alternative 1 would be less than that generated by the Proposed Project because less construction activity would occur and, therefore, less combustion associated with engines, possibly less vegetation burning, and less project generated transportation. The following quantities of combustible fuel and vegetation disturbance were used to determine the carbon foot-print for Alternative 1: an average of 285 gallons/day of diesel fuel would be used by construction equipment and an average of 29 acres of vegetation could be removed per site. It would take approximately 120 days to complete construction activities for Alternative 1.

Based on the above estimates, Alternative 1 would produce approximately 85 percent of the GHG emissions produced by the Proposed Project. Total GHG emissions resulting from Alternative 1 would be approximately 360 metric tons of CO_2. Vegetation replanting and natural re-seeding would offset the total project GHGs emissions by approximately 3 metric tons of CO_2. Based on the above calculations, which estimate the project's carbon emission, Alternative 1 would not generate significant increases in GHG or an ongoing increase in the demand for off-site energy production because there would be no new facilities constructed. Similar to the Proposed Project, the impact of Alternative 1 relative to GHG and effects on climate change would be less than significant.

[1] The amount of fuel used by the project is based on operating three of the six pieces of heavy equipment, which have an average fuel consumption of 95 gallons per day. Types of heavy equipment used for construction activities would include a 321 excavator, D7 dozer, 325 off road dump truck, 627 scraper, 966 loader, and 160H motor grader.

[2] The mobile combustion CO_2 Emissions Calculation Tool was used to calculate GHG emissions for combust ble 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.

Mitigation Measures

No-Project Alternative, Proposed Project, Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.11-5: 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 for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.11.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is significant.

Mitigation Measures

No-Project Alternative

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.11-5 apply (section 4.11.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.12

Aesthetics

7.12 Aesthetics

This section describes the aesthetic values and visual resources that are known to occur within the Remaining Phase 1 site boundaries and evaluates the effect that the Proposed Project and its alternatives could have on these values and resources.

7.12.1 Visual Assessment Process

The assessment process used to evaluate the visual environment is described in the draft Master EIR (section 4.12.1).

Viewshed

Visual assessment units (VAUs) within the boundaries of the Remaining Phase 1 site have been defined based on visibility from surrounding homes or public access areas along Rush Creek Road, Sawmill Road, Goose Ranch Road, Browns Mountain Road, Lewiston Road, Steel Bridge Road, Riverview Road, and Steiner Flat Road. These VAUs are representative of visually sensitive resources associated with the rehabilitation sites. Thirty nine discrete key observation points[1] (KOPs) (some including multiple aspects) were established within 13 distinct VAUs distributed across the six Remaining Phase 1 sites.

Light and Glare

Factors that contribute to light and glare are discussed in the draft Master EIR (section 4.12.1).

Viewer Groups

The Remaining Phase 1 sites are subject to the perceptions of the following three distinct viewer groups (described in the Master EIR, section 4.12.1): motorists, residents, and recreationists.

7.12.2 Affected Environment/Environmental Setting

Visual Environment of the Remaining Phase 1 Sites

The locations and boundaries of the Remaining Phase 1 sites are illustrated in Figure 1-2. These sites, which are in some cases contiguous and in others separated by several miles, are integral to the rehabilitation efforts of the TRRP. The visual character of these sites 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 (e.g., annual grassland and Klamath mixed conifer) as the viewer moves away from the river. Views of the river within the site boundaries are limited by vegetation stringers; residential, commercial, and recreational development; river meanders; and the distance of most area roads from the floodplain.

Although none of the Remaining Phase 1 sites are visible from either of the two scenic byways that pass through Trinity County (SR 299 and SR 3), most are adjacent to county roads, such as Lewiston Road and

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

Rush Creek Road. Residential, and to some extent commercial, development exists along these roads. Other county and private roads provide access to residential developments in the communities of Lewiston and Douglas City. These roads offer varying degrees of river views, and many of the homes in these communities have unobstructed views of the river, including homes within and adjacent to the Remaining Phase 1 sites. From the river, portions of each site can be seen, although views from the river may vary dramatically due to changes in flow and seasonal variation in vegetation. The following paragraphs provide a brief characterization of the aesthetic resources associated with each site.

Sawmill

From the right bank of the Trinity River, the SM site is one of the least publicly visible of the Remaining Phase 1 sites. Access to the site from the right bank is made via Old Cemetery Road, a single-lane gravel roadway that terminates on CDFG lands. Dense upland and riparian vegetation obscure any views of the river from the road and parking area, and views of the river from access trails are limited by vegetation and topography. A footbridge located along one of the trails crosses over a constructed side-channel.

Views of this site from the left bank of the river, however, dominate the fore- and mid-ground landscape when seen from Goose Ranch Road. This road is elevated above the river, and numerous openings in the roadside vegetation afford motorists brief panoramic views of the upper half of the site. While there are a few homes situated adjacent to Goose Ranch Road near the upstream end of the site, views looking downstream into this site are limited by vegetation and topography. The portion of the site visible from Goose Ranch Road is not visible from any adjacent homes.

Upper Rush Creek

The UR site is a highly visible location. With relatively few trees between the Trinity River and Rush Creek Road, motorists, residents, and recreationists can see much of the river from the right bank. Numerous homes, an RV park, and a BLM river access area occur between Rush Creek Road and the right bank of the river within and adjacent to the site boundary.

Views of the UR site from the left bank are somewhat limited by vegetation and topography. Several tertiary roads and private driveways extend off of Goose Ranch Road and lead towards the river. Aside from a few homes that front the river bank, most homes along the left side of the river do not have views of the UR site.

Lowden Ranch

The LR site is one of the more publicly visible sites, primarily due to its large size. Although the river channel itself is somewhat obscured from the view of motorists using Lewiston Road, the large meadow that makes up most of the site is highly visible and dominates the landscape. Views from the right bank of the river are limited by dense vegetation and topography, and access to the right bank is limited to Browns Mountain Road, upslope of the site. Several homes along Browns Mountain Road have varying degrees of river views encompassing this site, ranging from unobstructed and wide-ranging to narrow glimpses.

A public trail used by pedestrians and equestrians provides access to much of the LR site. The trail begins at a public parking area on DWR land adjacent to Lewiston Road and provides access to the river near the confluence of Grass Valley Creek. It follows the river upstream before crossing the dredge tailings and the meadow, eventually looping back to the parking area.

Trinity House Gulch

The THG site is one of the more remote, less accessible Remaining Phase 1 sites. Browns Mountain Road, on the right side of the Trinity River, provides the only public access to this site. Views from this road are limited due to steep topography and dense vegetation. A small number of homes on the left bank of the river have partial views of portions of this site.

Steel Bridge Day Use

The SB site is located within a narrow canyon of the Trinity River that contains a number of residences along Steel Bridge Road on the left side of the river. The site is within a day use recreation area managed by the BLM that provides for parking, river access, and picnicking. Isolated, but dense stands of riparian vegetation occur between the parking area and the river. Several nearby homes are adjacent to the site, with views that look directly into the site. There are no residences upstream of the day use area; however, Steel Bridge Road continues upstream to a BLM campground near the end of the road. Steep canyon walls form the right bank of the river; there are no homes, roads, or vehicular access on the this side.

Reading Creek

Despite its close proximity to the community of Douglas City, the RC site is fairly remote and the private parcels within the site restrict public access, primarily on the left bank. Two public recreational areas are located in this site along the right side of the river. The Douglas City Campground, an improved tent/trailer camping and group picnic area, and the primitive Douglas City River Access are both operated by the BLM. The Douglas City Campground is situated upslope of the river, and most views of the river are obscured by trees and topography. The river bends sharply as it passes through this site, and portions of the channel can be viewed only from the bank or within the channel itself. Recreationists accessing the river from the campground have opportunities for extended views of the channel and adjacent dredger tailings. Similarly, the Douglas City River Access, which allows for undeveloped campsites along the river and in the surrounding uplands, affords the same scenic views as those seen by users accessing the area from the campground or the river (boaters).

Little of the downstream portion of the site is visible from the adjacent Steiner Flat Road due to topography and vegetation. Parts of the upstream end of the RC site can be seen from Frank's Trinity River Mobile Home Park located at the end of Riverview Road. Views of the river from the left bank are limited to boaters and a few homes along the adjacent uplands.

Visual Assessment Units and Key Observation Points

VAUs, areas of distinct visual character within the viewshed, provide a framework for comparing the visual effects of a proposed project. Within each VAU, KOPs were established along commonly traveled routes or other likely observation points from which a representative group (residents, recreationists, or

motorists) could view the proposed rehabilitation sites. Locations of VAUs and KOPs are shown on Figures 7.12-1a-f. Table 7.12-1 provides a brief description of the KOPs, and photographs taken from each KOP are included as Appendix M.

Table 7.12-1. Key Observation Points

VAU	KOP	Photo	Description of Key Observation Points
Sawmill (see Figure 7.12-1a)			
SM1	1	1a	View from river right, looking southwest toward river.
SM1	2	1b	View from river right, looking west toward river.
SM1	3	1c	View from river right, looking south toward river.
SM1	4	2	View of the Sawmill site looking upstream from Goose Ranch Road.
SM1	5	3	View of the Sawmill site looking upstream from Goose Ranch Road.
SM2	1	4a	View looking southwest toward river from the Sawmill site parking area.
SM2	2	4b	View looking west toward river from the Sawmill site parking area.
SM2	3	4c	View looking south toward river from the Sawmill site parking area.
SM2	4	5a	View of oxbow, looking downstream.
SM2	5	5b	View of oxbow, looking upstream.
SM2	6	6	View of oxbow from the footbridge.
SM2	7	7a	View from left bank, looking at island created by oxbow.
SM2	8	7b	View looking west from left bank of oxbow.
SM2	9	8a	View upstream from right bank of river, south of the power line crossing.
SM2	10	8b	View across river from right bank of river, south of the power line crossing.
SM2	11	8c	View downstream from right bank of river, south of the power line crossing.
SM2	12	9a	View upstream from right bank of river, north of the power line crossing.
SM2	13	9b	View downstream from right bank of river, north of the power line crossing.
SM2	14	10	View of the Sawmill site looking downstream from Goose Ranch Road.
SM3	1	11	View towards river from Rush Creek Road.

Table 7.12-1. Key Observation Points

VAU	KOP	Photo	Description of Key Observation Points
Upper Rush Creek (see Figure 7.12-1b)			
UR1	1	12	View towards river from Rush Creek Road at downstream end of rehabilitation site near Upper Rush Creek site boundary.
UR1	2	13	View towards river from residences east of the Trinity River Lodge RV Park.
UR1	3	14	View towards river from the Trinity River Lodge RV Park.
UR2	1	15a	View upstream from the BLM Rush Creek River Access.
UR2	2	15b	View across river from the BLM Rush Creek River Access.
UR2	3	15c	View downstream from the BLM Rush Creek River Access.
UR3	1	16	View from Rush Creek Road near downstream end of rehabilitation site.
UR3	2	17a	View upstream from end of Partridge Lane.
UR3	3	17b	View across river from end of Partridge Lane.
UR3	4	17c	View downstream from end of Partridge Lane.
Lowden Ranch (see Figure 7.12-1c)			
LR1	1	18	View downstream from Bucktail Road near Salmon Drive.
LR2	1	19	View from Browns Mountain Road at Mountain Springs Road intersection.
LR2	2	20	View from west side of residence on Browns Mountain Road.
LR2	3	21	View upstream from Browns Mountain Road at downstream end of rehabilitation site near Trinity House Gulch site boundary.
LR2	4	22a	View looking south from Lewiston Road near north end of rehabilitation site.
LR2	5	22b	View looking west from Lewiston Road near north end of rehabilitation site.
LR2	6	23a	View looking north from the Lowden Ranch Trailhead.
LR2	7	23b	View looking west from the Lowden Ranch Trailhead.
LR2	8	24	View looking north from the Lowden Ranch Trail, west of trailhead parking area.
LR2	9	25	View looking east from the Lowden Ranch Trail near downstream end of rehabilitation site.
LR2	10	26	View of the Lowden Ranch Trail near downstream end of rehabilitation site at point where trail parallels left bank of river.
LR2	11	27a	View looking downstream from the Lowden Ranch Trail river access near downstream end of rehabilitation site.

Table 7.12-1. Key Observation Points

VAU	KOP	Photo	Description of Key Observation Points
LR2	12	27b	View looking upstream from the Lowden Ranch Trail river access near downstream end of rehabilitation site.
LR2	13	28	View of dredger tailings from the Lowden Ranch Trail near downstream end of rehabilitation site.
LR2	14	29	View from gate near ponds, west of trailhead parking area.
Trinity House Gulch (see Figure 7.12-1d)			
THG1	1	30	View from Browns Mountain Road.
THG1	2	31	View from Browns Mountain Road.
THG1	3	32	View from Browns Mountain Road.
THG1	4	33	View from residence at end of Wellock Road.
Steel Bridge Day Use (see Figure 7.12-1e)			
SB1	1	34a	View from left bank of river, looking upstream at the day use area.
SB1	2	34b	View from left bank of river, looking downstream at the day use area.
SB1	3	34c	View from left bank of river, looking across river at the day use area.
SB1	4	35a	View from left bank of river near upstream end of rehabilitation site, looking upstream.
SB1	5	35b	View from left bank of river near upstream end of rehabilitation site, looking downstream.
SB1	6	35c	View from left bank of river near upstream end of rehabilitation site, looking south.
Reading Creek (see Figure 7.12-1f)			
RC1	1	36	View of upstream end of rehabilitation site from Frank's Trinity River Mobile Home Park.
RC3	1	37a	View from right bank of river south of the BLM Reading Creek Campground, looking south.
RC3	2	37b	View from right bank of river south of the BLM Reading Creek Campground, looking downstream.
RC3	3	37c	View from right bank of river south of the BLM Reading Creek Campground, looking upstream.
RC3	4	38a	View looking upstream at river bend.
RC3	5	38b	View looking across river at river bend.
RC4	1	39a	View looking upstream from BLM river access near downstream end of rehabilitation site.
RC4	2	39b	View looking downstream from BLM river access near downstream end of rehabilitation site.

File Location: G:\Projects\TRRPG\S\Site-Remaining\GIS\Working_MXDs\Figure_7-12-1a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-14-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.12-1a
Sawmill - VAUs and KOPs

Site Boundary (92.274 acres)
KOP Point
Direction of View
Matchline

Visual Assessment Unit

UR1
UR2
UR3

N

1:4,200

350 0 350
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7.12-1b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-14-08 Revised: 11-18-08 eduglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.12-1b
Upper Rush Creek - VAUs and KOPs

Site Boundary (211.769 acres)

KOP Point

Direction of View

Matchline

Visual Assessment Unit

LR1

LR2

N

1:5,400

450 0 450

Feet

File Location: G:\Projects\TRRPG\SI\Site-Remaining\GIS\Working_MXDs\Figure_7-12-1c.mxd Prepared: 10-14-08 Revised: 11-18-08 edouglas Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.12-1c
Lowden Ranch - VAUs and KOPs

Site Boundary (43.695 acres)
KOP Point
Direction of View
Matchline

Visual Assessment Unit

THG1

N

1:3,000

250 0 250
Feet

File Location: G:\Projects\TRRPG\GIS\Site-Remain ng8\GIS\Working_MXDs\Figure_7-12-1d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-14-08 Revised: 11-18-08 eduglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.12-1d
Trinity House Gulch - VAUs and KOPs

Site Boundary (22.475 acres)
KOP Point
Direction of View
Matchline

Visual Assessment Unit

SB1

N

1:2,400

200 0 200
Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-12-1e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-14-08 Revised: 11-18-08 edouglas

Figure 7.12-1e
Steel Bridge Day Use - VAUs and KOPs

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-12-1f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-14-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.12-1f
Reading Creek - VAUs and KOPs

Following is a discussion of the VAUs and associated KOPs that have been identified for the proposed activity areas.

Sawmill

VAU SM1

VAU SM1, located at the extreme upstream end of this site, begins approximately 0.5 mile downstream of the Old Lewiston Bridge. This VAU includes both the mainstem Trinity River channel and a constructed side-channel that are visible from Goose Ranch Road to varying degrees. This VAU was established based on the visibility of in-channel activities proposed on the right bank of the river. Construction activities on the in-channel island (including new roads, excavation, recontouring, and vegetation removal) and the staging areas on the right bank of the river would be apparent from KOPs 4 and 5 (photos 2 and 3). Homes at the extreme upstream end of this VAU may have limited views of activity areas X-4 and IC-1. In-channel recreationists such as rafters will have unobstructed views of much of the R-1 through R-5 and IC-1 through IC-8 activity areas.

In order to observe project activities taking place in VAU SM1 from the right bank of the river, a viewer would have to walk onto the site. KOPs 1 through 3 (photos 1a through c) illustrate the density of riparian vegetation common to the Trinity River and, specifically, to this VAU. Much of the upland and adjacent riparian vegetation on the right bank of the river in this VAU would remain intact. Its presence would also block views of the activity areas from nearby roads and the Old Lewiston Bridge RV Park located east of the VAU.

VAU SM2

VAU SM2 consists of the portion of the SM site most easily accessed by the public. This VAU is adjacent to Old Cemetery Road and includes a parking area from which recreationists can walk into the site. From the public stretch of Old Cemetery Road, direct views of the river are obscured by dense riparian vegetation and topography. Activity areas U-2 and C-1 would be prominently visible from the public access parking area as well as the adjacent private home located on the east side of Old Cemetery Road.

Beyond activity areas C-1, C-2, and, further down the river access trail, C-3, those walking onto the site would first encounter the constructed side-channel that meanders along the right side of the floodplain before reentering the main-stem channel. As illustrated by KOPs 1 through 3 (photos 4a through c), which fall within activity areas C-3, R-8, and X-1, activities will be readily apparent from this general location. Similar to VAU SM1, the upper half of VAU SM2 is visible from Goose Ranch Road (KOP 10 (photo 8b)); however, aside from a glimpse when heading west, the lower portion of VAU SM2 cannot clearly be seen by motorists traveling on Goose Ranch Road.

Proposed activities on the left side of the river would be shielded from the view of most viewer groups by surrounding topography and vegetation. Recreationists passing through the area while rafting or fishing would see activity areas IC-9 through IC-11 and portions of activity areas R-10, C-5, and C-13.

VAU SM3

VAU SM3 (KOP 1 (photo 11)) illustrates the view of the downstream end of the SM site from Rush Creek Road. Topography, vegetation, and distance from the river obscure views of the river and proposed activity areas from this location.

Upper Rush Creek

VAU UR1

Several homes and a commercial RV park (Trinity River Lodge RV Park) located on the south side of Rush Creek Road (river right) have unobstructed views of most of VAU UR1 (see KOPs 1 and 2 (photos 12 and 13)). In addition, Rush Creek Road decreases in elevation as it passes by this VAU, allowing motorists traveling in either direction relatively unobstructed views of the unit. The proposed location of activity area U-1, immediately adjacent to Rush Creek Road, and use of the road shoulder for activity area C-17 would make these areas highly visible to motorists and homes within VAU UR1. Retention of a vegetation buffer between activity areas U-1 and C-17 and activity areas R-1 and R-2 would obstruct most views of construction from the road and nearby homes. Farther downstream, views of these areas from Trinity River Lodge and RV Park would also be buffered by vegetation, although use of an existing access road at the east end of the park for construction access would expose some homes and guests to construction traffic during project implementation. Only a few homes, located on the left bank of the river, have views of the channel and right bank, though these views are limited by vegetation and topography.

Typically, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

VAU UR2

VAU UR2 includes a BLM river access/boat launch facility with a public restroom and parking area on the right bank of the river. Activity areas C-6, C-7, C-9, and U-2 are within or adjacent to this facility, and activity areas IC-2, IC-3, and R-4 are in close proximity to this facility. Views of the channel from this location, both up- and downstream, are only marginally obstructed by riparian vegetation along the bank (see KOPs 1 and 3 (photos 15a and 15c), respectively). Motorists passing by this reach of the river on the adjacent Rush Creek Road can also clearly view the channel from either direction.

A home located on the left bank, opposite the BLM river access, looks out onto the river. Up- and downstream views from this location are somewhat limited by riparian vegetation and topography. However, use of existing roads C-1, C-12, and C-13 would cause construction traffic to pass through residential areas on the left side of the river.

The river channel makes a gradual bend to the left through VAU UR2, and a series of oxbows and inlets that extend into VAU UR3 have been constructed along the left bank. Typically, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

VAU UR3

VAU UR3 is situated at the downstream end of the Upper Rush Creek site. The river through this VAU bends sharply away from Rush Creek Road and river views from the roadway decrease as the distance from the river increases. Several homes adjacent to the site boundary along the right bank have varying views of the channel, depending on vegetation and aspect. KOP 1 (photo 16) illustrates the view of VAU UR3 available to homes upslope from the right bank of the river relative to activity areas R-5 and IC-4. Activity areas C-2, C-3, C-16, U-3, and U-4 would be visible to varying degrees from river right. Typically, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

Along the left bank, homes are set back some distance from the channel and floodplain. A private road (C-1) provides access to this portion of the VAU, continuing beyond the adjacent homes to the floodplain. Dense pockets of riparian vegetation and altered topography obscure most views of the channel from nearby homes; however, these homes do look out onto the floodplain. KOPs 2 through 4 (photos 17a through c) illustrate views of the channel, primarily the side-channel, which is visible from the floodplain at the end of Partridge Lane. Typically, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

Lowden Ranch

VAU LR1

VAU LR1 consists of a relatively small upstream portion of the LR site. As viewed from Browns Mountain Road near Bucktail Bridge, views of the river channel are completely blocked by dense riparian vegetation (KOP 1). Portions of activity area C-7 would be visible from KOP 1 (photo 18), but in-channel work would not be apparent from this locale.

Homes on both sides of the river, in and adjacent to VAU LR1, have very limited views of the river as a result of the dense riparian vegetation that lines the entirety of the right bank of the Trinity River through the LR site boundary. Homes adjacent to the left bank of the river in this VAU would have unobstructed views of activity area R-1 and to some extent IC-2.

VAU LR2

VAU LR2 is composed of the remainder of the LR site, which includes a large meadow, the Trinity River, and an accumulation of dredge tailings (as shown for KOPs 4 through 14 (photos 22 through 29)). Because this site is associated with a meadow and accompanying wetland features, little residential development has occurred. Instead, the part of the site that makes up the left side of VAU LR2 has been opened to the public for use as a loop walking trail. The trailhead leaves a public parking area that is accessed via Lewiston Road and meanders through the pastureland and dredge tailings to the Trinity River. Although the river channel itself cannot clearly be seen from Lewiston Road or the trailhead parking area because of vegetation along the river and in the areas of dredge tailings, the trail leads recreationists to the river's edge, from which extended views of the river both up- and downstream are available (KOPs 11 and 12 (photos 27a and b)). The general openness of this VAU would result in most

of the activity areas being visible to varying degrees from numerous points throughout this VAU. The affected viewer groups would primarily consist of motorists and recreationists, because there are no homes on the left side of the river in close proximity to this VAU.

Browns Mountain Road parallels the right side of the river upslope, coincident with the site boundary. As it ascends the mountainside, the road moves through densely forested areas from which the river cannot be seen. Small openings in the vegetation allow for sporadic, restricted views of the river from this road. Several homes located along the unpaved portion of the road are at an elevation sufficient to allow for some views of the river, dredge tailings, and the meadow located on the opposite (left) side of the river (see KOPs 1, 2, and 3 (photos 19 through 21)). Activity areas R-4, IC-5, IC-6, X-1, and C-3 would be visible from some homes located in the uplands at the downstream end of VAU LR2. Typically, however, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

Trinity House Gulch

VAU THG1

There are few views of VAU THG1 available from Browns Mountain Road. As it passes along the hillside above the right side of the site, Browns Mountain Road ascends further upslope, eventually turning away from the river. Small openings in the upland vegetation allow for limited views of the site; thus, parts of some of the construction activity areas proposed for the right bank of the river would be visible to varying degrees from Browns Mountain Road (as shown by KOPs 1 through 3 (photos 30 through 32)).

From the left bank, several homes located at the end of a private road (Partridge Lane) have views of the river channel, but these views are limited by topography and accumulations of vegetation (as shown by KOP 4 (photo 33)). Vegetation would obscure most views of the construction activity areas from homes in the uplands adjacent to the right side of the channel. Typically, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

Steel Bridge Day Use

VAU SB1

Views of the Trinity River from the parking area at the SB site are obstructed by dense upland and riparian vegetation. However, the site currently provides a large riverside beach that can easily be accessed from the parking area. The site is situated at the apex of a tight bend in the river. KOPs 1 through 5 (photos 34 and 35) illustrate the extent of river views available from the left side of the river. Virtually the entire site is proposed for some type of activity, and such activities would be highly visible to visitors, as well as from homes immediately adjacent to this VAU. Surrounding homes can see various parts of the site depending on aspect. Farther upstream towards the Steel Bridge Campground, recreationists would encounter activity areas C-4 and C-5. Steep topography on the right side of the river prevents any residential development and limits recreational use. Typically, project-related visual

changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

Reading Creek

VAU RC1

VAU RC1 at the RC site is only partially visible from Frank's Trinity River Mobile Home Park (as shown by KOP 1 (photo 36)). Because this facility is located upslope from the river, a short distance upstream of the RC site boundary, vegetation and topography limit views of the channel, and none of the proposed activity areas in this VAU would be visible in their entirety from this location. Typically, project-related visual changes to the environment would be most apparent to in-channel recreationists such as rafters and fishermen.

Several homes located upslope of VAU RC1, on the left bank of the river, also have limited views of the VAU due to vegetation, topography, and distance. These homes would not have a view of any proposed construction activity areas.

VAU RC2

Views from VAU RC2 are limited by the steep topography of the river's right bank and the dense vegetation that occurs along both sides of the river. Although access to the right side of this VAU is through the Douglas City Campground, most of the VAU is likely only accessed by a few recreationists, such as anglers and rafters.

Similar to VAU RC1, homes located on the left bank of the river have only limited views of the river due to vegetation, topography, and distance. Portions of activity areas R-1, R-2, IC-1, IC-2, and IC-3 would be visible from homes upslope from the left side of the river. Some homes in this VAU would also have views of activity areas U-1, C-4, C-6, C-14, and C-15.

VAU RC3

VAU RC3 is located at the apex of a sharp bend in the river. Views from the floodplain on the right bank are limited by topography, as shown by KOPs 1 through 5 (photos 37 and 38). From the floodplain, pockets of riparian and upland vegetation partially obscure views of dredge tailings. Topography and vegetation would block views of most of activity area U-3 from both the campground and the river. Most proposed staging areas would also be blocked from much of the public's view (including boaters) by the surrounding topography and vegetation, although construction traffic would make use of the campground's existing roads (C-1 and C-13) to access the river. Thus, if construction were to occur during a period when the campground is open to the public, campers could be exposed to construction traffic as it moves through the campground. In this VAU there is no development on the left bank of the river.

VAU RC4

VAU RC4 includes a BLM-designated primitive camping area that allows for dispersed camping and other recreational use along the river. The views of the river channel and floodplain vary as a result of vegetation growth and topography modified by dredge tailings. KOPs 1 and 2 (photos 39a and b) illustrate views up- and downstream from the proposed location for activity area C-8. In-channel recreationists have lengthy views of the channel and banks through this reach.

Wild and Scenic Rivers

All of the Remaining Phase 1 sites are located within the corridor of the Trinity River designated under the federal and state Wild and Scenic Rivers acts. For additional information on this topic, please refer to section 4.12 of the Master EIR.

7.12.3 Environmental Consequences/Impacts and Mitigation Measures

Table 7.12-2 summarizes the potential aesthetic impacts resulting from implementation of the No-Project Alternative, Proposed Project, and Alternative 1.

Table 7.12-2. Summary of Potential Aesthetic Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.12-1. Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.12-2. 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	Less than Significant	Not applicable[1]	Not applicable[1]
Impact 7.12-3. The project may be inconsistent with federal and state Wild and Scenic River acts or Scenic Byway requirements.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.12-4. The project could generate increased daytime glare and/or nighttime lighting.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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

As previously discussed, the Remaining Phase 1 sites include thirteen distinct VAUs. The potential impacts of the Proposed Project and Alternative 1 on KOPs are discussed below by VAU.

Sawmill

VAU SM1

VAU SM1 includes KOPs 1, 2, and 3 (views of activity areas IC-4, R-2, R-4, X-3, and C-4) and KOPs 4 and 5 (views of activity areas R-1 through R-7; IC-1 through IC-6; X-3 through X-5; and C-4, C-8 through C-10).

Essentially the entire gravel bar located at the upstream end of this VAU is visible from Goose Ranch Road (KOPs 4 and 5 (photos 2 and 3)). Consequently, under the Proposed Project, virtually all of the construction activities in this portion of the SM site would have a noticeable effect on the view's aesthetic quality. Impacts would be less apparent to viewers accessing the site from the right bank, since this VAU is located away from the site's primary parking area and access point, and dense vegetation (KOPs 1 through 3 (photos 1a through c)) would limit most views of project activity areas. Homes at the extreme upstream end of this VAU may have limited views of activity areas X-4 and IC-1. In-channel recreationists such as rafters will have unobstructed views of portions of activity areas R-1 through R-5 and IC-1 through IC-8.

Impacts to aesthetics in this unit would be potentially significant, particularly when viewed from KOPs 4 and 5. Proposed activities in the channel would have a significant impact on the visual environment. 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. No project activities are proposed upstream of this unit.

VAU SM2

VAU SM2 includes KOPs 1, 2, and 3 (views of activity areas C-1, C-2, and C-6; and U-1 and U-2); KOPs 4, 5, 6, 7, and 8 (views of activity areas R-8 and R-9, C-3 and C-4, and X-1); KOPs 9, 10, 11, 12, and 13 (views of activity areas IC-8 through IC-11; R-8 and R-10; and C-5, C-11, and C-13); and KOP 14 (view of activity area R-8).

From the public access parking area located on the right side of the river, staging areas would be apparent to viewers as would upland materials storage areas. Vegetation retained between the parking area and the river would buffer additional activity areas. Visitors walking through the site towards the river would encounter additional staging areas and the large constructed inundation surfaces resulting from R-8 construction activities. Low-flow channel reconstruction (R-9) would also be directly encountered by site visitors. Grading, vegetation removal, and channel reconstruction would alter the existing appearance of the area. In-channel recreationists would have unobstructed views of the in-channel work and most riverine work.

Impacts to aesthetics within this unit 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.

VAU SM3

VAU SM3 includes KOP 3 (no views of the SM site are available from this location).

As shown in the photograph taken at KOP 3 (photo 11), topography, vegetation, and distance obstruct views of the SM site from this location. Construction activities proposed at the SM site would have a less-than-significant effect on the visual environment as viewed from VAU SM3.

Upper Rush Creek

VAU UR1

VAU UR1 includes KOPs 1, 2, and 3 (views of activity areas U-1, C-5, C-11, C-17, and R-3).

As shown by KOPs 1, 2, and 3 (photos 12 through 14), topography, vegetation, and distance limit the extent of views of the site as seen by motorists traveling along Rush Creek Road and residents living in homes or staying at the commercial RV park adjacent to the site. Some activity areas will, however, have a significant, but temporary, effect on the aesthetics of Rush Creek Road through this VAU. Upland materials storage area U-1 would figure prominently on the landscape, being visible for a long, straight stretch of Rush Creek Road adjacent to this VAU. The effect on aesthetics during construction would be significant in this area, but would be temporary.

VAU UR2

VAU UR2 includes KOPs 1, 2, and 3 (views of activity areas IC-2 and IC-3; C-6, C-7, C-9 and C-13; and R-4).

Because VAU UR2 is located at an established public river access point, activities in this area would be very noticeable. Upland, riverine, and in-channel work proposed for this area would significantly affect the existing aesthetics of this river access point. However, construction impacts relative to staging and access would be temporary, lasting only for the duration of project construction, and Proposed Project activities intended to restore the form and function of the alluvial river would affect the view only for as long as it would take natural processes to reestablish. Motorists passing by this reach of the river on the

adjacent Rush Creek Road can also clearly view the river from either direction. Project-related visual changes in this area would also be apparent to in-channel recreationists.

VAU UR3

VAU UR3 includes KOP 1 (views of activity areas IC-4 and R-5) and KOPs 2, 3, and 4 (views of activity areas R-5; X-1; C-1 through C-3, and C-16; U-3 and U-4).

From Rush Creek Road, views of proposed in-channel and riverine construction areas (IC-4 and R-5, respectively) are available to westbound motorists. The elevation of the road allows for expansive views of the river corridor and the left side of the floodplain. Construction activities on the left side of the river in the VAU would occur adjacent to residential areas. KOPs 2, 3, and 4 (photos 17a, b, and c) are located at the end of Partridge Lane. These KOPs illustrate unobstructed views that some surrounding homes may have of the area proposed for low-flow side-channel construction. The openness of the floodplain in this vicinity would also cause the proposed staging areas and upland materials storage areas to significantly alter the aesthetic quality of the existing view. However, construction impacts relative to staging, access, and materials storage would be temporary, lasting only for the duration of project construction, and Proposed Project activities intended to restore the form and function of the alluvial river would affect the view only for as long as it would take natural processes to reestablish. Project-related visual changes to the environment in this area would also be apparent to in-channel recreationists.

Lowden Ranch

VAU LR1

VAU LR1 includes KOP 1 (view of activity area C-7).

Only a staging area (C-7) would be apparent to motorists and residents around this part of Browns Mountain Road (KOP 1 (photo 18)). While the impact on aesthetics would be significant given the proximity of this staging area to the road, construction activities would be temporary.

VAU LR2

VAU LR2 includes KOPs 1 (no views are available of the LR site from this location); KOPs 2 and 3 (views of activity areas R3, R-4, C-6, and U-4); KOPs 4 and 5 (views of activity areas U-1 through U-4, C-1 and C-2, and R-3); KOPs 6, 7, and 8 (views of activity areas U-3 and U-4; R-3; and C-1, C-2, and C-6); KOPs 9, 10, and 13 (views of activity area C-6); and KOPs 11 and 12 (views of activity areas R-2 through R-4, X-1, and IC-5 and IC-6).

KOPs 1 through 3 (photos 19 through 21) illustrate the limited views of the LR site available from Browns Mountain Road. At some points along the road, portions of the site, primarily areas on the opposite (left) side of the river, would be partially visible by motorists and some of the residences located on the hillside adjacent to Browns Mountain Road.

All of the upland materials storage areas proposed for the LR site would be highly visible to motorists using Lewiston Road, as well as recreationists using the trails that meander through the site. Changes in

the aesthetic environment of the open pastureland that makes up a majority of the site would be a significant impact. KOPs 4 through 8 (photos 22 and 23) illustrate the expansive views afforded by the openness of the site.

Floodplain construction and vegetation removal, such as that proposed for activity areas R-2 and R-3, would significantly affect the existing appearance of the left river bank illustrated by KOPs 9, 10, and 13 (photos 25, 26, and 28). Grading, vegetation removal, and channel reconstruction would significantly alter the appearance of the area. Recreationists would be the viewer group most affected by these changes since the walking trail passes through the length of these proposed activity areas, which are also immediately adjacent to the river and therefore unavoidably visible to in-channel recreational users. However, construction impacts would be temporary, lasting only for the duration of project construction, and Proposed Project activities intended to restore the form and function of the alluvial river would affect the view only for as long as it would take natural processes to reestablish.

In-channel work (e.g., IC-4, 5, and 6, and X-1) would be apparent primarily to in-channel recreationists (see KOPs 11 and 12 (photos 27a and b)), although some residences on the uplands of the right bank may have partial views of some of these activity areas.

Impacts to the aesthetics of the LR site would be significant.

Trinity House Gulch (THG)

VAU THG1

VAU THG1 includes KOPs 1 and 2 (views of activity areas U-2, R-1, and R-2); KOP 3 (views of activity areas U-2 and U-3, R-1 through R-3, C-1 and C-4, IC-1 and IC-2, and X-1); and KOP 4 (view of activity area C-1).

KOPs 1 through 3 (photos 30 through 32) illustrate the limited views of the THG site available from Browns Mountain Road. Steep topography and dense vegetation obscure most views of the site from the roadway (see KOPs 1 and 2), although glimpses of some proposed activities may be visible to motorists. It should be noted that east of KOPs 1 and 2, Browns Mountain Road passes directly through a sizable proposed upland materials storage area (U-1) and a proposed staging area (C-6). Both of these proposed activity areas would have a significant effect on the aesthetics of the affected areas; however, these impacts would be temporary, lasting only for the duration of construction.

KOP 3 affords a more expansive view of the right bank floodplain and the channel within the THG site. Viewers would see upland materials storage areas (U-2 and U-3), several areas of riverine construction activities (R-1 through R-3), in-channel construction (IC-1 and IC-2), and the proposed river crossing (X-1).

Few homes occur on the left side of the THG site. Those that are present are set back some distance from the floodplain, and river views are buffered for the most part by vegetation. KOP 4 (photo 33) illustrates the view of the site from a home on Wellock Road. An existing road visible from this KOP would be used for construction access (C-1). Construction impacts would have a significant effect on the aesthetics

of the affected areas, but these impacts would be temporary, lasting only for the duration of project construction. Proposed Project activities intended to restore the form and function of the alluvial river would last only as long as it would take natural processes to reestablish.

Impacts to the aesthetics of the THG site would be significant.

Steel Bridge Day Use

VAU SB1

VAU SB1 includes KOPs 1 through 6 (views of activity areas U-1, R-1 and R-2, C-1 through C-3, and IC-2 and IC-3).

KOPs 1 through 5 (photos 34 and 35) illustrate the extent of river views available from the left side of the river. Since virtually the entire site is proposed for some type of construction activity, such activities would be highly visible from homes immediately adjacent to this VAU, as well as being highly visible to visitors to the area. From surrounding homes, viewers can see various parts of the site, depending on aspect. Farther upstream at the Steel Bridge Campground, recreationists would encounter staging areas (C-4 and C-5). In-channel recreationists would have views of proposed in-channel construction activities (IC-1 through IC-3) as well as proposed riverine action area R-1. Views of the project site from the channel would be influenced by bends in the river.

Impacts to the aesthetics of the SB site would be significant.

Reading Creek

VAU RC1

VAU RC1 includes KOP 1 (no views are available from this location of proposed activity areas in the RC site).

As shown by the photograph taken at KOP 1 (photo 36), vegetation obstructs views of the RC site from this location. In-channel recreationists would see noticeable changes in the existing aesthetics of the area; however, construction impacts would be temporary, lasting only for the duration of project construction. Proposed Project activities intended to restore the form and function of the alluvial river would affect the view only for as long as it would take natural processes to reestablish.

Several homes located upslope of VAU RC1, on the left bank of the river, have limited views of the VAU, obstructed by vegetation, topography, and distance. These homes would not have a view of the any proposed activity area.

Construction activities proposed in the RC site would have a less-than-significant effect on the visual environment as viewed from VAU RC1.

VAU RC2

No KOPs were established within the boundaries of VAU RC2; however, potential impacts to the aesthetics of this area can be extrapolated from aerial photographs. Recreationists would be the viewer group most affected by project activities proposed for this site. Parts of the riverine activity areas (R-1 and R-2) and the in-channel construction activity areas (IC-1 through IC-3) proposed for VAU RC2 would be visible from homes in the uplands adjacent to the left side of the river. Some homes in the area would also have views of the proposed upland materials storage area (U-1) and the contractor staging areas (C-4, C-6, C-14, and C-15). These impacts would be significant.

VAU RC3

VAU RC3 includes KOPs 1 through 5 (views of project activity areas R-4 and R-5 and IC-4).

Topography and vegetation would block most of the proposed upland materials storage area (U-3) from both the campground and the river. Most proposed contractor staging areas would also be blocked from much of the public's view (including recreationists utilizing the river channel) by the surrounding topography and vegetation.

Grading and vegetation removal proposed under riverine activity R-4 and R-5 would be sizable and noticeable by in-channel and land-based recreationists. As shown by KOPs 1 through 5 (photos 37 and 38), the floodplain is long and straight through this VAU, which would allow for extended views of the R-4 and R-5 construction areas. Topography and dense vegetation would obstruct most views of these proposed activity areas from the campground. Impacts to aesthetics in this VAU would be significant.

VAU RC4

VAU RC4 includes KOPs 1 and 2 (views of project activity areas R-4 and R-5, IC-5, C-8 and C-9, and X-1).

KOPs 1 and 2 (photos 39a and b) were established in a proposed staging area (C-8), near the point of a proposed river crossing (X-1). Although this BLM public access area is primitive and is somewhat more difficult to access than the nearby campground, it is frequently used by recreationists, such as fishermen. Therefore, changes in the aesthetic quality of the area would be noticeable. The openness of the floodplain adjacent to KOPs 1 and 2 allows for unobstructed views of proposed riverine activity areas (R-4 and R-5) as well as in-channel construction (IC5). In-channel recreationists would also see noticeable changes in the existing aesthetics of the area; however, construction impacts would be temporary, lasting only for the duration of project construction. Proposed Project activities intended to restore the form and function of the alluvial river would last only as long as it would take natural processes to reestablish.

Impacts to the aesthetics of the RC site would be significant.

Alternative 1

Sawmill

All VAUs

Impacts to aesthetics described under the Proposed Project would be the same under Alternative 1 for all VAUs.

Upper Rush Creek

VAU UR1

Impacts to aesthetics described under the Proposed Project would be the same under Alternative 1 for VAU UR1.

VAU UR2 and UR3

Impacts to aesthetics described under the Proposed Project for activities proposed on the right side of the river and in the river channel itself would be the same under Alternative 1 for VAU UR2 and UR3. However, Alternative 1 would exclude all proposed activities on the left side of the river. From KOPs 2 and 3(photos 15b and c) in VAU UR2, views would not be affected by the construction of R-5, IC-3, and IC-4. In VAU3, there would be no impacts to views described for KOPs 1 through 4 (photos 16 and 17) because there would be no activity occurring on the left side of the river or within sight of any of the KOPs established for this VAU. Under Alternative 1, there would continue to be a significant effect on aesthetics as viewed from VAU UR2, but no impact on aesthetics as viewed from VAU UR3.

Lowden Ranch

VAU LR1

Impacts to aesthetics described under the Proposed Project would be the same under Alternative 1 for VAU LR1.

VAU LR2

Impacts to aesthetics described under the Proposed Project would be essentially the same under Alternative 1 for VAU LR2, although the footprint of some proposed construction activity areas would be slightly reduced. Under Alternative 1, proposed river crossing X-1 would be excluded; thus, the view from KOP 11 (photo 27a), and from within the channel itself, would no longer include activities related to X-1. Under Alternative 1, there would continue to be a significant effect on aesthetics as viewed from VAU LR2.

Trinity House Gulch

VAU THG1

Impacts to aesthetics described under the Proposed Project would occur in essentially the same locations as described in the Proposed Project for VAU THG1, but under Alternative 1 the footprint of most of the proposed construction activity areas would be significantly reduced in size. Although still significant,

such a reduction would lessen the extent of impacts on aesthetics as viewed from KOPs 1 through 4 (photos 30 through 33).

Steel Bridge Day Use

VAU SB1

Impacts to aesthetics described under the Proposed Project would be the same under Alternative 1 for VAU SB1. However, under Alternative 1 proposed construction activities upstream in the vicinity of the Steel Bridge Campground would no longer be included in the project description and, thus, there would be no effect on aesthetics in the campground vicinity.

Reading Creek

VAU RC1

Under Alternative 1, all proposed construction activities on the left side of the river would be excluded. There would be no impact on aesthetics as viewed from VAU RC1 because no construction activities are proposed on the right side of the river in this VAU.

VAU RC2 and VAU RC3

Impacts to aesthetics described under the Proposed Project would be the same under Alternative 1 for VAU RC2 and VAU RC3. A minor exception would be the exclusion of the proposed riverine activity area R-5; the extreme upstream end of which would be visible from VAU RC3. However, because all other proposed construction activities would be implemented under Alternative 1, the impact on aesthetics would continue to be significant.

VAU RC4

Under Alternative 1, proposed river crossing X-1 would no longer be included. Thus, no project activities on the left side of the river would be implemented. However, the impact on aesthetics as seen from KOPs 1 and 2 (photos 39a and b) within VAU RC4 would continue to be significant since in-channel project activities and those proposed on the right side of the river would still be included in the project description.

Mitigation Measures

No-Project Alternative

No significant impacts have been identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under the Master EIR Impact 4.12-1 apply (section 4.12.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.12-2: Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the proposed project would not be constructed. No changes would occur to the character or harmony of aesthetic features and existing land uses. Therefore, there would be no impact.

Proposed Project and Alternative 1 (All VAUs)

This impact is evaluated in detail in the Master EIR (section 4.12.3). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.12-3: The project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, the proposed project would not be constructed. No changes would occur that would be inconsistent with the federal or state Wild and Scenic Rivers acts or Scenic Byway requirements. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the draft Master EIR (section 4.12.3). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.12-4: The project could generate increased daytime glare and/or nighttime lighting. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no changes in daytime glare or nighttime lighting would occur because the proposed project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.12.3). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts have been identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.13

Hazards and Hazardous Materials

7.13 Hazards and Hazardous Materials

7.13.1 Affected Environment/Environmental Setting

This section evaluates hazards and hazardous materials that may currently be present within the Remaining Phase 1 site boundaries. Hazardous materials and the potential for health hazards to be generated by implementation of the Proposed Project or its alternatives in the Remaining Phase 1 sites are also assessed in this section.

Toxins

Toxins typically found in the project region, including the Remaining Phase 1 sites, are discussed in the Master EIR (section 4.13).

Flooding

A review of the FEMA Flood Insurance Rate maps (FIRM) that include the Remaining Phase 1 sites indicate that these sites are within areas for which the base flood elevations (BFE) have been determined. All sites occur in a designated floodway. Areas such as the Remaining Phase 1 sites, which have been 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 these sites are moderated by the TRD below Lewiston Dam.

Seismic Events

Seismic activity known to occur in the project region, including in the vicinity of the Remaining Phase 1-sites, is discussed in the Master EIR (sections 4.3 and 4.13).

Roadways

The following describes the roadways and access routes that would be used to transport hazardous materials or hazardous waste related to rehabilitation activities.

Sawmill

Access to the right side of the SM site is made from Cemetery Road, an unpaved, dead-end road that ties into Rush Creek Road. The primitive nature and limited public use of this dirt road keeps traffic speeds low; thus, posing little risk to people using this road as an access to the site. Although the left side of this site lies between the Trinity River and Goose Ranch Road, it cannot be accessed by vehicle from Goose Ranch Road due to extremely steep topography.

Upper Rush Creek

The UR site is immediately adjacent to Rush Creek Road, one of the more heavily traveled arterial roadways in the Lewiston area. Numerous residences, a commercial resort, and public river access occur within this site, between the river and Rush Creek Road. The northern boundary of this site is contiguous with Rush Creek Road. In the general vicinity of this site, this stretch of the road is relatively straight,

two-lanes, with visibility that allows for fairly high rates of speed (greater than 45 mph). The left side of the UR site is accessed from several short, unpaved roads, which are little more than private driveways that extend toward the Trinity River from Goose Ranch Road.

Lowden Ranch

The LR site is bordered by Lewiston Road to the south and Browns Mountain Road to the north. The two-lane stretch of Lewiston Road adjacent to this site is relatively straight and wide, allowing for fairly high speed travel, although a sweeping curve at the south end of its alignment, downstream of the site, requires vehicles to slow down to negotiate the curve. Access to the left side of this site can be made from a public access parking area/trailhead or a gated, unpaved road, both or which are located near the southern end of the site.

Browns Mountain Road, which extends along the northern boundary of the LR site, is a fairly steep, winding, unpaved road that climbs from the Trinity River upwards into the steep, forested uplands. There is no public access into this site from Browns Mountain Road.

Trinity House Gulch

The THG site, between Lewiston and Douglas City, is one of the more remote Remaining Phase 1 sites. Although it shares a common border with the downstream (western) end of the LR site, it is not immediately adjacent to either Browns Mountain Road or Lewiston Road. On the right bank, the THG site is south, and downslope of Browns Mountain Road, which becomes increasingly narrow and curvy as it becomes coincident with the project site boundary. The left side of this site can only be accessed by private driveways that extend off tertiary streets, which branch off Lewiston Road.

Steel Bridge Day Use

The SB site is located along Steel Bridge Road, a very narrow (often one-lane) paved roadway that winds through a rural residential area adjacent to the Trinity River. This site is near the end of Steel Bridge Road, which ends at the BLM campground approximately 0.5 mile beyond the site boundary. Because the road is closely aligned with the river, its grade remains fairly level.

Reading Creek

The RC site is located adjacent to the Douglas City Campground off of Riverview Road near Douglas City. This site is accessed via several narrow, unpaved roads that descend downslope from Riverview Road toward the river. A four-wheel drive road runs parallel to the right side of the river on the floodplain providing vehicle access to most of the site. The left side of the river is not accessible by the public, although several private driveways provide access via SR 3.

Hazardous Material and Hazardous Waste

The potential for using hazardous materials or generating hazardous waste in conjunction with rehabilitation activities is discussed in the Master EIR (section 4.13).

Wildland Fire

The potential for wildland fire to occur in the project region, including the Remaining Phase 1 sites, is discussed in the Master EIR (section 4.13).

Evacuation Routes

Rush Creek Road would serve as the primary evacuation route for the right (north) sides of the SM and UR sites. Goose Ranch Road to either Lewiston Road or Trinity Dam Boulevard would provide an evacuation route for the portions of the project sites (particularly the UR site) located on the left (south) side of the river.

Lewiston Road and Browns Mountain Road to Lewiston Road would provide the primary evacuation routes for the LR and THG sites. Although Browns Mountain Road is an unpaved County road that is not maintained, it does ultimately connect to SR 299 approximately 5 miles west of the project sites near Weaverville.

The only evacuation route option for the SB site is Steel Bridge Road south to SR 299. The steep topography of this area precludes any alternative routes.

Riverview Road to SR 299 is the primary evacuation route from the RC site. Private driveways also provide access to SR 299 via SR 3.

7.13.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.13-1 summarizes the potential hazards and hazardous materials impacts that could result from construction of the project.

Table 7.13-1. Summary of Hazards and Hazardous Materials Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.13-1. 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	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.13-2. Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

Table 7.13-1. Summary of Hazards and Hazardous Materials Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.13-3. Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.13-4. Implementation of the project may contribute to an increased risk of landslides and flooding.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.13-1: 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 for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

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 and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.13.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.13.2: Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

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 constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.13.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.13.3: Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, implementation of the project would have no impact on wildland fire potential or catastrophic fire behavior because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.13.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.13.4: Implementation of the project may contribute to an increased risk of landslide or flooding. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

The No-Project Alternative would have no impact on the potential for landslides or flooding because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.13.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.14

Noise

7.14 Noise

This section evaluates the potential noise impacts associated with implementation of proposed activities at the Remaining Phase 1 sites. 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 boundaries of these sites.

7.14.1 Affected Environment/Environmental Setting

A detailed discussion of methodology used to quantify noise is provided in the Master EIR (section 4.14).

Noise in the general vicinity of the Remaining Phase 1 sites is primarily the result of local residential vehicle traffic and miscellaneous ambient sources, such as river flow, river recreationists, overhead aircraft, barking dogs, and children at play. Most of these sites are located away from the area's larger roads, in areas accessed via private driveways or collector roads where traffic noise is at a minimal level. Even at the sites immediately adjacent to more heavily traveled roads, such as the UR site, which is adjacent to Rush Creek Road, and the LR site, which is adjacent to Lewiston Road, traffic-generated noise is generally infrequent and buffered by vegetation and topography.

Sensitive Noise Receptors

All of the Remaining Phase 1 sites have one or more sensitive noise receptors (e.g., homes, wildlife, or recreational areas) in close proximity to their site boundary. The following discussion summarizes the occurrence of sensitive noise receptors relative to each of these sites.

Sawmill

Although the SM site is close to Lewiston, it is also one of the sites most isolated from stationary human sensitive receptors. There is only one home immediately adjacent to the upstream boundary of the site; it is located on the left bank of the river. There is little in the way of a vegetative buffer between the site and the home; however, downstream of the home, the river makes a 90 degree bend, thus topography and downstream vegetation would act as a noise buffer between the home and a majority of the activity areas. Similarly, topography, vegetation, and distance would buffer the nearby Old Lewiston Bridge RV Resort from project activity noise. The resort, located approximately 0.2 mile northeast of the SM boundary would be exposed to short duration, temporary construction vehicle noise as it passes by the resort on the access road leading into the site.

A home located immediately north of the primary access point into the site (just north of the site's center point) would be subject to the noise of equipment accessing the site. The relatively flat, open area within the boundary of this site adjacent to the right bank of the river may be used as a staging area.

Several homes are located on both sides of the river near the downstream end of the SM site. While there is little vegetation between these homes and the site, topography provides a buffer from noise along the river. These homes are closer to the county roads than they are to the activity areas.

Upper Rush Creek

Homes within the boundary of the UR site are subject to traffic noise from the adjacent Rush Creek Road and Goose Ranch Road. The general vegetative openness and canyon-like topography of this site can concentrate and amplify sound. The Trinity River Resort and the BLM river access, both of which are within the boundaries of the UR site, offer public river access, including a primitive boat launch at the latter. Homes on the left side of the river are set back away from the floodplain, but there is little to buffer noise emanating from the locations throughout this site.

Lowden Ranch

The left side of the LR site consists primarily of a large pasture with a dense buffer of riparian vegetation extending immediately along both sides of the Trinity River. There are several homes located at the upstream end of the site that have varying densities of vegetation between them and the various activity areas. Because these homes sit upslope of the floodplain, noise from the river can be readily apparent; however, noise from the adjacent roadways such as Lewiston Road and Browns Mountain Road are buffered by distance and topography.

The majority of the LR site is public land managed by the BLM and DWR. A public hiking trail loops through the site, starting at a public parking area off Lewiston Road. A portion of this trail parallels the left side of the river bank and passes through the riparian forest. The trail, in particular the forested section, affords hikers solitude and wildlife viewing opportunities. The river and wind through the riparian corridor are the primary sources of existing ambient noise at this site. Downstream, a few widely scattered homes along the right bank overlook the site. The elevation of these homes above the floodplain, facing southeast toward the Lowden Ranch pasture, makes them susceptible to noise sources such as traffic on Lewiston Road.

Trinity House Gulch

The lightly populated THG site is located away from the region's larger roads. The primary source of noise in this area is related to periodic timber management activities further upslope. Similar to homes located at the downstream end of the adjacent LR site, homes in close proximity to this site are located above the floodplain, facing toward the river with no vegetative or topographic features to buffer noise generated in the site's project activity areas.

Steel Bridge Day Use Area

Several homes are within or adjacent to the SB site. All of these homes are located along the left side of the Trinity River and accessed by Steel Bridge Road. Steel Bridge Campground, which is farther upstream and at the end of the road, is surrounded by forest, with no homes in the immediate vicinity. These BLM recreational facilities are located in a very narrow canyon where noise can be easily disseminated in all directions from its initial source. Because the site provides river access and day use facilities, recreationists routinely add to the ambient noise levels experienced by local residents; such increases typically are of short duration (few minutes to several hours). The right bank of the river adjacent to the site is extremely steep and undeveloped as are the lands surrounding the campground.

Reading Creek

The reach of the Trinity River that passes through the RC site bends sharply around a steep ridge on its right side and a steep hillside on its left. There are no homes within this site; however, various residences are present on both sides of the river downstream of the Douglas City Bridge. Within the site, BLM operates the Douglas City Campground, which is located adjacent to the right bank of the river. To varying degrees, the campground and river access areas were considered and avoided when establishing the activity areas during the alternative development process. A primitive BLM campground further downstream, but still within the site, is located at the site's extreme downstream end. This lower portion of the site is within the floodplain, and dense pockets of vegetation have formed along the bank.

7.14.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.14-1 summarizes the potential noise impacts resulting from implementation of the No-Project Alternative, Proposed Project, and Alternative 1.

Table 7.14-1. Summary of Potential Noise Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.14-1. Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.				
No impact	Significant	Significant	Less than significant	Less than significant

Impact 7.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors. ***No impact for No-Project Alternative; significant impact for Proposed Project and Alternative 1***

No-Project Alternative

Under the No-Project Alternative, no change in ambient noise levels would occur because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

This impact is evaluated in detail in the Master EIR (section 4.14.2). No additional impacts at the Remaining Phase 1 sites have been identified. This impact would be significant.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.14-1 in the Master EIR apply (section 4.14.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

SECTION 7.15

Public Services and Utilities/Energy

7.15 Public Services and Utilities/Energy

This section describes the public services and utilities related to the Remaining Phase 1 sites, and evaluates impacts on these resources from implementation of the Proposed Project and its alternatives.

7.15.1 Affected Environment/Environmental Setting

Water Supply and Distribution

The majority of the residential, commercial, and recreational developments within or adjacent to the Remaining Phase 1 sites are served by private water systems that derive water from individual wells, springs, and river-intake systems. 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. Several residents at the upstream end of the LR site are served by the Bucktail Mutual Water Company, which is a community system serving the entire Bucktail subdivision. Residences in the Douglas City community core, located near the Reading Creek site, are served by the WCSD.

Surface Water

The Trinity River is the primary surface water body near the Remaining Phase 1 sites; bisecting all six sites. Surface water is used primarily for domestic purposes, including gardens, livestock, and fire protection. Residents either divert the surface water through direct intakes or through stilling wells that intercept shallow subsurface flow adjacent to the river. These developed sources are typically located within the active channel or floodplain and involve a collection system, pump, and distribution system to serve individual residences. As described previously, the TRRP has been working with landowners in the general vicinity of the Remaining Phase 1 sites to relocate surface water intake systems affected by post-ROD flows.

Groundwater

Groundwater wells provide drinking water, irrigation water, and fire protection for residences within or adjacent to the Remaining Phase 1 sites. All project activities occurring in the Remaining Phase 1 sites have been designed to ensure that known groundwater wells are avoided.

Wastewater Treatment and Collection

There are no community wastewater treatment services available in the general vicinity of the Remaining Phase 1 sites. Individual, on-site septic tanks and drain fields provide wastewater treatment for all of the uses in the vicinity of the Remaining Phase 1 project sites. Proposed project activities have been planned located away from known septic tanks and leach fields.

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. None of these transfer stations is located in the Lewiston or Douglas City communities. Residents of these communities rely on

commercial waste management firms or transport their solid waste, presumably to the nearest waste transfer station in Weaverville

Law Enforcement

The TCSD provides law enforcement for the county. The TCSD headquarters is located in Weaverville, approximately 5 miles north of Douglas City and approximately 15 miles from Lewiston. Resident officers in Weaverville serve as the primary points of contact for people in the Lewiston and Douglas City communities.

The CHP operates from an office in Weaverville and serves as the primary law enforcement agency for state facilities and transportation corridors. The CHP works closely with the TCSD to provide law enforcement coverage throughout Trinity County.

The BLM and the USFS provide law enforcement services in association with their land management responsibilities. Although the focus of BLM and USFS officers are actions on public lands, these federal agencies work closely with other agencies to provide law enforcement support throughout Trinity County.

CDFG wardens in Trinity County also provide law enforcement coverage in association with their fish and wildlife protection responsibilities.

Fire Protection and Emergency Services

Fire protection for the Remaining Phase 1 sites in the Lewiston community (SM, UR, LR, and THG) is provided by the LCSD and Cal Fire. Fire protection for the Remaining Phase 1 sites in the Douglas City community (SB and RC) is provided by the DCCVFD and Cal Fire. The LCSD and the DCCVFD are the primary fire protection agencies for structural fires.

Cal Fire generally provides fire protection services in the Remaining Phase 1 project area 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. Two engines respond from Fawn Lodge, and another engine can respond from Weaverville. Minimum response time in these areas is 10 to 15 minutes or longer, depending on access (15 to 20 minutes on average). Half of these responses are typically for structure or flue fires and half are for wildland fires.

Medical Services

Medical services in the Remaining Phase 1 project area are limited. A health clinic located in Weaverville and run by the Trinity County Public Health Department serves the Lewiston and Douglas City communities. In addition, Mountain Community Medical Services (formerly Trinity Hospital) in Weaverville provides 24-hour emergency services. Trinity Life Support Ambulance and Southern Trinity Area Rescue (STAR) provide ambulance services, and the TCSD maintains a search and rescue team. Due to the limited medical services available in Trinity County, many residents of these communities travel west to Humboldt County and east to Shasta County for medical care.

Telephone Service

Residents in the general vicinity of the Remaining Phase 1 sites receive telephone service through AT&T (formerly SBC). Cellular telephone service is provided primarily by Verizon Wireless and Cal North Cellular.

Electrical Service

Trinity Public Utilities District serves the area surrounding the Remaining Phase 1 sites. Some commercial or residential development in this area is served by individual on-site systems, such as solar power or small hydroelectric systems.

Schools

Two elementary schools, Lewiston Elementary and Douglas City Elementary, serving students in grades kindergarten through eight, are located in Lewiston and Douglas City in the general vicinity of the Remaining Phase 1 sites. The elementary school districts provide bus services for local residents. The Lewiston Elementary School is located on Old Lewiston Road, about a half mile from the SM site and approximately 2 miles from the THG site. The Douglas City Elementary School is located on School House Road, near the junction of SR 299 and SR 3, approximately one-quarter mile from the RC site. Trinity High School, consisting of grades 9–12, is the only high school serving residents in the vicinity of the Remaining Phase 1 sites

7.15.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.15-1 summarizes the potential impacts on public services and utilities that could result from implementation of the Proposed Project and its alternatives at the Remaining Phase 1 sites.

Table 7.15-1. Summary of Public Services and Utilities Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.15-1. Implementation of the project could disrupt existing electrical and phone service during construction activities.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
Impact 7.15-2. Construction of the project could result in the generation of increased solid waste.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

Table 7.15-1. Summary of Public Services and Utilities Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.15-3. Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.				
No impact	Significant	Significant	Less than significant	Less than significant
Impact 7.15-4. Construction of the project could result in a substantial use of nonrenewable energy resources.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.15-1: Implementation of the project could disrupt existing electrical and phone service during construction activities. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Under either the Proposed Project or Alternative 1, no activities would occur to disrupt electrical or telephone service within or adjacent to the Remaining Phase 1 sites. Utility poles and/or underground lines located within the boundaries of these sites have been 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 these sites, typically in a manner that provides adequate vehicular clearance for phone lines and utility lines. These clearances would be adequate to allow access by construction equipment. Therefore, potential impacts on electrical and phone utilities and services in the project area as a result of the Proposed Project or Alternative 1 would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.15-2: Construction of the project could result in the generation of increased solid waste. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Under either the Proposed Project or Alternative 1, construction at the Remaining Phase 1 sites 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 each Remaining Phase 1 site. 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 sections 4.13 and 7.13, 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.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significant after Mitigation

Not applicable

Impact 7.15-3: Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Construction activities at the Remaining Phase 1 sites associated with either the Proposed Project or Alternative 1 would be confined within the project boundaries described in Chapter 2. Construction personnel and service vehicles would use designated routes to and from the Remaining Phase 1 construction sites. Traffic control associated with Remaining Phase 1 activities would be minimal and is not expected to cause more than minimal disruptions to public services. 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 at the Remaining Phase 1 sites; however, in the event that it becomes necessary to close temporarily a road or bridge as a result of project activities, the road/bridge closures would be implemented 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 services. 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

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

Mitigation measures detailed under Impact 4.15-3 in the Master EIR apply (section 4.15.2). No additional mitigation measures are required.

Significance after Mitigation

Less than significant

Impact 7.15-4: Construction of the project could result in a substantial use of nonrenewable energy resources. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Energy expenditures associated with construction at the Remaining Phase 1 sites under either the Proposed Project or Alternative 1 would include both direct and indirect uses of energy. Combustion of the refined petroleum products needed to operate construction equipment would be part of that 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. Electricity would be used by construction equipment, such as welding machines, power tools, and pumps. Energy consumed by power equipment during construction would be relatively minimal.

Construction energy consumption would be a short-term impact and would not be an ongoing drain on finite natural resources. Alternative 1 would use less energy than the Proposed Project during construction activities because overall there would be a reduction in the location, type, and magnitude of construction activities. Construction under either the Proposed Project or Alternative 1 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.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.16

Transportation/Traffic Circulation

7.16 Transportation/Traffic Circulation

This section describes the existing transportation and traffic conditions in proximity to the Remaining Phase 1 sites and evaluates the potential impacts to transportation resources and traffic circulation from implementation of the Proposed Project and alternatives.

7.16.1 Affected Environment/Environmental Setting

Regional and local roadways and circulation in the vicinity of the Remaining Phase 1 sites are described in section 4.16. Roads in the communities of Lewiston and Douglas City would be used in the implementation of the Proposed Project or Alternative 1 at the Remaining Phase 1 sites. Table 7.16-1 identifies and characterizes the access roads for the Remaining Phase 1 sites, and Figures 7.16-1a through 7.16-1d illustrate the local roadways in the vicinity of the sites. Due to the rural nature of these communities, none of the roadways described in Table 7.16-1 have designated pedestrian or bicycle lanes. Based on reconnaissance information provided by TRRP staff and members of the design team, the roads identified in the following table are maintained to varying degrees by the responsible party. No improvements to these roads resulting from project activities described in Chapter 2 are anticipated.

Table 7.16-1. Roadway Characteristics for Access Roads Serving the Remaining Phase 1 Sites

Roadway Name	Remaining Phase 1 Site(s)	Jurisdiction	Number of Lanes	Surface Type	Traffic Counts (ADT)	Cross Streets
SR 299	Steel Bridge Day Use (SB) Reading Creek (RC)	Caltrans	2–3	Paved	1,675	Steel Bridge Road SR 3 Steiner Flat Road
SR 3	Reading Creek (RC)	Caltrans	2-3	Paved	1,650	SR 299
Rush Creek Road	Sawmill (SM) Upper Rush Creek (UR)	Trinity County	2	Paved	409	Trinity Dam Boulevard
Old Lewiston Road	Sawmill (SM) Upper Rush Creek (UR) Lowden Ranch (LR) Trinity House Gulch (THG)	Trinity County	2	Paved	827	Trinity Dam Boulevard
Browns Mountain Road	Lowden Ranch (LR) Trinity House Gulch (THG)	Trinity County/BLM	2	Paved	Not available	Lewiston Road via Bucktail/ SR 3
Cemetery Road	Sawmill (SM)	Trinity County/CDFG	1-2	Aggregate	Not available	Rush Creek Road

Table 7.16-1. Roadway Characteristics for Access Roads Serving the Remaining Phase 1 Sites

Roadway Name	Remaining Phase 1 Site(s)	Jurisdiction	Number of Lanes	Surface Type	Traffic Counts (ADT)	Cross Streets
Goose Ranch Road	Sawmill (SM) Upper Rush Creek (UR)	Trinity County	2	Paved	Not available	Lewiston Road/ School House Road
Steel Bridge Road	Steel bridge Day Use (SB)	Trinity County/BLM	1-2	Paved	177	SR 299
Douglas City Campground Road	Reading Creek (RC)	BLM	1-2	Paved	Not available	Steiner Flat Road
Marshall Road	Reading Creek (RC)	Trinity County/Private	1-2	Aggregate	Not available	SR 3

Sources: Caltrans Information: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/; Jan Smith, Trinity County Department of Transportation, pers. comm. 2008

7.16.2 Environmental Consequences/Impacts and Mitigation Measures

Table 7.16-2 summarizes the potential transportation and traffic impacts that would result from implementation of the project.

Table 7.16-2. Summary of Potential Transportation Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
7.16-1. Construction activities would reduce/close existing traffic lanes.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]
7.16-2. Construction activities would generate short-term increases in vehicle trips.				
No impact	Significant	Significant	Less than significant	Less than significant
7.16-3. Implementation of the project would obstruct access to adjacent land uses.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

Table 7.16-2. Summary of Potential Transportation Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
7.16-4. Construction activities would increase wear and tear on local roadways.				
No impact	Significant	Significant	Less than significant	Less than significant
7.16-5. Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.				
No impact	Significant	Significant	Less than significant	Less than significant
7.16-6. 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	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.16-1: Construction activities would reduce/close existing traffic lanes. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

Project construction activities associated with either the Proposed Project or Alternative 1 would be managed to ensure that the public and private roads serving as access for the Remaining Phase 1 sites would remain open to through-traffic. This includes the following roads: SR 299, Rush Creek Road, Cemetery Road, Old Lewiston Road, Brown's Mountain Road, Goose Ranch Road, Steel Bridge Road, SR 3, Riverview Road, Steiner Flat Road, Douglas City Campground Road, and Marshall Road. 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 area in the event of an emergency evacuation is discussed in sections 4.13 and 7.13, Hazards and Hazardous Materials. Because any traffic control requirements associated with project access roads would be temporary, this impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.16-2: Construction activities would generate short-term increases in vehicle trips. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

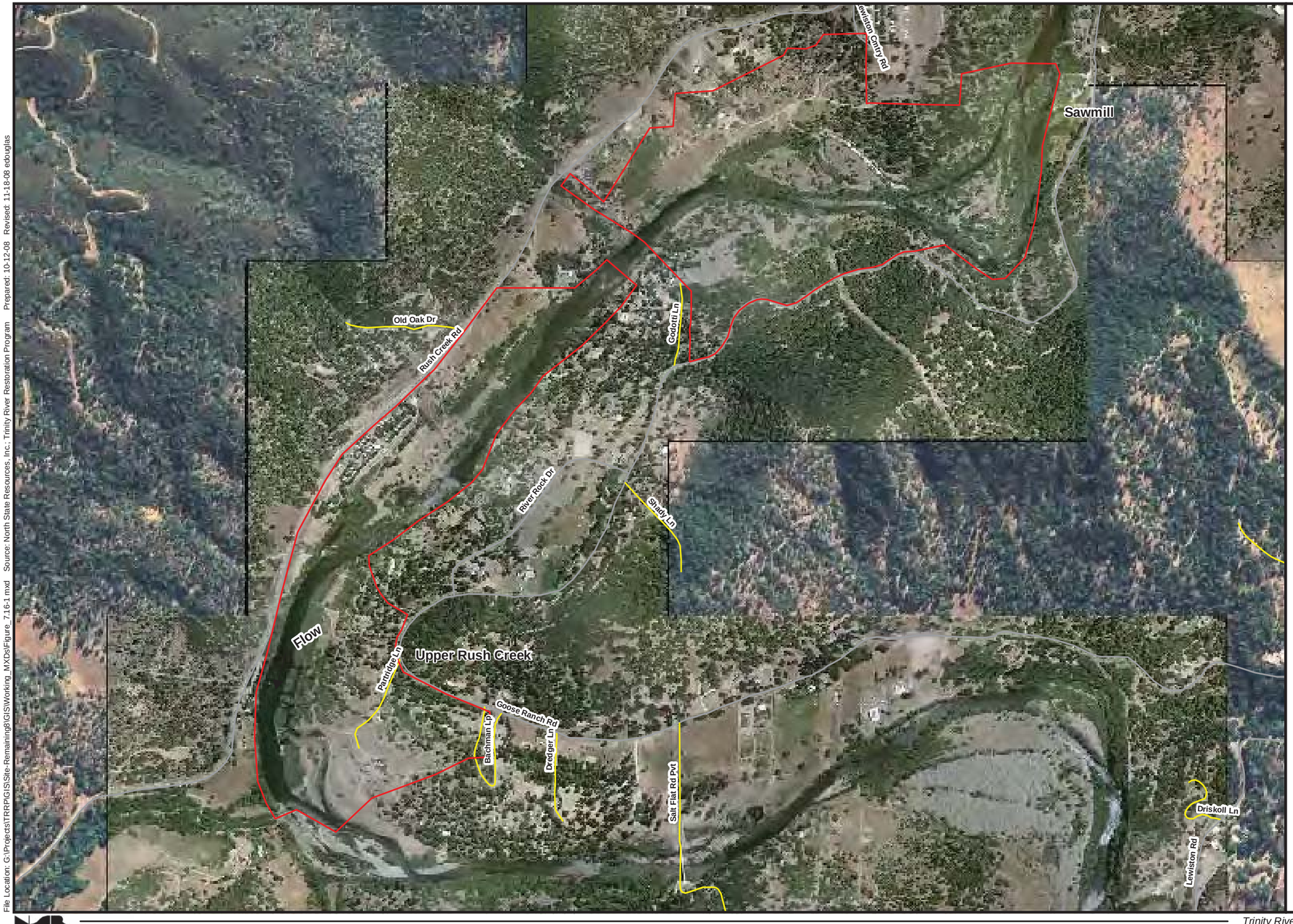
Under the No-Project Alternative, short-term increases in vehicle trips would not occur because there would be no construction activities. Therefore, there would be no impact.

Proposed Project, Alternative 1

Construction activities associated with rehabilitation activities would require truck and worker vehicle trips on roads leading to and from the project sites. Vehicle trips would increase on the roads listed in Table 7.16 above, and could increase on several private roads or driveways in the event that additional access is granted by landowners. Construction equipment (e.g., large trucks, excavators, and back-hoes) would be mobilized to the six Remaining Phase 1 sites 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, up to 20 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 each site (approximately 1 to 3 years for channel rehabilitation work).

As noted in Chapter 2, the transport of excavated materials within and between Remaining Phase 1 sites could occur. In some instances, materials may be transported to off-site locations in the event that on-site storage and use is not feasible or is cost prohibitive. The transport and placement of material at an off-site facility would be consistent with the County's authorization under SMARA as described in sections 4.3 and 7.3. If necessary, this activity would occur between August 1 and October 15. These activities could generate the equivalent of up to 36 truck loads of material per day from an individual rehabilitation site, which would be potentially significant.

Local roads that could be affected in Lewiston include Goose Ranch Road, Lewiston Road, Old Lewiston Road, Rush Creek, and Trinity Dam Boulevard. Local roads that could be affected in Douglas City include Browns Mountain Road, Steel Bridge Road, and Steiner Flat Road. Project implementation would also result in vehicle traffic on SR 299 and possibly SR 3. A number of private roads adjacent to the river could also be affected by project-generated vehicle traffic. The affected roadways would be used only by permission of the property owners.

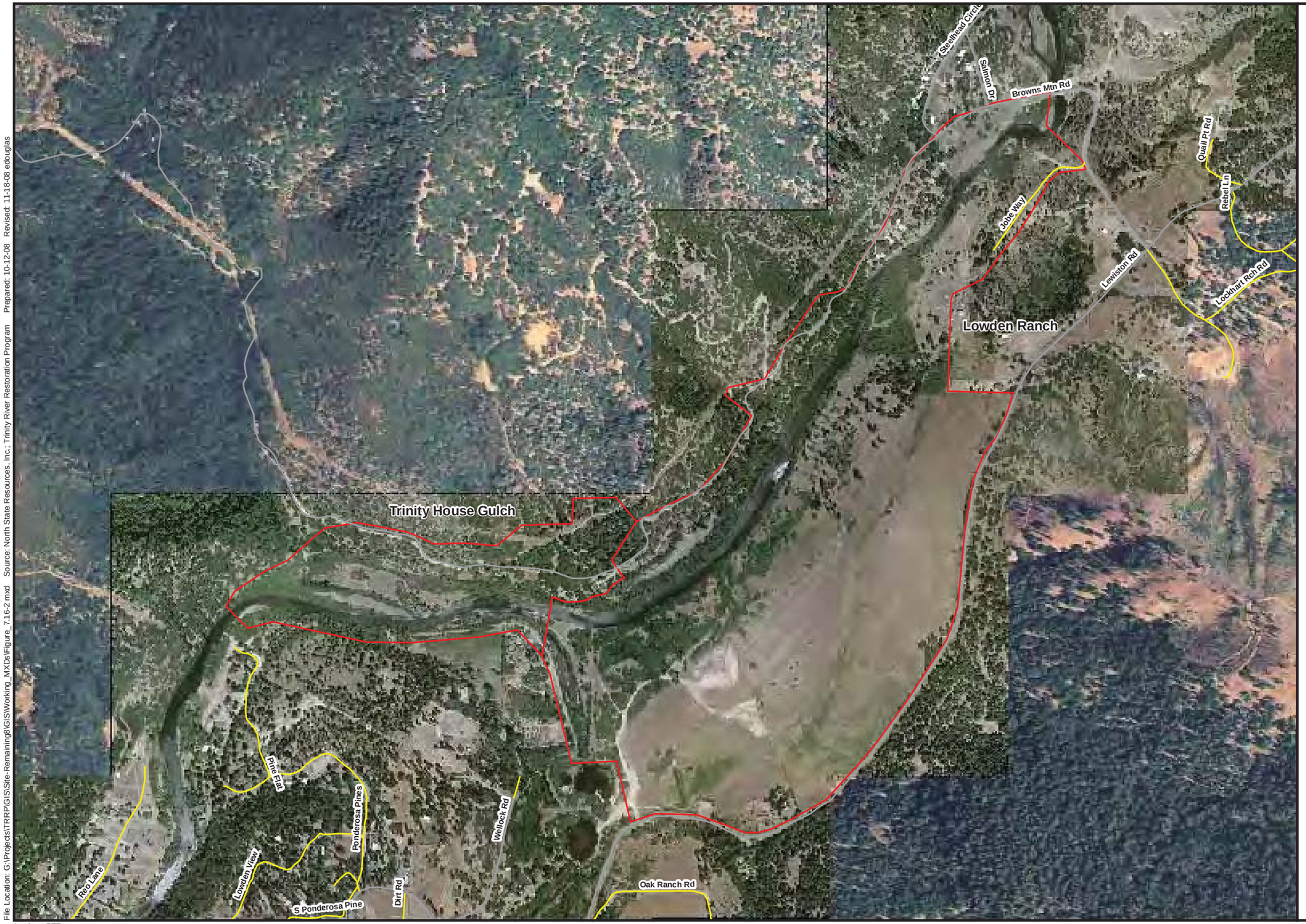


File Location: G:\Projects\TRRP\GIS\Site-Remaining\8\GIS\Working_MXDs\Figure_7.16-1.mxd Prepared: 10-12-08 Revised: 11-18-08 edouglas
Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.16-1a
Local Roadways: Sawmill and Upper Rush Creek Sites



File Location: G:\Projects\TRRP\GIS\Site-Remaining\8\GIS\Working_MXDs\Figure_7.16-2.mxd Prepared: 10-12-08 Revised: 11-18-08 edouglas Source: North State Resources, Inc.; Trinity River Restoration Program

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.16-1b
Local Roadways: Lowden Ranch and Trinity House Gulch Sites

Site Boundary

Local Roadways

State

County

Private

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.16-3.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.16-1c
Local Roadways: Steel Bridge Day Use Site

Site Boundary

Local Roadways

State

County

Private

N

1:4,800

400 0 400

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7.16-4.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 10-12-08 Revised: 11-18-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Figure 7.16-1d
Local Roadways: Reading Creek Site

Throughout construction, Reclamation would limit the amount of daily construction equipment traffic by staging the construction equipment and vehicles in the project boundary for the duration of work at each site. Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access for 3 to 5 years.

Existing traffic volumes along SR 299 and SR 3 are moderate, and the potential increase in traffic generated from construction would be localized and minimal, consistent with other efforts to reduce GHG emissions. However, off-site gravel hauling and gravel injection activities could result in short-term increases in vehicle trips that would be significant.

Post-construction sediment management activities (e.g., gravel injection and fine sediment removal) associated with the Proposed Project could occur at the locations shown on Figure 1-2, primarily upstream of Indian Creek. Based on projected gravel needs, up to 15,000 tons of gravel could be hauled to these locations on a yearly basis. This could amount to approximately 600 truck loads (which would equal 1,200 truck trips when accounting for travel to and from the sites – numbers are based on a 25-ton double loader truck). Gravels excavated within rehabilitation sites would be used for this purpose where available, which would minimize the amount of gravel that would need to be hauled to the site. The associated traffic impact on local roads would also be minimized as a result. Precise determinations of the amount of gravel that would be needed for gravel injection purposes are difficult because the need for gravel injection is based on factors that are unknown at this time (such as future water-year type and resulting Trinity River flows). Based on the 15,000-ton estimate, this impact would be potentially significant.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would be not be as great as under the Proposed Project at the six Remaining Phase 1 sites. This alternative would decrease the location, type, and magnitude of activities relative to the Proposed Project, particularly in terms of the amount of material that will be excavated and transported within or between sites. While this alternative would result in substantially fewer vehicle trips compared to the Proposed Project, the increase in vehicle trips under Alternative 1 would be a significant impact.

Mitigation Measures

No-Project Alternative,

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

The mitigation measure detailed under Impact 4.16-2 in the Master EIR applies (section 4.16.2). No additional mitigation measures are required.

Significance after Mitigation

Less than Significant

Impact 7.16-3: Implementation of the project would obstruct access to adjacent land uses. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1***

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 and Alternative 1

As described in section 7.2, land uses in and adjacent to the Remaining Phase 1 sites consist mainly of public and private resource lands and private residential areas. As previously described, construction activities associated with rehabilitation sites in Lewiston would use primary access points on Rush Creek Road, Goose Ranch Road, Cemetery Road, Lewiston Road, and Old Lewiston Road, as well as various private roads. Construction activities associated with rehabilitation sites in Douglas City would use primary access points on SR 299, SR 3, Browns Mountain Road, Steel Bridge Road, River View Road, Steiner Flat Road, Douglas City Campground Road, and various private roads.

Access to adjacent public and private lands could be restricted for short periods of time using traffic control measures. Short-term recreational access to the Trinity River could be restricted, to varying degrees, within and adjacent to the Remaining Phase 1 sites during construction activities. However, several public access points would be available throughout these stretches of river during the project implementation period, both upstream and downstream. Impacts related to recreational access and other recreational resources are discussed under section 7.8, Recreation. Short-term access limitations coupled with the construction criteria described in Chapter 2 (Traffic Control/Detour) would result in an impact that is less than significant for the Remaining Phase 1 sites.

Mitigation Measures

No-Project Alternative, Proposed Project and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Impact 7.16-4: Construction activities would increase wear and tear on local roadways. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, there would be no wear and tear on local roadways. Therefore, there would be no impact.

Proposed Project, Alternative 1

SR 299 and SR 3 are designated truck routes that were 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 at the Remaining Phase 1 sites, including roads under the jurisdiction of federal, state, and local agencies. In some instances, private roads will also be used to access activity areas. 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 the road conditions. The degree of impact would depend on roadway design and existing condition prior to the onset of TRRP activities. Because SR 299 and SR 3 were 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 these highways.

While construction equipment would generally be staged on-site during construction, additional truck travel on local and private roads would be required when excavated material is used to replenish river gravel supplies. Project planning to use on-site coarse sediment would minimize heavy equipment use on local roads needed for access to the majority of the Remaining Phase 1 sites. Additionally, trucks carrying heavy equipment or coarse sediment (i.e., 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 the Proposed Project. 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 adverse impacts on roadway conditions, the potential wear and tear on some roads under the Proposed Project would be a significant impact.

Alternative 1

Under Alternative 1, the location, number, and magnitude of activities would not be as great as under the Proposed Project at the Remaining Phase 1 sites. This alternative would limit the types of activities to those associated with removal of the riparian berms and reestablishment of functional side-channels at select locations. This reduction or elimination of some activities would translate to an overall reduction in the volume of excavation (cut and fill) at the sites; a decrease in the overall number of roads and staging areas; minimization of the number of in-channel activities, including crossings; and limitation of the overall amount of material that would be transported within or between sites. While this alternative would result in less wear and tear on local roadways compared with the Proposed Project, the potential wear and tear on some roads under Alternative 1 would be a significant impact.

Mitigation Measures

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project and Alternative 1

The mitigation measure detailed under Impact 4.16-4 in the Master EIR applies (section 4.14.2). No additional mitigation is required.

Significance after Mitigation

Less than significant

Impact 7.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians. ***No impact for the No-Project Alternative; significant impact for the Proposed Project and Alternative 1.***

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, Alternative 1

Traffic safety hazards could arise for motorists, bicyclists, pedestrians, and equestrians in the vicinity of the Remaining Phase 1 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 through each of the Remaining Phase 1 sites during construction activities would be limited to identified routes to minimize public exposure to construction traffic. Trucks entering and exiting access roads off SR 299 and SR 3 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

No-Project Alternative

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

Proposed Project, Alternative 1

The mitigation measure detailed under Impact 4.16-5 in the Master EIR applies (section 4.14.2). No additional mitigation is required.

Significance after Mitigation

Less than significant

Impact 7.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties. ***No impact for the No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

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 and Alternative 1

A number of bridges over the Trinity River and/or its tributaries will be used to access various Remaining Phase 1 sites. The hydraulic model (HECRAS) described in 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 sites. Therefore, this impact would be less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impacts were identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.17

Tribal Trust

7.17 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. These rights are sometimes further interpreted through court decisions and regulations. 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 do not include things in which an Indian tribe or individual Indians have no legal interest.

Indian trust assets can be real property, physical assets, or intangible property rights, such as a lease or a right of use. Indian trust assets cannot be sold, leased, or otherwise alienated without the approval of the United States. 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.

7.17.1 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 Hoopa Valley and Yurok tribes 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 project impacts are pertinent to the Karuk and Klamath people as well, since they share a common regional heritage.

Regional Setting

The United States' recognition of the importance of rivers and fish to the Indian people of the Klamath/Trinity Region is exemplified by the shape and location of the lands first set aside for their

reservations. The Secretary's own instructions at the time were "to select these reservations from such 'tracts of land adapted as to soil, climate, water privileges, and timber, to the comfortable and permanent accommodation of the Indians'" (U.S. Fish and Wildlife Service et al. 2000). In 1855, Indian Agent S. Whipple, when speaking of the Yurok, noted that, "The river is abundantly supplied with Salmon. A fine large fish quite easily taken by the Indians and which is very properly regarded by the Indian as his staff of life" (U.S. Fish and Wildlife Service et al. 2000).

In that same year, President Pierce established the Klamath River Reservation. The reservation (not to be confused with the Klamath Reservation in Oregon) 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. This reservation was created entirely within the aboriginal territory of the Yurok. 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. Flooding along the Klamath River in 1862 led to the closing of the area's Indian Bureau office and contributed to the erroneous belief that the reservation had been abandoned, although it was still occupied by the Yurok (U.S. Fish and Wildlife Service et al. 2000).

In 1864, the Department of the Interior (DOI) 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 and provided that the land contained within those boundaries "be withdrawn from public sale, and set apart in California by act of Congress approved April 8, 1864" (U.S. Fish and Wildlife Service et al. 2000).

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. Paris Folsom, a Special Agent for the DOI, proposed that the two reservations be connected in his "Report of Special Agent on Conditions and Needs of Non-Reservation Klamath Indians," sent to the Commissioner of Indian Affairs in 1885.

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. By that time, as a result of the Dawes Act of 1887, much of the Klamath River Reservation and extension lands (the 20-mile strip that connected the two reservations is commonly referred to as the "Connecting Strip" or "Extension") not already claimed as allotments by resident Indians had been opened up to non-Indian settlement. This led to checkerboard ownership of the Yurok portions of both the Extension and former Klamath River Reservation. Through various means, several timber companies consolidated and logged much of this land.

From 1891 through 1988, the Hoopa Valley Reservation was composed of the Hoopa Valley Square, the Extension, and the original Klamath River Reservation. 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 Extension) and Hoopa Valley Reservation. Figure 7.17-1 shows the current reservation boundaries.

Indian Federally Reserved Rights

By first creating reservations "for Indian purposes," the United States sought to provide the Hoopa Valley and Yurok tribes with the opportunity to remain mostly self-sufficient, exercise their rights as sovereigns, and maintain their traditional ways of life (U.S. Fish and Wildlife Service et al. 2000). Implicit in this objective was an expectation that the federal government would protect the tribes and their resources, a protection that extended beyond reservation borders.

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 (U.S. Department of the Interior 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 these projects do not interfere with the 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 Yurok and Hoopa Valley tribes' federally reserved fishing rights entitle them to take fish for ceremonial, subsistence, and commercial purposes. The United States has long recognized the rights of the Hoopa Valley and Yurok tribes of the Klamath/Trinity River basin to fish. The federal government, as trustee, has as 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. These rights have been acknowledged and confirmed by the executive, legislative, and judiciary branches of the federal government in a number of authorities including (1) Secretarial Issue Document on Trinity River Fishery Mitigation, issued January 14, 1891; (2) Opinion of the Solicitor of the DOI re: Fishing Rights of the Yurok and Hoopa Valley Tribes (M-36979: October 4, 1993); (3) the CVPIA (3406 (b) (23)); and (4) *Parravano v. Babbitt*, 837 F. Supp. 1034 (N.D. Calif. 1993), 861 F. Supp. 914 (N.D. Calif. 1994), affirmed 70 F.3d 539 (9th Cir. 1995), cert. denied, 518 U.S. 1016 (1996).

In most cases, federally reserved Indian fishing rights cannot be supplanted by state or federal regulation. The above-referenced 1993 Solicitor's opinion (1) reaffirms the historic and legal basis of the federally reserved fishing rights of the Hoop Valley and Yurok tribes; (2) acknowledges the federal government's cognizance of the importance of fish to these Indians at the time it first established reservations on their behalf; (3) concludes that the tribes' federally reserved fishing rights entitle them to harvest quantities of

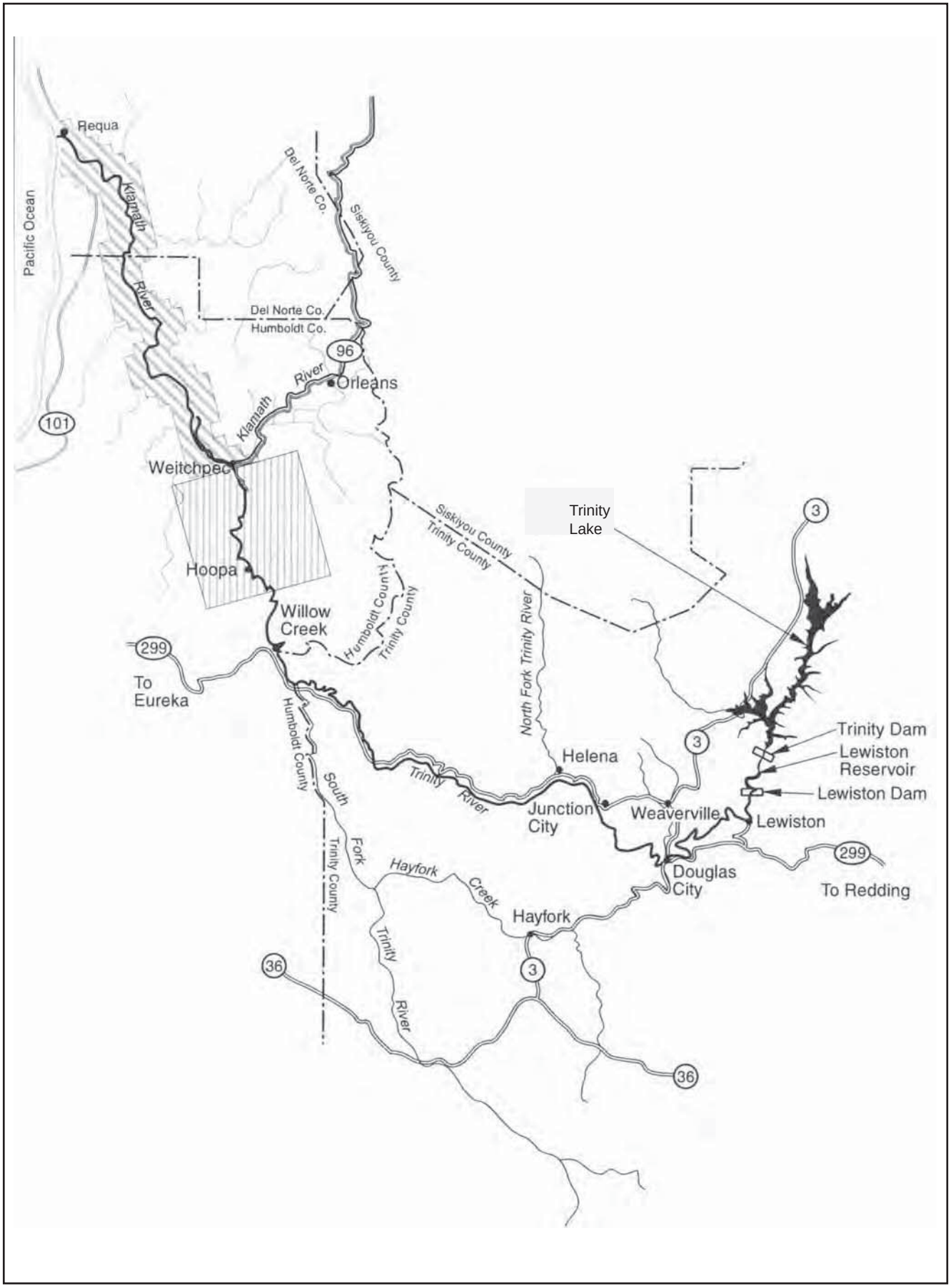


Figure 7.17-1
Trinity River Basin Reservations

fish on their reservations sufficient to support a moderate standard of living, or 50 percent of the harvestable share of the Klamath-Trinity basin fishery, whichever is less; (4) recognizes that under the current depleted condition of the fishery, a 50 percent allocation does not adequately meet the tribes' needs; and (5) argues that it was the degree of the Hoopa Valley and Yurok tribes' dependence on fisheries at the time their reservations were first created or expanded, and not the tribes' specific uses of the fish, that is relevant in quantifying their federally reserved fishing rights.

Today, the reserved fishing right includes the right to harvest quantities of fish that the Indians require to maintain a moderate standard of living, unless limited by the 50 percent allocation. Specifically, the tribes have a right to harvest all trust species of Klamath River and Trinity River fish for their subsistence, ceremonial, and commercial needs. Tribal harvest of these species is guided by conservation requirements outlined in carefully developed tribal harvest management plans.

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. Generally, all original documents related to the establishment of reservations—treaty, executive order, or statute—indicate, at a minimum, that the purpose of the reservations is to provide a permanent home for the tribe(s) in question. In cases where reservations have been created with specific language stating or implying reserved fishing, hunting, gathering, or other rights, the Winters Doctrine has been interpreted to mean that adequate water supplies for these purposes have been reserved (even in addition to more general uses; see *U.S. v. Adair*, 723 F.2d 1410 [9th Cir. 1983]).

The DOI 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. This is dictated by the doctrine of prior appropriations as well as Reclamation's trust responsibility to protect tribal trust resources" (U.S. Department of the Interior 1995). The Solicitor's office also noted that the Secretary, "through Reclamation, must operate reclamation projects consistent with vested, fairly implied senior Indian water rights" (U.S. Department of the Interior 1995). Further, absent a "completed adjudication or other determination of the senior water rights," projects must be "operated based on the best available information."

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 Hoopa Valley and Yurok tribes, 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.

Potentially Affected Indian Trust Assets

Indian tribes of the Klamath/Trinity Region have firmly established federally protected rights to numerous natural resources. These general resource groupings represent culturally important Indian trust assets. A partial list of trust assets is presented in Table 7.17-1. While each tribe has its own uses for the species and resources listed, the table provides a general summary of what these uses are.

Table 7.17-1. Partial List of Klamath/Trinity Region Tribal Assets

Asset	Primary Uses by Tribes
Aquatic Resources[1]	
Water	Subsistence, ceremonial, commercial, medicine
Fall Chinook salmon	Subsistence, ceremonial, commercial
Spring Chinook salmon	Subsistence, ceremonial, commercial
Summer steelhead	Subsistence, ceremonial, commercial
Fall steelhead	Subsistence, ceremonial, commercial
Winter steelhead	Subsistence, ceremonial, commercial
Coho salmon	Subsistence, ceremonial, commercial
Pacific lamprey	Subsistence, ceremonial, commercial
Sturgeon	Subsistence, ceremonial, commercial
Eulachon	Subsistence, ceremonial, commercial
Terrestrial Resources	
Willow shoots	Basketry, ceremonial
Cottonwood	Basketry
Wild grape	Basketry
Bulrush	Basketry
Hazel sticks	Basketry and weaving, ceremonial
Tules	Medicine
Spearmint	Medicine, subsistence
Blackberries	Subsistence
Bear	Subsistence
Bald eagle	Ceremonial
Blue heron	Ceremonial
Mallard	Ceremonial

[1]While many of the fish listed are not currently commercially harvested by the tr bes of the region, all these trust species were historically used for commercial purposes and the tribes continue to have the right of commercial harvest.

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, Karuk, Klamath, and Yurok tribes have received this recognition.

The aboriginal lands of the Hupa people are centered on the drainages of the Hoopa Valley of the Trinity River. The aboriginal lands of the Yurok were generally centered on the Klamath River drainage from the mouth of the river at the Pacific Ocean up to and including the Slate Creek drainage. Yurok ancestral territory also extends up the Trinity River to Tank Creek and includes the village of Oslegoits, 6 miles from the Trinity's confluence with the Klamath.

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.

Local Setting

Based on consultation with the tribes and Reclamation, the Remaining Phase 1 sites discussed in this document (see Figure 1-2) contain Trust assets, including fish, vegetation, and wildlife. Corresponding sections of this document provide discussions of these resources. While no specific use of these sites by the tribes has been identified, the Trinity River provides a valuable corridor that connects these resources to the Hoopa Valley and Yurok tribes.

7.17.2 Environmental Consequences/Impacts and Mitigation Measures

The purpose of this section is to evaluate the potential impacts of the alternatives on tribal trust assets and the subsequent effects those impacts may have on the Indian tribes of the Klamath/Trinity basin.

Methodology

While the project is aimed at improving the river's anadromous fisheries, an assessment of how project construction may actually affect the Indian trust assets of the Hoopa Valley and Yurok Tribes must be performed, as directed in the DOI 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.

Significance Criteria

Under CEQA, lead agencies are not explicitly required to consider projects' 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, such as 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 and its alternatives to result in any modification of, or change in, the quantity or quality of tribal trust assets.

Although CEQA does not expressly require the application of specific significance criteria for potential impacts to Indian trust assets, federal lead agencies evaluating proposed actions under NEPA typically include the evaluation of potential impacts to Indian trust assets as a distinct category of impacts. Accordingly, this evaluation assessed the impacts of the proposed activities described in this document relative to any modification or change in the value, use, quantity, quality, or enjoyment of downstream Indian trust assets.

Impacts and Mitigation Measures

Table 7.17-2 summarizes potential impacts on Indian trust assets that would result from implementation of the project.

Table 7.17-2. Summary of Potential Tribal Trust Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.17-1.	Implementation of the project may reduce the quantity or quality of Tribal trust assets.			
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.17-1: Implementation of the project may reduce the quantity or quality of Tribal trust assets. ***No impact for No-Project Alternative; less-than-significant impact for Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, mechanical channel rehabilitation activities would not be implemented; therefore, no direct impact to Tribal trust assets would occur. However, implementation of the No-Project Alternative would mean that the proposed activities to improve the fishery and other resources of the mainstem Trinity River would not be undertaken. Thus, under the No-Project Alternative, the related Tribal trust assets would be maintained in their current condition but not receive the benefits associated with river rehabilitation.

Proposed Project and Alternative 1

Under either the Proposed Project or Alternative 1, 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. Therefore, this impact is less than significant.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation is required.

Significance after Mitigation

Not applicable

SECTION 7.18

Environmental Justice

7.18 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 DOI 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 associated with the alternatives with respect to potentially affected minority and economically disadvantaged groups. Socioeconomic issues, including population and housing, are evaluated in this document in the sections pertaining to Socioeconomics, Population, and Housing. This section does not function as part of the EIR portion of this joint document, because CEQA does not require state or local agencies to address environmental justice concerns in an EIR. In other words, environmental justice is not a CEQA issue.

7.18.1 Affected Environment/Environmental Setting

Regional Setting

Poverty Rate

The U.S. Census uses a set of income limits that vary by family size and composition to determine who is poor. If a family's total income is less than the income limit, then that family, and every individual in it, is considered poor. 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. A comparison of the poverty rates calculated for Trinity County and California between 1989 and 2004 is depicted in Table 7.18-1.

Table 7.18-1. Poverty Rate, Trinity County and California

	1989	2004
Trinity County	18.5%	14.2%
California	12.5%	13.2%

Source: Center for Economic Development (2007)

In 2004, 14.2 percent of the population in Trinity County was living in poverty. The 2004 median household income for Trinity County was $30,307, which is 39 percent less than the median California income (Center for Economic Development 2007).

Population by Race/Ethnicity

Population by race and ethnicity is estimated annually by the California Department of Finance, Demographic Research Unit. Population by race and ethnicity is compiled by what the respondents to the U.S. Census indicate as their primary ancestry. White, black, American Indian, and Asian are racial designations, while Hispanic is an ethnic designation that can be a mixture of white, black, and American Indian races. The Hispanic population is separated from the four main racial groups because many Hispanic people associate their ancestry with their ethnicity rather than their race.

According to the data compiled by the Center for Economic Development (2007), the vast majority of the population in Trinity County (approximately 84 percent), as measured in 2006, consists of white non-Hispanic individuals. The largest minority population in the county is the American Indian population. In 1990, American Indians constituted 4.6 percent of the total county population. By 2006, the percentage had increased to 5.4 percent, compared to less than 1 percent for California. In 1990, the Hispanic population was 3.3 percent of the county's total population. By 2006, the percentage had increased to 5.3 percent of the total, compared to 36 percent in California.

In 1990, Trinity County's non-Hispanic white population was 91 percent of the county's total population. By 2006, the percentage had decreased to 84 percent (Center for Economic Development 2007). The percentage of black and Asian residents in the county remained small (each less than 1 percent).

Local 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. Campgrounds and river access points occur in close proximity to the project sites. These 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 Lewiston community is predominately white (89.9 percent) (U.S. Census Bureau 2000). The proportion of people living below the poverty level is higher (20.2 percent) for this area than for the balance of the United States (12.4 percent) (U.S. Census Bureau 2000). The Lewiston Community Plan area has few multiple family units (Trinity County 1986); however, numerous single-family homes are located adjacent to the boundaries of the Remaining Phase 1 sites.

Census statistics are not available for Douglas City. However, statistics are available for the zip code (96024) that includes Douglas City (U.S. Census Bureau 2008). This community is predominately white (90.4 percent) and, according to the 2000 census, the proportion of people in this area living below the poverty level (18.0 percent) is higher than for the balance of the United States (12.4 percent). The Douglas City Community Plan area has virtually no multiple family units; however, numerous single-family homes are located within or adjacent to the boundaries of the Remaining Phase 1 sites.

The Lewiston Elementary School, which includes grades kindergarten through eight (approximately 92 students), is located at 685 Lewiston Road. This school is composed of 76.1 percent white (not Hispanic), 6.5 percent Hispanic or Latino, 6.5 percent American Indian or Alaska Native, 6.5 percent African American, and 3.3 percent Pacific Islander (California Department of Education 2008). The ethnicity of the children attending the Lewiston Elementary School corresponds to the general ethnic composition of the Lewiston community and its environs. At the Lewiston Elementary School, 88 percent of the children participate in the free/reduced-fee lunch program (California Department of Education 2008).

The Douglas City Elementary School, which includes grades kindergarten through eight (approximately 117 students), is located at 100 Schoolhouse Road. The Douglas City School District encompasses 125 square miles of mountainous terrain with scattered residences, no industry, and only a handful of small businesses. This school is composed of 88.9 percent white (not Hispanic), 5.1 percent Hispanic or Latino, 3.4 percent American Indian or Alaska Native, 0.9 percent Asian, and 0.9 percent Pacific Islander (California Department of Education 2008). The ethnicity of the children attending the Douglas City Elementary School corresponds to the general ethnic composition of the Lewiston community and its environs. At the Lewiston Elementary School, 48.7 percent of the children participate in the free/reduced-fee lunch program (California Department of Education 2008).

State averages for ethnic composition of public schools are 29.4 percent white (not Hispanic), 48.1 percent Hispanic or Latino, 8.1 percent Asian, 0.8 percent Native American or Alaska Native, 0.6 percent Pacific Islander, 7.6 percent African American, and 2.6 percent Filipino (California Department of Education 2008)

7.18.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The EPA compares three factors—minority representation, low-income representation, and environmental burden—for a community of concern and one or more reference areas—for example, an entire county—to analyze potential environmental justice impacts. A community of concern can be defined in a number of ways, including a municipality, a census block group, a user-defined radius around a source of pollution, or a boundary drawn along physical features such as streets, streams, or railroad tracks. The demographic data for the community of concern can then be analyzed to determine whether there would be a potential environmental justice concern in the area.

As part of this analysis, poverty levels and minority population levels were examined for Trinity County as a whole, as well as the communities of Lewiston and Douglas City. Detailed information on the residential areas associated with the Remaining Phase 1 sites was unavailable.

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 and its alternatives is evaluated in accordance with NEPA requirements.

Impacts and Mitigation Measures

Table 7.18-2 summarizes the potential environmental justice impacts that would result from implementation of the project.

Table 7.18-2. Summary of Potential Environmental Justice Impacts for the No-Project Alternative, Proposed Project, and Alternative 1

No-Project Alternative	Proposed Project	Alternative 1	Proposed Project with Mitigation	Alternative 1 with Mitigation
Impact 7.18-1. Implementation of the project could adversely affect a minority or low-income population and/or community.				
No impact	Less than significant	Less than significant	Not applicable[1]	Not applicable[1]

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

Impact 7.18-1: Implementation of the project could adversely affect a minority or low-income population and/or community. ***No impact for No-Project Alternative; less-than-significant impact for the Proposed Project and Alternative 1.***

No-Project Alternative

Under the No-Project Alternative, no impact to a minority or low-income population or community would take place because the project would not be constructed. Therefore, there would be no impact.

Proposed Project and Alternative 1

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 project 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 residents of the area. The known health risks to residents that could be associated with the project are evaluated in the sections of this document related to Water Quality, Air Quality, Hazardous Materials, and Noise. For the most part, these health risks are associated with the 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 will manage the project to minimize these risks, as required by applicable federal and state safety regulations. Therefore, no specific or disproportionate health risks or other impacts to low-income groups would be associated with the project.

Mitigation Measures

No-Project Alternative, Proposed Project, and Alternative 1

No significant impact was identified; therefore, no mitigation measures are required.

Significance after Mitigation

Not applicable

CHAPTER 8

Cumulative Effects and Other Statutory Considerations

Chapter 8
Cumulative Effects and Other Statutory Considerations

This chapter addresses certain statutory considerations, including cumulative impacts, that must be evaluated pursuant to NEPA and CEQA. Some of these considerations are similar to those discussed in Chapter 5 (Part 1, the Master EIR for the Remaining Phase 1 and Phase 2 sites).

8.1 Introduction

As explained in Chapter 6, Part 2 of this document provides the site-specific environmental analysis necessary for compliance with NEPA and CEQA for the Remaining Phase 1 sites. The relationship of Part 2 to the Master EIR is discussed in section 6.1.2. The two statutes are briefly compared in section 6.1.3. This chapter addresses the following topics:

- cumulative impacts;
- the irreversible and irretrievable commitments of resources;
- relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and
- environmental commitments and mitigation measures.

8.2 Cumulative Impacts

8.2.1 Regulatory Framework

The regulatory framework for the assessment of cumulative impacts under CEQA is discussed in Chapter 5, section 5.2.1.

Under NEPA, the CEQ NEPA implementing regulations state that "cumulative actions" are among the types of actions that should be considered by lead agencies because, in combination with other actions, such actions may have cumulatively significant impacts requiring analysis in the environmental document (40 CFR 1508.25(a)(2)). 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 (40 CFR 1508.7).

8.2.2 Methodology and Analysis

The methodology for the cumulative impact analysis in this document is described in Chapter 5, section 5.2.2. 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. The assessment of cumulative impacts for the Remaining Phase 1 sites is considered in the same cumulative context—i.e., using the same list of related projects and programs and the same geographical area.

The issue-specific analysis of cumulative impacts in Chapter 5 identifies the potential cumulative impacts related to the Remaining Phase 1 and Phase 2 sites for a variety of resource areas. For these resource areas, no additional cumulative impacts have been identified that are specific only to the Remaining Phase 1 sites. The previous issue-specific analysis in Chapter 5 sufficiently addresses the cumulative impacts of the Proposed Project, and no clearly discernable differences arise in the consideration of the Remaining Phase 1 sites separately.

Two additional topics, which stem primarily from federal mandates and responsibilities, are addressed below.

8.2.3 Tribal Trust Assets

Tribal trust assets are discussed in section 7.17. Restoration and maintenance of the natural production of anadromous fish in the mainstem Trinity River is consistent with the federal government's trust responsibility to protect the fishery resources of the region's Indian tribes. Implementation of either the Proposed Project or Alternative 1 as mitigated would benefit, rather than adversely affect, Tribal Trust assets in the long term, as would most of the other related projects and programs described in Chapter 5.

The related projects and programs (described in Chapter 5), 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. No significant cumulative impacts to tribal trust assets are anticipated to occur as a result of implementation of either the Proposed Project or Alternative 1.

8.2.4 Environmental Justice

Activities evaluated in terms of cumulative impacts are specific to the Trinity River basin. Most of these activities, particularly those within the riverine areas, are intended to rehabilitate the Trinity River and restore the river's fishery resources. Implementation of the Remaining Phase 1 and Phase 2 sites, in conjunction with the other related projects and programs (described in Chapter 5), is anticipated to provide a net benefit to the local communities by helping to restore the Trinity River's fishery resources. 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 either the Proposed Project or Alternative 1.

8.3 Irreversible and Irretrievable Commitments of Resources

Under NEPA (Section 102) and the CEQ NEPA implementing regulations (40 CFR 1502.16), an environmental impact statement must include a discussion of "any irreversible and irretrievable

commitments of resources which would be involved in a Proposed Action should it be implemented." By extension, this requirement is also addressed in this environmental assessment.

Additionally, Section 15126.2(c) of the CEQA Guidelines requires a discussion of the significant irreversible environmental changes that would result from a 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 Mainstem Fishery Restoration FEIS (U.S. Fish and Wildlife Service et al. 2000) and incorporated by reference in other sections of this document.

Implementation of either the Proposed Project or Alternative 1 would not involve the substantial use of nonrenewable resources in such a way that would result in conditions that would be irreversible though 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 either action alternative.

Implementation of either action alternative would result in the use of fossil fuels, a nonrenewable form of energy. Energy resources in general are an increasingly important concern at state, national, and international levels in terms of the environment, the global economy, and U.S. security 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 Remaining Phase 1 and Phase 2 sites, as described in Chapter 2. 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. The project objectives and project purpose and need support the expenditure of these resources.

As discussed in section 5.4.3, the environmental analysis conducted for the Proposed Project in Part 1 did not identify any significant irreversible effects. Mechanical changes in the river channel and riverbank profile are not irreversible changes nor are changes in the extent or structure of riparian vegetation. Over time, river flows will modify the rehabilitated structure of the channel and redistribute introduced sediment through natural processes. Changes in channel profile, sediment, and riparian vegetation are

dynamic, but not irreversible, and such changes are expected to be significant, beneficial effects in terms of restoring the river's complex structure and ecology for the benefit of the river's fisheries.

8.4 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 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." Although this requirement applies to environmental impact statements, this consideration is incorporated into this environmental assessment.

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 at the Remaining Phase 1 sites and Phase 2 sites is intentionally aimed at maintaining and enhancing the long-term biological and environmental productivity of the river system. Implementation of the Proposed Project would not sacrifice the long-term productivity of the project area for short-term uses during construction.

The short-term impacts on the environment associated with implementation of the Proposed Action are considered minimal compared to the long-term benefits and productivity that would result from the Proposed Action in conjunction with other objectives of the TRRP. Construction-related impacts on natural resources, including water quality, fisheries, wildlife, vegetation, and wetlands, will be mitigated to less-than-significant levels. Land use conflicts associated with noise, aesthetics, air quality, and traffic would be short-term, occurring only during the construction phase of the project. While such impacts are considered significant (in a CEQA sense), they will be mitigated to less-than-significant levels.

8.5 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. These mitigation measures have been identified in various sections of this document and compiled in the Draft MMRP.

As discussed in section 5.5, under CEQA, lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required to be made in the project and other measures required to mitigate or avoid significant environmental effects. The Draft MMRP for the implementation of the Proposed Project complies with Reclamation's practice to include a list of environmental commitments in an EA. The Draft MMRP is included as Appendix E to this document.

CHAPTER 9

References

Chapter 9
References

Chapter 1

U.S. Department of Interior. 2000. Record of decision. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. December 19, 2000.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 1999. Draft environmental impact statement/environmental impact report for the Trinity River mainstem fishery restoration.

Chapter 2

Association of Environmental Professionals. 2009. California Environmental Quality Act 2009. CEQA guidelines. Palm Desert, California.

U.S. Army Corps of Engineers. 1976. Flood plain information, Trinity River: Lewiston Lake to Junction City, Trinity County, California.

U.S. Fish and Wildlife Service and Hoopa Valley Tribe. 1999. Trinity River flow evaluation final report. June 1999.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

Chapter 3

California Department of Transportation. 2007. California Wild and Scenic Rivers System. http://www.dot.ca.gov/ser/vol1/sec3/special/ch19wsrivers/CA_System_Rivers.doc (accessed April 1, 2007).

Trinity County. 1986. Lewiston Community Plan. Adopted September 16, 1986.

Trinity County. 1987a. Junction City Community Plan. Adopted July 1987.

Trinity County. 1987b. Douglas City Community Plan. Adopted July 1987.

Trinity County. 2003. Trinity County General Plan.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

Chapter 4

Section 4.1

None

Section 4.2

Center for Economic Development. 2007. Trinity County 2007 economic and demographic profile. California State University, Chico Research Foundation.

Department of Water Resources. 1994. DWR-Hamilton Ranch management plan.

Humboldt County. 1984. Humboldt County General Plan.

Trinity County. 1986. Lewiston Community Plan. Adopted September 16, 1986.

Trinity County. 1987a. Douglas City Community Plan. Adopted July 1987.

Trinity County. 1987b. Junction City Community Plan. Adopted July 1987.

Trinity County. 2003. Trinity County General Plan.

U.S. Bureau of Land Management. 1983. Trinity River Recreation Area Management Plan.

U.S. Bureau of Land Management. 1993. Redding resource management plan and record of decision. U.S. Bureau of Land Management. June 1993.

U.S. Bureau of Land Management. 2007. Visual resource inventory. http://www.blm.gov/nstc/VRM/vrmsys.html (accessed April 9, 2008).

U.S. Census Bureau. 2000. American fact finder. http://factfinder.census.gov/home/saff/main.html?_lang=en (accessed July 3, 2006).

U.S. Census Bureau. 2005. State and county quickfacts. http://quickfacts.census.gov/qfd/states/06/06089.html (accessed 2008).

U.S. Census Bureau. 2008. State and county quickfacts. http://quickfacts.census.gov/qfd/states/00000.html (accessed 2008).

U.S. Department of Agriculture and U.S. Department of the Interior. 1994. Record of decision and standards and guidelines for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl. Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl.

U.S. Forest Service. 1995. Shasta-Trinity National Forests Land and Resource Management Plan. Pacific Southwest Region, San Francisco, California.

USDA Forest Service. 1996. National Recreation Area management guide: Shasta and Trinity units. USDA Forest Service.

Section 4.3

Allred, T. M., and J. C. Schmidt. 1999. Channel narrowing by vertical accretion along the Green River near Green River, Utah. Geological Society of America Bulletin 111:1757-1772.

California Department of Conservation, Division of Mines and Geology. 1999. Fault-rupture hazard zones in California: Alquist-Priolo Earthquake Fault Zoning Act with index to earthquake fault zone maps. State of California.

California Division of Mines and Geology. 1999. Seismic shaking hazard maps of California. California Geological Survey.

California Geological Survey. 2007. Alquist-Priolo earthquake fault zones. http://www.conservation.ca.gov/cgs/rghm/ap/Pages/affected.aspx (accessed March 12, 2007).

Friedman, J. M., W. R. Osterkamp, and W. M. Lewis, Jr. 1996. The role of vegetation and bed-level fluctuations in the process of channel narrowing. Geomorphology 14:341-351.

Gaeuman, D., J. C. Schmidt, and P. R. Wilcock. 2005. Complex channel responses to changes in stream flow and sediment supply on the Lower Duchesne River, Utah. Geomorphology 64(1-2):185-206.

Graf, W. L. 1978. Fluvial adjustment to the spread of tamarisk in the Colorado Plateau region. Geological Society of America Bulletin 89:1491-1501.

McBain and Trush. 1997. Trinity River maintenance flow study final report.

Natural Resources Conservation Service. 2008. Soil survey for Shasta-Trinity National Forest area: parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity counties. http://www.soils.usda.gov/survey/printed_surveys/state.asp?state=California&abbr=CA (accessed 2008).

North Coast Regional Water Quality Control Board. 2001. Water quality control plan for the north coast region (Basin Plan), as amended 28 June 2001.

Pelzman, R. J. 1973. Causes and possible prevention of riparian plant encroachment on anadromous fish habitat. California Department of Fish and Game. Prepared for the California Department of Water Resources.

Strand, R. G. 1977. Geologic map of California, Redding Sheet: California Department of Conservation, Division of Mines and Geology.

Trinity County. 2003. Trinity County General Plan.

Trinity County Historical Society. 2001. Trinity 2001 official yearbook: The first year of the new millennium. Trinity County Historical Society. Weaverville, California.

U.S. Bureau of Land Management. 2008. Land & mineral legacy rehost 2000 system - LR2000. www.blm.gov/lr2000/ (accessed July 21, 2008).

U.S. Department of Agriculture. 1998. Soil survey of Trinity County, California: Weaverville Area. http://websoilsurvey.nrcs.usda.gov/app/ (accessed 06/01 2008).

U.S. Fish and Wildlife Service and Hoopa Valley Tribe. 1999. Trinity River flow evaluation final report. June 1999.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

U.S. Geological Survey. 1966. Geology of Northern California, Bulletin 190. Edited by E. H. Bailey. California Division of Mines and Geology. San Francisco, California.

Williams, G. P., and M. G. Wolman. 1984. Downstream effects of dams on alluvial rivers. (U.S. Geological Survey Professional Paper 1286.)

Section 4.4

Bureau of Reclamation. 2005. Trinity River, California flood plain infrastructure modifications: spring flow events. Technical memorandum. Bureau of Reclamation, Technical Service Center. Report No. TR-8530-TM-2005-1.

California Department of Water Resources. 2007. Trinity River hydraulic flow study: North Fork Trinity to Lewiston Dam. State of California, The Resources Agency, Department of Water Resources, Northern District. July 2007.

Federal Emergency Management Agency. 1996. Flood insurance study: Trinity County, California, and incorporated areas. Revised April 17, 1996.

McBain and Trush. 1997. Trinity River maintenance flow study final report.

McBain and Trush. 2002. Estimation of 50- and 100-year tributary accretion floods: Lewiston Dam to Treadwell Bridge, Trinity River, California. April 30, 2002.

U.S. Army Corps of Engineers. 1976. Flood plain information, Trinity River: Lewiston Lake to Junction City, Trinity County, California.

U.S. Army Corps of Engineers. 2004. Mitigation and monitoring proposal guidelines. December 30, 2004.

Section 4.5

Alaska Department of Environmental Conservation. 2008. Water quality standards. Register 186 July 2008. Available at: http://www.dec.state.ak.us/water/wqsar/wqs/pdfs/18%20AAC_70_WQS_Amended_July_1_2008.pdf

Alabaster, J. S., and R. Lloyd. 1980. Water quality criteria for freshwater fish. Buttersworth, Inc. Boston, Massachusetts.

Bettaso, J. B., and D. H. Goodman. 2008. Mercury contamination in two long-lived filter feeders in the Trinity River Basin: A pilot project. (Arcata Fisheries Technical Report TR 2008-09.)

Harvey, B. C., and J. L. White. 2008. Use of benthic prey by salmonids under turbid conditions in a laboratory stream. Transactions of the American Fisheries Society 137:1756-1763.

Lloyd, D. S. 1985. Turbidity in freshwater habitats of Alaska: A review of published and unpublished literature relevant to the use of turbidity as a water quality standard. Alaska Department of Fish and Game. (Report No. 85-1.)

Noggle, C. C. 1978. Behavioral, physiological and lethal effects of suspended sediments on juvenile salmonids. Master's thesis. University of Washington, Seattle.

North Coast Regional Water Quality Control Board. 2005. Watershed planning chapter. February 2005.

North Coast Regional Water Quality Control Board. 2007. Water quality control plan for the north coast region (Basin Plan).

Rytuba, J. J., R. P. Ashley, and B. Gutermuth. 2005. Potential availability of soluble and particulate mercury species from sediment and placer tailings: Expected environmental effects resulting from the Hocker Flat river rehabilitation, Trinity County, California. Preliminary report. U.S. Department of Interior, U.S. Geological Survey.

U.S. Environmental Protection Agency. 2001. Trinity River total maximum daily load for sediment. December 20, 2001.

U.S. Fish and Wildlife Service and Hoopa Valley Tribe. 1999. Trinity River flow evaluation final report. June 1999.

Personal Communications

Harvey, B. C., U.S. Forest Service fish ecologist, Pacific Southwest Research station, Arcata, California. 2009 – Conversation with Brandt Gutermuth, U.S. Bureau of Reclamation. Re: Turbidity.

Section 4.6

Alabaster, J. S., and R. Lloyd. 1980. Water quality criteria for freshwater fish. Buttersworth, Inc. Boston, Massachusetts.

Berg, L., and T. G. Northcote. 1985. Changes in territorial, gill-flaring, and feeding behavior in juvenile coho salmon (*Oncorhynchus kisutch*) following short-term pulses of suspended sediment. Canadian Journal of Fisheries and Aquatic Sciences 42:1410-1417.

Bustard, D. R., and D. W. Narver. 1975. Aspects of the winter ecology of juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). Journal of the Fisheries Research Board of Canada 32:667-680.

California Department of Fish and Game. 2003. California salmonid stream habitat restoration manual, 3rd edition. Part IX: Fish passage evaluation at road crossings.

California Department of Fish and Game. 2004. Recovery strategy for California coho salmon. Report to the California Fish and Game Commission. California Department of Fish and Game, Native Anadromous Fish and Watershed Branch.

California Department of Fish and Game and National Marine Fisheries Service. 2001. Final report on anadromous salmonid fish hatcheries in California. Joint Hatchery Review Committee.

Cederholm, C. J., R. E. Bilby, P. A. Bisson, T. W. Bumstead, B. R. Fransen, W. J. Scarlett, and J. W. Ward. 1997. Response of juvenile coho salmon and steelhead to placement of large woody debris in a coastal Washington stream. North American Journal of Fisheries Management 17(4):947-963.

Good, T. P., R. S. Waples, and P. Adams. 2005. Updated status of federally listed ESUs of West Coast salmon and steelhead. U.S. Department of Commerce, NOAA-Fisheries Technical Memo. (NMFS-NWFSC-66.)

Harvey, B. C., and J. L. White. 2008. Use of benthic prey by salmonids under turbid conditions in a laboratory stream. Transactions of the American Fisheries Society 137:1756-1763.

Hicks, B. J., J. D. Hall, P. A. Bisson, and J. R. Sedell. 1991. Responses of salmonids to habitat changes. In Influences of forest and rangeland management on salmonid fishes and their habitats, edited by W. R. Meehan. American Fisheries Society, Bethesda, Maryland.

Leidy, R. A., and G. R. Leidy. 1984. Life stage periodicities of anadromous salmonids in the Klamath River basin, Northwestern California. Division of Ecological Services, U.S. Fish and Wildlife Service, Sacramento, California. Lestelle, L. C. 1978. The effects of forest debris removal on a population of resident cutthroat trout in a small headwater stream, University of Washington, Seattle.

Lestelle, L. C., and C. J. Cederholm. 1982. Short-term effects of organic debris removal on resident cutthroat trout. Proceedings: Fish and wildlife relationships in old-growth forests symposium. Ashville, North Carolina.

Lloyd, D. S. 1985. Turbidity in freshwater habitats of Alaska: A review of published and unpublished literature relevant to the use of turbidity as a water quality standard. Alaska Department of Fish and Game. (Report No. 85-1.)

Michney, F., and M. Hampton. 1984. Sacramento River, Chico Landing to Red Bluff Project: 1984 juvenile salmonid study. U.S. Fish and Wildlife Service, Division of Ecological Services. Prepared for U.S. Army Corps of Engineers.

Michney, F., and R. Deibel. 1986. Sacramento River, Chico Landing to Red Bluff Project: 1985 juvenile salmonid study. U.S. Fish and Wildlife Service, Division of Ecological Services. Prepared for U.S. Army Corps of Engineers.

Moffett, J. W., and S. H. Smith. 1950. Biological investigations of the fishery resources of the Trinity River, California. U.S. Fish and Wildlife Service. Report No. 12.

Moyle, P. B. 2002. Inland fishes of California. University of California Press. Berkeley, California.

Moyle, P. B., R. M. Yoshiyama, J. E. Williams, and E. D. Wikramanayake. 1995. Fish species of special concern in California. 2nd edition. California Department of Fish and Game, Inland Fisheries Division.

Myers, J. M., R. G. Kope, G. J. Bryant, D. Teel, L. J. Lierheimer, T. C. Wainwright, W. S. Grant, F. W. Waknitz, K. Neeley, S. T. Lindley, and R. S. Waples. 1998. Status review of Chinook salmon from Washington, Idaho, Oregon, and California. (NOAA Technical Memorandum NMFS-NWFSC-35.)

National Marine Fisheries Service. 1997. Endangered and threatened species: Threatened status for Southern Oregon/Northern California Coasts evolutionarily significant unit of coho salmon. Federal Register 62(87):24588-24609.

National Marine Fisheries Service. 2000. Biological opinion on the Trinity River Mainstem Fishery Restoration Program. United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. (File Number 151422WR2000AR8271:FR.)

National Marine Fisheries Service. 2001. Guidelines for salmonid passage at stream crossings. National Marine Fisheries Service, Southwest Region.

National Marine Fisheries Service. 2006. 2006 amendment to the 2000 Trinity River Mainstem Fishery Restoration Program biological opinion to allow necessary instream construction activities at future streambank rehabilitation projects.

Noggle, C. C. 1978. Behavioral, physiological and lethal effects of suspended sediments on juvenile salmonids. Master's thesis. University of Washington, Seattle.

North Coast Regional Water Quality Control Board. 2007. Water quality control plan for the north coast region (Basin Plan).

Robison, E. G., A. Mirati, and M. Allen. 1999. Oregon road/stream crossing restoration guide: Spring 1999. Oregon Department of Fish and Wildlife.

Sinnen, W. 2002. Annual report: Trinity River basin salmon and steelhead monitoring project, 2001–2002 season. Task 3: Survival and spawner escapements made by coho salmon produced at the Trinity River Hatchery. California Department of Fish and Game, Northern California Coast District.

Sinnen, W., M. Currier, and S. Borok. 2005. Annual Report: Trinity River basin salmon and steelhead monitoring project 2003-2004 season. California Department of Fish and Game, North Coast Region. June 2005.

Sinnen, W., M. Currier, M. Knechtle, and S. Borok. 2006. Annual Report: Trinity River basin salmon and steelhead monitoring project 2004-2005 season. California Department of Fish and Game, Northern California–North Coast Region. May 2006.

Sinnen, W., P. Garrison, M. Knechtle, and S. Borok. 2008. Annual report: Trinity River basin salmon and steelhead monitoring project 2005-2006 season. California Department of Fish and Game, Northern California–North Coast Region. April 2008.

Sommer, T., B. Harrell, M. Nobriga, R. Brown, P. Moyle, W. Kimmerer, and L. Schemel. 2001. California's Yolo Bypass: Evidence that flood control can be compatible with fisheries, wetlands, wildlife, and agriculture. Fisheries 26(8):6-16.

U.S. Fish and Wildlife Service. 1980. Environmental impact statement on the management of river flows to mitigate the loss of the anadromous fishery of the Trinity River, California. Volumes I and II. U.S. Fish and Wildlife Service, Division of Ecological Services.

U.S. Fish and Wildlife Service. 1983. Final environmental impact statement: Trinity River Basin fish and wildlife management program. (INT/FES 83-53). U.S. Department of the Interior, Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1994. Rehabilitation of the mainstem Trinity River background report. Trinity River Fishery Resource Office. January 1994.

U.S. Fish and Wildlife Service. 1995. Shasta-Trinity National Forests land and resource management plan. U.S. Forest Service, Pacific Southwest Region. April 1995.

U.S. Fish and Wildlife Service. 2003. Klamath River fish die-off, September 2002: Report on estimate of mortality. (Report No. AFWO-01-03.) U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office.

U.S. Fish and Wildlife Service, and Hoopa Valley Tribe. 1999. Trinity River flow evaluation final report. June 1999.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 1999. Draft environmental impact statement/environmental impact report for the Trinity River mainstem fishery restoration.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000a. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Bureau of Land Management, Hoopa Valley Tribe, California State Historical Preservation Officer, and Advisory Council on Historic Fishery Preservation. 2000b. Programmatic agreement regarding implementation of the Trinity River fishery restoration. November 8, 2000.

Yurok Tribal Fisheries Program. 2002. Data submitted 12 April 2002 by Dave Hellemeier, Yurok Fisheries Program Manager, to the National Marine Fisheries Service.

Personal Communications

Chamberlain, C. N., U.S. Fish and Wildlife Service, Arcata. 2004 – Telephone conversation with North State Resources biologist. Re: Anadromous fish.

Manji, N., California Department of Fish and Game Fisheries Program. 2004 – Telephone conversation with North State Resources biologist. Re: Anadromous fish.

Section 4.7

California Department of Fish and Game. 2003. California natural diversity database (CNDDB). California Department of Fish and Game. Updated 2008.

California Department of Fish and Game. 2005. CWHR version 8.1 personal computer program. California Department of Fish and Game, California Interagency Wildlife Task Group.

California Department of Fish and Game. 2008. Threatened and endangered species. http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/index.html (accessed 2008).

California Native Plant Society. 2008. Inventory of rare and endangered plants. http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi (accessed 2008).

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Government Printing Office. Washington, D.C.

Ellsworth, E., and T. D. Reynolds. 2006. Snowshoe hare (*Lepus americanus*): A technical conservation assessment. http://www.fs.fed.us/r2/projects/scp/assessments/snowshoehare.pdf (accessed October 8, 2007).

Herrera, P. A. 2006. Trinity River restoration program bird monitoring: Indian Creek environmental study limit surveys, 2003-2005. Draft. USDA Forest Service, Redwood Sciences Laboratory. March 15, 2006.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Natural Heritage Division, California Department of Fish and Game. Sacramento, California.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division.

Mayer, K. E., and W. F. Laudenslayer, Jr., eds. 1988. A guide to wildlife habitats of California. California Department of Forestry and Fire Protection. Sacramento, California.

Miller, S. L., C. G. Ralph, and P. A. Herrera. 2003. Monitoring riparian and aquatic birds along the mainstem of the Trinity River: Trinity River Restoration Program Biannual Report 2003. USDA Forest Service.

Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society. Sacramento, California.

Trinity County. 1987. Douglas City Community Plan. Adopted July 1987.

U.S. Bureau of Land Management. 2005. Special-status plants of the Redding Field Office. http://www.ca.blm.gov/pa/ssp/fo/redssp.htm (accessed November 2, 2005).

U.S. Department of Agriculture and U.S. Department of Interior. 2001. Record of decision and standards and guidelines for amendments to the survey and manage, protection buffer, and other mitigation measures standards, and guidelines. January 2001.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 1999. Draft environmental impact statement/environmental impact report for the Trinity River mainstem fishery restoration.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

USDA Forest Service and Bureau of Land Management. 2002. 2001 annual species review. June 2002.

Wilson, R. A. 1995. Trinity River willow flycatcher surveys, 1990-1992. Final report submitted to Wildlife Task Group, Trinity River Restoration Project, U.S. Department of the Interior, Fish and Wildlife Service, and Bureau of Reclamation.

Zeiner, D. C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, eds. 1990a. California's wildlife. Volume II: Birds. Sacramento, California: California Department of Fish and Game.

Zeiner, D. C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, eds. 1990b. California's wildlife. Volume III: Mammals. Sacramento, California: California Department of Fish and Game.

Zeiner, D. C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, eds. 1990c. California's wildlife. Volume I: Amphibians and reptiles. Sacramento, California: California Department of Fish and Game.

Section 4.8

North Coast Regional Water Quality Control Board. 2007. Water quality control plan for the north coast region (Basin Plan).

Section 4.9

California Employment Development Department. 2008a. California labor force data, not seasonally adjusted, 1990–current. California Employment Development Department.

California Employment Development Department. 2008b. Historic data for unemployment rate and labor force in Trinity County. http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localAreaProQSSelection.asp?menuChoice=localAreaPro (accessed 2008).

Center for Economic Development. 2007. Trinity County 2007 economic and demographic profile. Chico Research Foundation, California State University, Chico.

Trinity County. 2003. Trinity County General Plan.

U.S. Census Bureau. 2005. State and county quickfacts. http://quickfacts.census.gov/qfd/states/06/06089.html (accessed 2008).

U.S. Census Bureau. 2008. State and county quickfacts. http://quickfacts.census.gov/qfd/states/00000.html (accessed 2008).

U.S. Office of Management and Budget. 1987. Standard industrial classification manual. Executive Office of the President, U.S. Office of Management and Budget.

Section 4.10

Beckstead, D. 2001. What is a dredge? National Park Service, Yukon-Charley Rivers National Preserve. Article posted to the National Park Service website.

Bradley, W. W. 1941. Quarterly chapter of State Mineralogist's report. California Journal of Mines and Geology 37(1).

California State Mining Bureau. 1922. Mining in California, monthly chapter of report XVIII of the State Mineralogist's Report covering mining in California and the activities of the State Mining Bureau. Vol. 18, Number 5, May 1922. San Francisco, California.

California State Mining Bureau. 1923. Mining in California, chapter of report XIX of the State Mineralogists Report covering mining in California and the activities of the State Mining Bureau. Vol. 19, Number 4, September 1923. San Francisco, California.

Colby, W. H. 1982. A century of transportation in Shasta County, 1821–1920. (Association for Northern California Records and Research Occasional Paper 7.)

Cox, I. 1958. Annals of Trinity County. Trinity 1958. Trinity County Historical Society. Weaverville, California.

Elliot and Moore. 1880. Tehama County, California. Elliot and Moore. San Francisco, California.

Holland, S. S. 1942. Dragline dredging methods. Compilation and Reprint of State Bureau of Mines Information Circular 7013. British Columbia Department of Mines. Victoria, British Columbia.

Jones, A. G., ed. 1981. Trinity County historical sites. Curtis Media, Incorporated. Bedford, Texas.

Kelley, R. 1959. Gold vs. grain: The mining debris controversy. Arthur Clark Company. Glendale, California.

Kelly, J. L., and H. J. McAleer. 1986. An archaeological survey, assessment, and recommendations for the Ohio Flat Mining District (CA-TRI-943), Trinity County, California. U.S. Department of the Interior. Confidential report.

Lindstrom, S. G. 1988. A comparative evaluation of the Natoma ground sluice diggings, Folsom, California. Prepared for Environmental Impact Professionals. Confidential report.

Medin, A., and R. Allen. 1998. A cultural resources inventory of Weaverville Area Units of the proposed SPI-BLM land exchange. Prepared for Sierra Pacific Industries by KEA Environmental, Incorporated. Confidential report.

Medin, A., and R. Allen. 2007. Mining sites: Historic context and archaeological research design. Prepared by HARD Mining Sites Team for the California Department of Transportation. Draft report on file at the California Department of Transportation.

Moore, K. S. 1970. Fate of the California gold rush miner, 1848-1870. Master's thesis. California State University, Sacramento. Sacramento, California.

O'Brien, J. C. 1965. Gold dredging in Shasta, Siskiyou and Trinity counties. Report of the State Mineralogist. California Division of Mines and Geology. Sacramento, California.

Powers, S. 1976. Tribes of California: Contributions to North American ethnology. Vol. III. Department of the Interior and U.S. Geographical and Geological Survey of the Rocky Mountain Region. U.S. Government Printing Office, 1877. Reprinted by University of California Press. Berkeley, California.

Ritchie, N. 1981. Archeological interpretation of alluvial gold tailings sites, Central Otago, New Zealand. New Zealand Journal of Archeology.

Tibbetts, D. 1997. Gold mining in Northern California 1848-1890: Development of a taxonomic framework and Harrison Diggings revisited. Master's thesis. California State University, Chico. Chico, California.

Tordoff, J. D. 1998. The evolution of California's placer mining landscape—a view from Prairie City. Prepared for the California Department of Transportation, District 3, Office of Environmental Engineering/Technical Studies, Marysville, California.

Trinity County Historical Society. 1974. Trinity 1974. Trinity County Historical Society. Weaverville, California.

Trinity County Historical Society. 2001. Trinity 2001 official yearbook: The first year of the new millennium. Trinity County Historical Society. Weaverville, California.

U.S. Bureau of Reclamation. 2008. The other California gold: Trinity County placer mining, 1948-1962. Report No. 07-NCAO-211.

Wilson, E. B. 1907. Hydraulic and placer mining. Second edition. John Wiley and Sons. New York, New York.

Section 4.11

BuildCarbonNeutral. 2007. Construction carbon calculator 0.035.

California Air Resources Board. 2005. Ozone and health: California Air Resources Board.

California Air Resources Board. 2008a. Air quality data statistics: California Air Resource Board.

California Air Resources Board. 2008b. ARB draft AB 32 scoping plan.

California Environmental Protection Agency Climate Action Team. 2006. Executive summary: Climate action team report to Governor Schwarzenegger and the California Legislature. California Environmental Protection Agency. Sacramento, California.

California Office of Planning and Research. 2008. CEQA and climate change: Addressing climate change through California Environmental Quality Act (CEQA) review. Technical Advisory.

Greenhouse Gas Protocol Initiative. 2005. Mobile combustion CO_2 emissions calculation tool 1.3. http://www.ghgprotocol.org/calculation-tools.

North Coast Unified Air Quality Management District. 1995. North Coast Unified Air Quality Management District particulate matter (PM10) attainment plan.

North Coast Unified Air Quality Management District. 2005. General provisions, permits, and prohibitions: Air quality control rules.

North Coast Unified Air Quality Management District. 2008. Air quality: A growing problem. http://www.ncuaqmd.org/index.php (accessed August 8, 2008).

Trinity County. 1986. Lewiston Community Plan. Adopted September 16, 1986.

Trinity County. 1987a. Douglas City Community Plan. Adopted July 1987.

Trinity County. 1987b. Junction City Community Plan. Adopted July 1987.

Trinity County. 2003. Trinity County General Plan.

U.S. Department of Agriculture. 1998. Soil survey of Trinity County, California: Weaverville Area. http://websoilsurvey.nrcs.usda.gov/app/ (accessed June 1, 2008).

Western Regional Climate Center. 2008. Historical climate change.

Section 4.12

Association of Environmental Professionals. 2008. California environmental quality act: Statutes and guidelines. Association of Environmental Professionals.

California Department of Transportation. 2007. California wild and scenic rivers system. http://www.dot.ca.gov/ser/vol1/sec3/special/ch19wsrivers/CA_System_Rivers.doc (accessed April 1, 2007).

Federal Highway Administration. 1983. Visual impact assessment for highway projects. (Contract DOT-FH-11-9694.)

Trinity County. 1986. Lewiston Community Plan. Adopted September 16, 1986.

Trinity County. 1987a. Douglas City Community Plan. Adopted July 1987.

Trinity County. 1987b. Junction City Community Plan. Adopted July 1987.

Trinity County. 2003. Trinity County General Plan.

U.S. Bureau of Land Management. 2007. Visual resource inventory. http://www.blm.gov/nstc/VRM/vrmsys.html (accessed April 9, 2008).

U.S. Fish and Wildlife Service and Hoopa Valley Tribe. 1999. Trinity River flow evaluation final report. June.

U.S. Soil Conservation Service. 1978. Procedure to establish priorities in landscape architecture. (Technical Release No. 65.) October 1978.

Section 4.13

California Environmental Protection Agency. 2007. Title 27 division 1 - general functions and responsibilities; Subdivision 4 - state delegation; Chapter 1 - unified hazardous waste and hazardous materials management regulatory program. http://www.calepa.ca.gov/publications/Title27/ (accessed April 17, 2008).

California Environmental Protection Agency. 2008. CUPA directory: Agency detail. http://www.calepa.ca.gov/CUPA/Directory/Agency.aspx?agencyid=727 (accessed August 1, 2008).

LSC Transportation Consultants, I. 2005. Trinity County 2005 regional transportation plan, technical memorandum one. Prepared for the Trinity County Transportation Commission. March 28, 2005.

State of California Department of Highway Patrol. 2008. Statewide integrated traffic records system (SWITRS) - 2006 annual report of fatal and injury motor vehicle traffic collisions. Table 8A - Collisions and persons killed and injured by city, county, and road classification, 2006. http://www.chp.ca.gov/switrs/ (accessed August 1, 2008).

The Governor's Office of Emergency Services. 2008. California OES - Response information management system (RIMS): Hazard material spill. http://www.oes.ca.gov/WebPage/oeswebsite.nsf/Content/D2DADC9F47D335558825742E0053C2E5?OpenDocument (accessed August 4, 2008).

Trinity County. 2003. Trinity County General Plan.

Trinity County Planning Department. 2002. Fire start locations by cause, Trinity County General Plan safety element. Weaverville, California: Trinity County Planning Department.

U.S. Environmental Protection Agency. 2007. Superfund site information. http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm (accessed April 17, 2008).

Section 4.14

Association of Environmental Professionals. 2008. California environmental quality act - statutes and guidelines: Association of Environmental Professionals.

Bolt, Beranek, and Newman Inc. 1971. Noise from construction equipment and operations, building equipment, and home appliances. Prepared for the U.S. Environmental Protection Agency. Washington, D.C. December 1971.

Brown-Buntin. 2002. Draft noise element of the General Plan, Trinity County, California. Prepared for the Trinity County Planning Department. May 2002.

Sincero, A. P., and G. A. Sincero. 1996. Environmental engineering: A design approach: Prentice-Hall, Inc. As cited in Draft Anderson-Cottonwood Irrigation District Fish Passage Improvement Project Proposed FONSI/EA/Initial Study (1999).

Trinity County Department of Transportation, and Hughes Environmental Consultants. 2003. Trinity County Hyampom road improvements project, mp 6.8-8.3 - draft environmental impact report. March 31, 2003.

Section 4.15

None

Section 4.16

California Department of Transportation. 2008. The traffic data branch. http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/ (accessed 2008).

Personal Communications

Smith, J., Trinity County Department of Transportation. 2008 - Telephone conversation with D. Drummond, North State Resources. Re: Mines that are operating per SAMARA permits within Trinity County.

Chapter 5

National Marine Fisheries Service. 2000. Biological opinion on the Trinity River Mainstem Fishery Restoration Program. United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. File Number 151422WR2000AR8271:FR. October 12, 2000.

Trinity County. 2003. Trinity County General Plan.

U.S. Bureau of Reclamation. 2003. Trinity River Restoration Program: Trinity River Bridges Project environmental assessment/environmental impact report. Trinity River Restoration Program. July 3, 2003.

U.S. Department of Interior. 2000. Record of decision. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. December 19, 2000.

U.S. Environmental Protection Agency. 2001. Trinity River total maximum daily load for sediment. December 20, 2001.

Personal Communications

Hemphill, Nina, Fish Biologist, U.S. Bureau of Reclamation. March 2009 – email to Brandt Gutermuth, Trinity River Restoration Program.

Chapter 6

U.S. Department of Interior. 2000. Record of decision. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. December 19, 2000.

Chapter 7

Section 7.1

None

Section 7.2

Trinity County. 2003. Trinity County General Plan.

Section 7.3

California Geologic Survey. 2008. Seismic shaking hazards in California. http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html (accessed July 21, 2008).

Trinity County. 2003. Trinity County General Plan.

Trinity River Restoration Program. 2007. Remaining 8 Rehabilitation Sites: Final site descriptions and 50% design concepts U.S. Department of the Interior - Bureau of Reclamation. November 2007.

U.S. Bureau of Land Management. 2008. Land & mineral legacy rehost 2000 system - LR2000. www.blm.gov/lr2000/ (accessed July 21, 2008).

U.S. Department of Agriculture. 1998. Soil survey of Trinity County, California, Weaverville Area. http://websoilsurvey.nrcs.usda.gov/app/ (accessed June 1, 2008).

U.S. Department of Agriculture. 2008. Soil survey of Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity counties. http://websoilsurvey.nrcs.usda.gov/app/ (accessed June 1, 2008).

Personal Communications

Smith, J. 2008. Phone conversation with D. Drummond, NSR geologist. Re: mines that are operating under SMARA permits in Trinity County.

Section 7.4

None

Section 7.5

None

Section 7.6

Alabaster, J. S., and R. Lloyd. 1980. Water quality criteria for freshwater fish. Boston, Massachusetts: Buttersworth, Inc.

Berg, L., and T. G. Northcote. 1985. Changes in territorial, gill-flaring, and feeding behavior in juvenile coho salmon (*Oncorhynchus kisutch*) following short-term pulses of suspended sediment. Canadian Journal of Fisheries and Aquatic Sciences 42:1410-1417.

Bustard, D. R., and D. W. Narver. 1975. Aspects of the winter ecology of juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). Journal of the Fisheries Research Board of Canada 32:667-680.

Cederholm, C. J., R. E. Bilby, P. A. Bisson, T. W. Bumstead, B. R. Fransen, W. J. Scarlett, and J. W. Ward. 1997. Response of juvenile coho salmon and steelhead to placement of large woody debris in a coastal Washington stream. North American Journal of Fisheries Management 17(4):947-963.

Chamberlain, C. 2003. Trinity River juvenile fish stranding evaluation, May to June 2002. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, Report No. AFWO-F-01-03. April 2003.

Chamberlain, C. D., D. H. Goodman, and A. C. Martin. 2007. Spatial and temporal distribution of salmon reproduction in the Trinity River: Survey years 2001 through 2006. U. S. Fish and Wildlife Service and Yurok Tribe, Arcata Fish and Wildlife Office.

Gallagher, S. P. 1995. Evaluation of the feathered edge rehabilitation projects on the Trinity River: Fish use and physical habitat. U.S. Fish and Wildlife Service, Sacramento Field Office.

Gallagher, S. P. 1999. Experimental comparisons of fish habitat and fish use between channel rehabilitation sites and the vegetation encroached channel of the Trinity River. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office.

Garrison, P. 2007. Where are summer coho? Paper read at Trinity River Restoration Program Science Symposium, at Weaverville.

Hampton, M. 1988. Development of habitat preference criteria for anadromous salmonids of the Trinity River. U.S. Fish and Wildlife Service, Division of Ecological Services.

Hassler, T. J. 1987. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest)--coho salmon. U.S. Fish and Wildlife Service Biological Report 82(11.70).

Hicks, B. J., J. D. Hall, P. A. Bisson, and J. R. Sedell. 1991. Responses of salmonids to habitat changes. In Influences of forest and rangeland management on salmonid fishes and their habitats, edited by W. R. Meehan. Bethesda, Maryland: American Fisheries Society.

Leidy, R. A., and G. R. Leidy. 1984. Life stage periodicities of anadromous salmonids in the Klamath River basin, Northwestern California.

Lestelle, L. C. 1978. The effects of forest debris removal on a population of resident cutthroat trout in a small headwater stream, University of Washington, Seattle.

Lestelle, L. C., and C. J. Cederholm. 1982. Short-term effects of organic debris removal on resident cutthroat trout. Paper read at Proceedings, fish and wildlife relationships in old-growth forests symposium, at Ashville, North Carolina.

Marine, K., and J. Lyons. 2004. Temperature effects on Trinity River Salmon reproductive physiology. Phase 1: radio telemetry study of migration and behavioral thermoregulation of spring-run Chinook salmon in the upper Trinity River. Prepared by North State Resources, Inc. for the Trinity River Restoration Program U.S. Bureau of Reclamation – Mid-Pacific Region. February 2004.

Michney, F., and M. Hampton. 1984. Sacramento River, Chico Landing to Red Bluff Project, 1984 juvenile salmonid study. U.S. Fish and Wildlife Service, Division of Ecological Services. Prepared for U.S. Army Corps of Engineers.

Michney, F., and R. Deibel. 1986. Sacramento River, Chico Landing to Red Bluff Project, 1985 juvenile salmonid study. U.S. Fish and Wildlife Service, Division of Ecological Services. Prepared for U.S. Army Corps of Engineers.

Moffett, J. W., and S. H. Smith. 1950. Biological investigations of the fishery resources of the Trinity River, California. U.S. Fish and Wildlife Service. Report No. 12.

Moyle, P. B. 2002. Inland fishes of California. Berkeley, California: University of California Press.

National Marine Fisheries Service. 2006. 2006 Amendment to the 2000 Trinity River Mainstem Fishery Restoration Program Biological Opinion to allow necessary instream construction activities at future streambank rehabilitation projects.

North State Resources, Inc. 2005. Indian Creek site delineation of waters of the United States, including wetlands.

Pacific Fisheries Management Council. 2000. Amendment 14 to the Pacific Coast Salmon Plan (1997), Appendix A. Portland, Oregon: Pacific Fisheries Management Council.

Sandercock, F. K. 1991. Life history of coho salmon (*Oncorhynchus kisutch*). Edited by C. Groot and L. Margolis, Pacific Salmon Life Histories: UBC Press, Vancouver, Canada.

Sommer, T., B. Harrell, M. Nobriga, R. Brown, P. Moyle, W. Kimmerer, and L. Schemel. 2001. California's Yolo Bypass: Evidence that flood control can be compatible with fisheries, wetlands, wildlife, and agriculture. Fisheries 26(8):6-16.

Trinity River Restoration Program. 2007. Remaining 8 Rehabilitation Sites: Final site descriptions and 50% design concepts U.S. Department of the Interior - Bureau of Reclamation. November 2007.

U.S. Fish and Wildlife Service. 1989. Trinity River flow evaluation - annual report 1989. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement.

U.S. Fish and Wildlife Service. 1990. Trinity River flow evaluation - annual report 1990. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement.

Personal Communications

Glase, J., NPS, TRRP Fish Management Biologist. 2002 - Telephone conversation with North State Resources biologist. Re: coho salmon.

Section 7.7

California Department of Fish and Game. 2000. Guidelines for assessing the effects of proposed projects on rare, threatened, and endangered plants and natural communities: State of California, The Resources Agency, Department of Fish and Game.

California Department of Fish and Game. 2003. California natural diversity database (CNDDB): California Department of Fish and Game. Updated 2008.

Herrera, P. A. 2006. Trinity River restoration program bird monitoring Indian Creek environmental study limit surveys 2003-2005. Draft. Arcata, California: USDA Forest Service, Redwood Sciences Laboratory.

Miller, S. L., C. G. Ralph, and P. A. Herrera. 2003. Monitoring riparian and aquatic birds along the mainstem of the Trinity River (Trinity River Restoration Program Biannual Report 2003). Arcata, California: USDA Forest Service.

Wilson, R. A. 1995. Trinity River willow flycatcher surveys, 1990-1992. Weaverville, California: Final report submitted to Wildlife Task Group, Trinity River Restoration Project, U.S. Department of the Interior, Fish and Wildlife Service, and Bureau of Reclamation.

Section 7.8

None

Section 7.9

Center for Economic Development. 2007. Trinity County 2007 economic and demographic profile. California State University, Chico Research Foundation.

Section 7.10

California Division of Mines and Geology. 1964. Mines and mineral resources of Trinity County, California. Sacramento: State Division of Mines.

Jones, A. G., ed. 1981. Trinity County historical sites. Bedford, Texas: Curtis Media, Incorporate.

O'Brien, J. C. 1965. Gold dredging in Shasta, Siskiyou, and Trinity counties. Report of the State Mineralogist. California Division of Mines and Geology.

Trinity County Historical Society. 1974. Trinity 1974. Weaverville, California: Trinity County Historical Society.

U.S. Bureau of Land Management. 2008. Land & mineral legacy rehost 2000 system - LR2000. www.blm.gov/lr2000/ (accessed July 21, 2008).

U.S. Bureau of Reclamation. 2007. Archeological investigations of the Lewiston-Dark Gulch Channel Rehabilitation Project area for the Trinity River Restoration Project, Trinity County, California Report No. 07-NCAO-046.

U.S. Bureau of Reclamation. 2008. Archaeological Investigation of the Remaining Phase 1 sites of the Trinity River Restoration Program, Trinity County, California: U.S. Bureau of Reclamation, confidential report.

U.S. Park Service. 1997. National Register Bulletin 15: How to apply the National Register Criteria for Evaluation, edited by C. Resources: U.S. Department of Interior.

Section 7.11

BuildCarbonNeutral. 2007. Construction carbon calculator 0.035.

California Environmental Protection Agency Climate Action Team. 2006. Executive summary, climate action team report to Governor Schwarzenegger and the California Legislature: Environmental Protection Agency.

Greenhouse Gas Protocol Initiative: A partnership of the World Business Council for Sustainable Development and the World Resources Institute. 2005. Mobile combustion CO_2 emissions calculation tool 1.3. http://www.ghgprotocol.org/calculation-tools.

Trinity County. 1986. Lewiston Community Plan. Adopted September 16, 1986.

Trinity County. 1987. Douglas City Community Plan. Adopted July 1987.

Section 7.12

None

Section 7.13

None

Section 7.14

None

Section 7.15

None

Section 7.16

California Department of Transportation. 2008. The traffic data branch. http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/ (accessed 2008).

Personal Communications

Smith, J., Trinity County Department of Transportation. 2008 – E-mail with K. Hitt, North State Resources. Re: daily traffic counts for county roads in Trinity County.

Section 7.17

U.S. Department of the Interior. 1995. Memorandum on Klamath Project operation plan (KPOP) regarding certain legal rights and obligations related to the U.S. Bureau of Reclamation, Klamath Project: U.S. Department of the Interior, Office of the Solicitor.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Bureau of Land Management, Hoopa Valley Tribe, California State Historical Preservation Officer, and Advisory Council on Historic Fishery Preservation. 2000. Programmatic agreement regarding implementation of the Trinity River fishery restoration.

Section 7.18

California Department of Education. 2008. Data and statistics. Available from http://www.cde.ca.gov/ds/.

Center for Economic Development. 2007. Trinity County 2007 economic and demographic profile: California State University, Chico Research Foundation.

Trinity County. 1986. Lewiston Community Plan.

Trinity County. 1987. Douglas City Community Plan.

U.S. Census Bureau. 2000. DP-1. Profile of general demographic characteristics: 2000. U.S. Census Bureau. Available from http://factfinder.census.gov/servlet/QTTable?_bm=y&-geo_id=16000US0641278&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U&-_lang=en&-_sse=on.

U.S. Census Bureau. 2008. American factfinder. Available from http://factfinder.census.gov/home/saff/main.html?_lang=en.

Chapter 8

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

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Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Volume IV: Appendices
Part 1: Draft Master Environmental Impact Report
Part 2: Environmental Assessment/Draft Environmental Impact Report

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Environmental Assessment/Draft Environmental Impact Report

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Volume IV

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APPENDIX A

Aquatic Conservation Strategy Consistency Evaluation

Appendix A
Aquatic Conservation Strategy—Consistency Evaluation

Introduction

The Bureau of Reclamation (Reclamation), under the auspices of the Trinity River Restoration Program (TRRP) is the proponent for implementing a series of channel rehabilitation and sediment management activities throughout the 40-mile reach of the Trinity River below Lewiston Dam. Collectively, these activities are proposed at the Remaining Phase 1 and Phase 2 sites as described in Chapter 2 of the Master EIR.

This document evaluates and determines the consistency of the TRRP activities with the Aquatic Conservation Strategy (ACS) in the Record of Decision (ROD) for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl. The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The 1994 Shasta-Trinity National Forest (STNF) Land and Resource Management Plan (LRMP) incorporated the ACS in conjunction with the other aspects of the ROD. The ROD also amended the Redding Resource Management Plan (RRMP) prepared by the Bureau of Land Management (BLM) in 1994 as applicable.

The intent of this evaluation is to ensure that decision makers have the information necessary to determine whether the proposed TRRP activities are consistent with the ACS objectives. This evaluation incorporates information provided in the Upper Trinity River Watershed Analysis (Shasta-Trinity National Forest 2005) and the Mainstem Trinity River Watershed Analysis (U.S. Bureau of Land Management 1993), supported by the Master Environmental Impact Report for the project and other information in the administrative record to assist the decision maker. In order to make the finding that a project or management activity "meets" or "does not prevent attainment" of the ACS objectives, the decision maker must ensure that management actions that do not maintain the existing

condition or lead to improved conditions in the long term would not be implemented.

The ACS acknowledges that species-specific strategies aimed at defining explicit standards for habitat elements would be insufficient for protecting even the targeted species. The intent of the ACS is to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and to restore currently degraded habitats. This approach seeks to prevent further habitat degradation and restore habitat over broad landscapes as opposed to implementing individual projects or focusing on small watersheds. Because the ACS is based on natural disturbance processes, the ROD recognized that it is a long-term strategy that may take decades, and possibly more than a century, to accomplish all of its objectives.

The ACS contains four components: riparian reserves, key watersheds, watershed analysis, and watershed restoration. Each component is integral to improving the health of the aquatic ecosystems encompassed by the ROD. A detailed discussion of these components is provided in the ROD.

As part of the 1994 LRMP, the STNF adopted the specific land allocations described in Attachment A to the ROD. Under the 1994 LRMP, these land allocations are managed primarily to protect and enhance late-successional and old growth forest–related species. Since the BLM's RRMP predated the ROD, it was subsequently amended by the ROD to include Attachment A.

Attachment A of the ROD includes the Standards and Guidelines (S&Gs) that were incorporated into the STNF LRMP and the BLM RRMP to ensure compliance with the ROD. This hierarchy of land allocations is described below.

1. Congressional Reserved Areas – Includes Wilderness, federal Wild and Scenic Rivers, National Monuments and other federal lands not administered by the Forest Service or Bureau of Land Management.

2. Late Successional Reserves – Lands identified with an objective to protect and enhance conditions for late-successional and old-growth forest ecosystems.

3. Adaptive Management Areas – Areas with objectives to develop and test new management approaches to integrate ecological and economic health and other social objectives.

4. Managed Late-Successional Areas – Specific Late Successional areas in the drier provinces where regular and frequent fire is a natural part of the ecosystem.

5. Administratively Withdrawn Areas – Areas identified in current Forest and District Plans or draft plan preferred alternatives. These areas include recreation and visual areas, back country and other areas where management emphasis precludes scheduled timber harvest.

6. Riparian Reserves – As a key component of the ACS, Riparian Reserves provide an area along all streams, wetlands, ponds, lakes and unstable/potentially unstable areas where riparian dependent resources receive primary emphasis. These reserves are important to the terrestrial ecosystem as well, providing connectivity corridors and dispersal habitat for certain terrestrial species.

7. Matrix – The matrix consists of those federal lands outside the six previous allocations.

The activities proposed by Reclamation are confined to a narrow corridor that parallels the Trinity River from Lewiston Dam, downstream to Helena California. This section of the Trinity River is designated as a Wild& Scenic River (federal and state); therefore it meets the definition of Congressionally Reserved Areas. Riparian Reserve and Matrix designations are also used to classify lands within this corridor. This evaluation focuses on Riparian Reserves as defined in the LRMP and RRMP respectively.

The following sections of this evaluation address the consistency of the TRRP's proposed activities at the Remaining Phase 1 and Phase 2 sites with the four components of the ACS and the nine ACS objectives described in Attachment B to the ROD.

Components of the Aquatic Conservation Strategy

Riparian Reserves

The project area contains Riparian Reserves, as defined in the Shasta-Trinity LRMP and BLM's RRMP. Although watershed analyses have been completed for federal lands within the Trinity River corridor, these analyses

did not modify the designated widths of the Riparian Reserves established by the S&Gs described in the Northwest Forest Plan and subsequently adopted by the STNF and BLM. The width of the Riparian Reserves essentially correlates with the floodplain of the Trinity River, as well as a buffer around riparian features identified during the wetland delineation process. Figure A-1 illustrates the general location of Riparian Reserves along this 40-mile reach. Table A-1 at the end of this document provides the S&Gs that were integrated into the project.

Key Watersheds

There are no key watersheds within or downstream of the Remaining Phase 1 or Phase 2 sites. The STNF does manage key watersheds in the upper Trinity River watershed, primarily associated with the Salmon-Trinity Alps Wilderness Area. This component of the ACS is therefore not applicable to the activities proposed by the TRRP in the Master EIR.

Watershed Analysis

The STNF and BLM conducted watershed analyses for the lands within the Trinity River corridor. These analyses did not identify specific recommendations regarding the Riparian Reserve widths; therefore, the S&Gs established under the ACS are applicable to this project. While Figure A-1 illustrates the general nature of these Riparian Reserves, any activities proposed within these Riparian Reserves will conform to the site-specific conditions established in the S&Gs to ensure consistency with the ACS.

Watershed Restoration

By its nature, the project is a comprehensive ecosystem restoration project intended to restore the physical processes and biological resources of the mainstem Trinity River. While some short-term impacts may occur to riparian-dependent species, the scale of the activities proposed by the TRRP, including this project, ensures that restoration of ecological processes and functions will be consistent with the ACS.

Aquatic Conservation Strategy Objectives

The following section evaluates the consistency of the preferred alternative with the nine ACS objectives listed in Attachment B of the ROD.

The lands managed by the STNF and BLM within the range of the northern spotted owl will be managed to:

1. *Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.*

The project by its nature is intended to restore the landscape processes, specifically the alluvial and riparian functions that have been impaired by construction of the Trinity River Division of the Central Valley Project. The activities that are proposed on federal lands subject to the ACS are an integral part of the larger project and are intended to assist BLM and the STNF in attaining this ACS objective.

2. *Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

The project boundaries illustrated in the Master EIR ensure that project activities are implemented in a manner that complements the functional values offered by the Trinity River between the Lewiston and Helena. The TRRP, BLM, and STNF have been involved in the identification and prioritization of channel rehabilitation sites for a number of years. The project has been designed to acknowledge the inter-relationship between aquatic and riparian habitats that occur throughout this reach. Specifically, the project includes a number of activities to enhance the connectivity of aquatic and riparian habitat along a 40-mile reach of the Trinity River. Modifications of floodplains, removal of grade control structures and the construction of functional side-channel habitat are examples of restoring connectivity for a variety of aquatic and riparian-dependent species, including a number of special-status species recognized by BLM and the STNF. The intent of this project is to assist the BLM and STNF in attaining this ACS objective.

3. *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks and bottom configurations.*

A fundamental component of the project is the activities intended to restore the bed, banks, and floodplain of the Trinity River. The modification of

grade control, expansion of functional floodplain habitat, and efforts to enhance the coarse sediment supply are examples of the activities intended to restore the physical integrity of the aquatic system. Collectively, these efforts are designed to restore the alluvial character of the Trinity River that was impaired by reductions in flow and sediment upstream. The intent of this project is to assist the BLM and STNF in attaining this ACS objective.

4. *Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

By its nature, the project will require removal of vegetation and extensive grading activities, including construction within the active channel of the Trinity River. The TRRP, in cooperation with BLM and the STNF, has incorporated Best Management Practices to ensure that effects on water quality are minimized. Additionally, mitigation measures were developed to further reduce potentially significant effects on water quality from construction activities. In addition to compliance with the ACS, the project will require the following discretionary approvals related to the Clean Water Act: Section 401 water quality certification and Section 404 permit and waste discharge requirements. These authorizations are intended to ensure that the selected alternative meets the water quality standards established by the Regional Water Quality Control Board, North Coast Region (Regional Water Board). As proposed, this project would be consistent with the requirements of the Regional Water Board and therefore would not prevent attainment of this ACS objective.

5. *Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

A fundamental element of the TRRP is restoration of the sediment regime in a manner that enhances the alluvial character of the 40-mile reach of the Trinity River downstream of Lewiston Dam. This project would ensure that the coarse sediment fraction of the sediment regime will be replenished on an ongoing basis consistent with the timing, volume, and rates appropriate for the scaled down channel. The project also incorporates elements of the larger coarse sediment supplementation plan prepared for the 40-mile reach of the Trinity River. While there may be a change in the timing or volume of sediment input, overall the project is intended to assist BLM and the STNF in attainment of this ACS objective.

6. *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

The preferred alternative will not influence any in-stream flows. No modifications to the flow regime of the Trinity River or its tributaries are proposed; therefore, this ACS objective would be met.

7. *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

The activities to modify the bed, banks, and floodplains of the Trinity River within the project boundaries are designed to maintain and/or restore the hydrologic connection between the river and adjacent wetland/riparian habitat. By reducing the floodplain elevations, the current flow regime could provide additional opportunities to establish functional, connected wetland habitat adjacent to the Trinity River. This project would be consistent with this ACS objective.

8. *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.*

A fundamental objective of the TRRP is to restore the species composition and structural diversity of native plant communities that occur along the mainstem Trinity River. The modifications proposed to the active channel, floodplain and upland activity areas will provide conditions that are receptive to re-introduction of a diverse assemblage of native riparian vegetation, and reduce the potential for non-native, invasive, and noxious plant species. Woody material removed as part of the rehabilitation activities will be incorporated into the project as appropriate to enhance channel complexity and edge habitat. Overall, this natural recruitment of riparian communities, supplemented by riparian planting efforts, will ensure that this project meets this ACS objective.

9. *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.*

A fundamental objective of the TRRP is to restore the aquatic, riparian, and upland habitat along the 40-mile reach of the mainstem Trinity River. The

project activities emphasize creation and/or rehabilitation of aquatic and riparian habitat within the project boundaries. Collectively these activities are intended to generate geomorphic responses downstream that will further the overall habitat enhancement objectives by reestablishing the alluvial processes that were impaired by the construction and operation of the TRD. The activities that are proposed on federal lands subject to the ACS are an integral part of the larger project and are intended to assist BLM and the STNF in attaining this ACS objective.

Conclusion

Based on this evaluation, we (BLM & STNF) find that the project described in the NEPA decision document has been designed and would be constructed in a manner that does not prevent future attainment of the Aquatic Conservation Strategy objectives. The management actions incorporated into the preferred alternative will maintain the existing condition or lead to improved conditions in the long term, consistent with the intent of the Aquatic Conservation Strategy.

Table A-1. ACS Applicable Standards and Guidelines

All Land Allocations		
Survey and Manage	2	Survey prior to ground disturbing activities.
Riparian Reserves		
Timber Management	TM 1-c	Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquired desired vegetation characteristics needed to attain ACS objectives.
Roads Management	RF-1	Federal, state, and county agencies should cooperate to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.
	RF-2	For each existing or planned road, meet Aquatic Conservation Strategy objectives by:
	RF-2a	Minimizing road and landing locations in Riparian Reserves.
	RF-2b	Completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.
	RF-2c	Preparing road design criteria, elements, and standards that govern construction and reconstruction.
	RF-2d	Preparing operation and maintenance criteria that govern road operation, maintenance, and management.

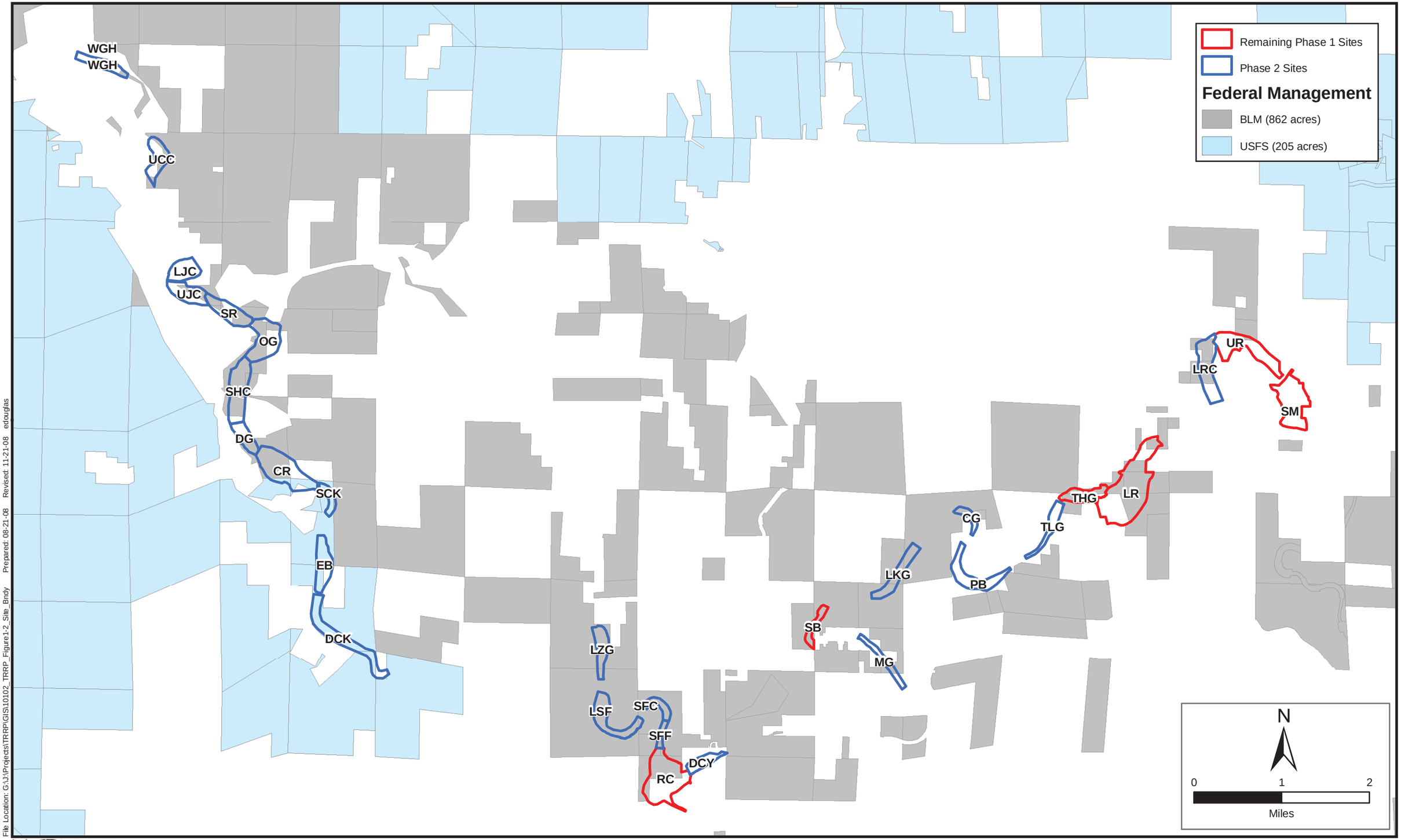
	RF-2e	Minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow.
	RF-2f	Restricting sidecasting as necessary to prevent the introduction of sediment to streams.
	RF-3	Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:
	RF-3a	Reconstructing roads and associated drainage features that pose a substantial risk.
	RF-3b	Prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.
	RF-3c	Closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.
	RF-4	New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
	RF-5	Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.
	RF-7	Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:
	RF-7a	Inspections and maintenance during storm events.
	RF-7b	Inspections and maintenance after storm events.
	RF-7c	Road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.
	RF-7d	Traffic regulation during wet periods to prevent damage to riparian resources.
	RF-7e	Establish the purpose of each road by developing the Road Management Objective.
Recreation Management	RM-1	New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to not prevent meeting Aquatic Conservation Strategy objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

	LH-3	Locate new support facilities outside Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to FERC that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves will be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.
	LH-4	For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resources affected.
General Riparian Area Management	RA-2	Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.
	RA-3	Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

References

Shasta-Trinity National Forest. 2005. Upper Trinity River watershed analysis. USDA Forest Service, Shasta-Trinity National Forest.

U.S. Bureau of Land Management. 1993. Redding resource management plan and record of decision.



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North State Resources, Inc.

Trinity River Restoration Program: Phase 1 and Phase 2 Sites

Figure A-1
TRRP Project Sites - Federal Management

APPENDIX B

Wild and Scenic River
Section 7 Analysis and Determination

Appendix B
Wild and Scenic River
Section 7 Analysis and Determination

Introduction

The Proposed Project encompasses a 40-mile stretch of the Trinity River from Lewiston to the North Fork Trinity River. This entire stretch of river is federally designated under the Wild and Scenic System to preserve its Outstandingly Remarkable Values (ORV), 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 also classified as a Recreational River by the Bureau of Land Management (BLM) and the Shasta-Trinity National Forest (STNF). The Recreational River classification applies the Trinity River mainstem from 100 yards below Lewiston Dam downstream to Cedar Flat (a distance of approximately 97.5 miles).

The Wild and Scenic River Section 7 analysis and subsequent determination evaluate the effects of the Trinity River Channel Rehabilitation Projects: Remaining Phase 1 and Phase 2 Sites (Proposed Project) on the Trinity River's free-flowing attributes and other ORV's, and ensures their protection as required under Section 7 of the Wild and Scenic Rivers Act (WSA). The Proposed Project, which includes several short-term channel rehabilitation activities, is described and analyzed in detail in the Draft Master Environmental Impact Report (Draft MEIR) prepared for the Proposed Project. The Section 7 analysis is presented in a summary format and refers the reader to specific sections of the Draft MEIR for supporting information on water quality, fisheries, wildlife, flora and fauna, recreational, cultural resources and aesthetic values (chapters 2, 4, 5).

Section 7 Analysis

The Section 7 analysis and determination for the Proposed Project follows the Evaluation Procedure presented in Appendix C of the *Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council, Wild and*

Scenic Rivers Act: Section 7. BLM generally has responsibility for conducting Section 7 determinations for the Trinity River WSA-designated river segment; this responsibility results from an interagency agreement between the National Park Service, BLM, and the U.S. Forest Service.

1) Establish Need

a. The specific purpose of the Proposed Project is to protect or enhance the values for which the river was designated as eligible; restore the natural characteristics of the river; and/or improve the water quality of the river. The project would initiate channel rehabilitation activities as described in Chapter 2 of the Draft MEIR. The Proposed Project was included in the Record of Decision (ROD) issued by the Department of the Interior (DOI) in 2000 and is intended to restore the river function and fish resources of the Trinity River. This project would be implemented in conjunction with other programs and projects under the direction of the Trinity River Restoration Program (TRRP). Implementation of the Proposed Project would include measures to assure that it is consistent with the goals established under the BLM's *Redding Resource Management Plan,* and the STNF Land and Resource Management Plan (LRMP) specifically to support management actions that would enhance Trinity River fisheries. The Proposed Project would not diminish the scenic, recreational, or water quality values associated with the river.

b. Project-related impacts to free-flowing characteristics of the river would be minimized to the extent practicable, and are described in detail in the following sections of the Draft MEIR: Chapter 2 (Proposed Project and Alternatives); section 4.3 (Geology); section 4.4 (Water Resources), section 4.16 (Transportation/Traffic Circulation).

c. The project proponent and manager is the Trinity River Restoration Program (TRRP). The TRRP is an administrative office of the Mid-Pacific Region of the Bureau of Reclamation (Reclamation) responsible for implementing the 2000 Record of Decision intended to restore the fishery resources of the Trinity River. The Proposed Project has been developed through a cooperative effort by Reclamation, BLM, STNF, the Regional Water Quality Control Board – North Coast Region (Regional Water Board), and the Hoopa Valley Tribe (HVT) under the direction of the TRRP. The Proposed Project would improve the conveyance of flows by reestablishing alluvial attributes of the Trinity River, namely floodplains, side channels, and transverse bars. These activities are intended to decrease the potential for channel constriction by removing riparian berms.

The Proposed Project is consistent with management goals and objectives for the Trinity River and is designed to maintain and/or enhance the ORV's. It is also consistent with BLM and STNF objectives that support the TRRP.

2) Define a Proposed Activity

The project proponent, the project purpose and need, and the geographic location of the project are described in Chapters 1 and 2 of the Draft MEIR. Figure 1-2 (Chapter 1) provides a project site location map, and Figure 4.2-1 (Chapter 4) presents public and private land ownership information adjacent to the Trinity River. In general, the Proposed Project is expected to take approximately 10 years to complete. River rehabilitation activities associated with the project, such as coarse gravel augmentation, could last for an additional 10 years. Specific information on the duration of construction of the project and the magnitude/extent of the proposed activities is provided in Chapter 2 of the Draft MEIR. Chapter 5 describes the relationship of the Proposed Project to past and future management activities with an emphasis on cumulative effects.

3) Describe How the Proposed Activities Would Directly Alter Within-Channel Conditions

Implementation of the proposed channel rehabilitation project would result in both short-term and long-term impacts for which mitigation is provided. A graphic overview of proposed channel rehabilitation activities can be seen in Figures 2-1a through 2-1f (Chapter 2). These impacts and relevant mitigation measures are described in the following sections of the Draft MEIR: 4.3 (Geology), 4.4 (Water Resources), 4.5 (Water Quality), and 4.6 (Fishery Resources).

The existing condition of the Proposed Project site is the result of natural processes, development, and resource management that has occurred along the river corridor over the past 75 years. Channelization of the Trinity River resulted from historic dredge mining activities. Modified river flows, associated with Trinity River Dam operations, further exacerbated channelization of the river. When the Trinity River was designated under the WSA, dam operations had altered the river's alluvial features for more than 20 years within the project boundaries. At that time, scientists recognized that the alluvial nature of the river had been modified extensively. Although recent changes in the flow regime provide some opportunity to rehabilitate the form and function of the Trinity River, the ROD (Department of Interior 2000) recognized that mechanical channel

rehabilitation would also be needed to reconfigure sections of the river and provide opportunities for alluvial processes to occur.

Collectively, in-channel rehabilitation efforts are designed to restore the alluvial character of the Trinity River that was impaired by reductions in flow and the resulting increase in sediment. While short-term impacts are anticipated during project implementation, primarily concerning water quality, juvenile salmonid rearing habitat, and riparian vegetation, mitigation measures are incorporated into the project to minimize potential impacts to a less than significant level. Additionally, the nature and scale of the proposed channel rehabilitation project is expected to provide positive and cumulatively beneficial long-term effects.

4) Describe How the Proposed Activity Would Directly Alter Riparian and/or Floodplain Condition

The Proposed Project, which consists of 29 rehabilitation sites, is anticipated to affect a 40-mile stretch of alluvial deposits in and adjacent to the mainstem Trinity River. It is generally recognized that these alluvial deposits existed at the time of the WSA designation; however, the dynamic and changing nature of riverine environments precludes a quantification of these features. The extensive body of scientific evidence available for the Trinity River suggests that the alluvial features (e.g., riparian berms and floodplains) supported extensive, well-established riparian, although somewhat homogenous communities at the time of the WSA designation. Because of modified flow regimes, alluvial deposits became immobilized by an inhabitation of monoculture riparian vegetation. The interaction between vegetation and fine sediment continued to exacerbate the channelized condition along the river corridor. While large floods, such as that which occurred in 1997, modified this riparian community to some degree and resulted in some berm erosion, the monoculture condition persists. To varying degrees, riparian berms tend to inhibit access to the floodplain throughout the 40-mile stretch of river encompassed by the Proposed Project.

Section 4.4 (Water Resources), section 4.6 (Fishery Resources), and section 4.7 (Vegetation, Wildlife, and Wetlands) discuss the specific impacts and relevant mitigation measures associated with the Proposed Project and Alternative 1 relative to existing riparian and floodplain conditions. Although short-term impacts are anticipated during construction, the long-term effects are expected to be positive and cumulatively beneficial. As a component of the TRRP, the Proposed Project is expected to benefit the Trinity River's ORV's, including anadromous fishery resources.

5) Describe How the Proposed Activity Would Directly Alter Upland Conditions

The Proposed Project would remove alluvial material from the channel bed, banks, and floodplains. This material would be placed on adjacent upland areas or processed on site for future use in the coarse gravel augmentation program. A riparian revegetation plan, that emphasizes the reestablishment of native species and vegetative community types throughout the entire project boundary, will be incorporated into the Proposed Project. The following sections of the Draft MEIR discuss the specific impacts and relevant mitigation measures relative to upland conditions as they relate to the ORV's for the Trinity River: section 4.4 (Water Resources), section 4.6 (Fishery Resources), section 4.7 (Vegetation, Wildlife and Wetlands), section 4.8 (Recreation), section 4.10 (Cultural Resources) and section 4.12 (Aesthetics).

6) Evaluate and Describe How Changes in On-Site Conditions Can/Would Alter Existing Hydrologic or Biologic Processes

As discussed in previous sections, the Draft MEIR provides a detailed description of the existing condition and environmental impacts associated with the Proposed Project, including a substantial number of mitigation measures. A primary objective of the Proposed Project is to re-establish alluvial processes within the 40-mile project area. This objective would be met by providing the river with the opportunity to return to the floodplain with greater frequency through channel modification. A basic premise of the TRRP is to promote changes to the alluvial reaches of the river in a manner that restores the physical processes and biological resources that were recognized as ORV's at the time of designation.

7) Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes

Chapter 5 of the Draft MEIR discusses the magnitude and extent of potential off-site impacts resulting from the Proposed Project, including cumulative impacts that might result from project actions extending along the river corridor. With the exception of short-term water quality impacts (construction related turbidity), implementation of the Proposed Project would not adversely impact the Trinity River. In fact, the intent of the Proposed Project is to promote large-scale beneficial changes to the riverine environment and adjacent physical habitat. Such changes are expected to enhance efforts to restore the form and function of the Trinity River.

8) Define the Time Scale over Which Steps 3-7 are Likely to Occur

Project implementation is anticipated to occur between fall 2009 and fall 2020. Specific limitations on project operations will likely be incorporated into the project because of applicable legal requirements.

9) Compare Project Analyses to Management Goals

Management goals relative to free-flow, water quality, riparian area, and floodplain conditions would not be affected by the Proposed Project. It is expected that one of the primary benefits of this project would be to increase the ORV (specifically, anadromous fisheries) of the Trinity River. Impacts to the visual resources of the Trinity River would be minimal with the implementation of design criteria and mitigation measures. The Proposed Project would be consistent with any future actions taken by the TRRP.

10) Section 7 Determination

Implementation of the Proposed Project, as described in Chapter 2 and as analyzed in Chapters 4 and 5 of the Draft MEIR, would not affect the free-flowing condition of this segment of the Trinity River, would not affect the river's water quality, and would not have any effects on the ORVs for which the river was designated.

References

U.S. Department of Interior. 2000. Record of decision. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. December 19, 2000.

APPENDIX C

Federally-Listed/Proposed Threatened and Endangered Species for Trinity County

Appendix C
Federally-Listed/Proposed Threatened and Endangered Species for Trinity County

Federally or State-Listed Species

American Peregrine Falcon (*Falco peregrinus anatum*). Federal status: Delisted; State status: Endangered, Fully Protected. The American peregrine falcon was removed from the Federal list of threatened and endangered species in the lower 48 states in 1999 (64 FR 46541 46558). In California, it is listed as threatened under the CESA, but has been recommended for delisting (California Department of Fish and Game 2008a).

Peregrine falcons are known as one of the fastest flying birds of prey, preying almost entirely on birds that they kill while in flight. These falcons nest primarily on high cliffs. However, they will also use human-made structures for nesting and, occasionally, tree cavities or the old nests of other raptors.

In California, American peregrine falcons are known to nest along the coast north of Santa Barbara, the northern Coast and Cascade ranges, and the Sierra Nevada. During winter and periods of migration, they can be found throughout most of the state, but are most likely to be encountered near wetland or aquatic habitats. The Proposed Project sites lack nesting habitat for this species; however, they may occur as foragers.

Bald Eagle (*Haliaeetus leucocephalus*). Federal status: Delisted; State status: Endangered. The bald eagle first gained federal protection in 1940 when Congress passed the Bald Eagle Protection Act. It was later amended to include golden eagles and renamed the Bald and Golden Eagle Protection Act. The species was first listed under the ESA on February 14, 1978, when it was designated as endangered throughout the lower 48 states except in Michigan, Minnesota, Wisconsin, and Oregon, where it was designated as threatened (43 FR 6233). The bald eagle was reclassified as threatened in all of the lower 48 states on July 12, 1995 (60 FR 36000).

The USFWS proposed to remove the species from the List of Endangered and Threatened Wildlife (delist) on July 6, 1999 (64 FR 36454) because they determined that the bald eagle was flourishing across the nation and no

longer needed the protection of the ESA. It was delisted on August 8, 2007 (72 FR 37346). However, the bald eagle continues to be federally protected under the Bald and Golden Eagle Protection Act. In addition, it is state listed as endangered in California.

The bald eagle is a large soaring bird, and most of its annual food requirements are derived from or obtained around aquatic habitats. The food most often consumed consists of fish, water birds, and small to medium-sized mammals. Because of the dietary association, nesting territories are usually found near water. Perches are used primarily during the day for resting, preening, and hunting, and may include human-made structures such as power poles. Roosting areas contain a night communal roosting tree that is easily accessible to the large birds and tall enough to provide safety from threats from the ground. Bald eagle nests and roosts are usually found where human activity is infrequent or muted. In California, breeding pairs are found mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties (California Department of Fish and Game 2008b). Bald eagles are not expected to nest at the Proposed Project sites due to the level of human disturbance and lack of dense, large trees. However, they may forage on the sites.

Little Willow Flycatcher (*Empidonax traillii brewsteri*). Federal status: None; State status: Endangered. The little willow flycatcher is one of five subspecies of the willow flycatcher. It breeds in California from Tulare County north, along the western side of the Sierra Nevada and Cascades, extending to the coast in northern California (Craig and Williams 1998). In California, the little willow flycatcher it is a rare to locally uncommon summer resident in wet meadows and montane riparian habitats from 2,000 – 8,000 feet in elevation and a common spring and fall migrant at lower elevations, primarily in riparian habitats, throughout the state exclusive of the North Coast (Zeiner et al. 1990a). This subspecies nests in dense riparian thickets and forages on insects, berries, and seeds. Suitable montane riparian habitat for the little willow flycatcher is present within some of the Proposed Project sites and the species has been observed along the Trinity River corridor in the project region (Wilson 1995; Miller, Ralph, and Herrera 2003; Herrera 2006).

Pacific Fisher (*Martes pennanti pacifica*). Federal status: Candidate; State status: Species of Special Concern. In California, fishers primarily inhabit mixed conifer forests composed of Douglas-fir and associated conifers, although they also are encountered frequently in higher elevation, fir and pine forests and mixed evergreen/broad leaf forest. Fishers den in cavities near the tops of large trees, in hollow logs, and in crevices in rock outcrops and talus. They are not expected to breed on any of the Proposed Project sites. However, this species has been recorded along the Trinity River in the project area (California Department of Fish and Game 2003), and may use the Trinity River as a travel corridor.

Other Special-Status Species

Foothill yellow-legged frog (*Rana boylii*). Federal status: None; State status: Species of Special Concern. The foothill yellow-legged frog is found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow. Adults often bask on exposed rock surfaces near streams. During periods of inactivity, especially during cold weather, individuals seek cover under rocks in the streams or on shore within a few yards of water. Unlike most other ranid frogs in California, this species is rarely encountered (even on rainy nights) far from permanent water.

Foothill yellow-legged frogs occur in the Coast Ranges from the Oregon border south to the Transverse Mountains, in most of northern California west of the Cascade crest, and along the western flank of the Sierra south to Kern County. This species is known to occur in the Trinity River from Lewiston Dam to the north fork of the river (California Department of Fish and Game 2003) and may occur at any of the Proposed Project sites.

Western Pond Turtle (*Actinemys marmorata*). Federal status: None; State status: Species of Special Concern. The western pond turtle occurs in a variety of riverine and wetland habitats. Pond turtles require basking sites, such as partially submerged logs, rocks, mats of floating vegetation, and open mud banks, but turtles slip from basking sites to underwater retreats at the approach of humans or potential predators. In colder areas, the turtles hibernate underwater in bottom mud (Zeiner et al. 1990b) This species is known to travel large distances upland for nesting and overwintering.

The western pond turtle has been recorded throughout the Trinity River Basin and is found in or near the main stem, larger tributaries, vernal pools, ponds, and lakes (Ashton, Lind, and Schlick 1997). The riverine and riparian habitat at the Proposed Project sites provide suitable habitat for the species.

Black Swift (*Cypseloides niger*). Federal status: None; State status: Species of Special Concern. In northern California, the black swift breeds only locally in the Sierra Nevada and Cascade Range. They nest in moist crevices or in caves on cliffs above the surf or near waterfalls. The black swift feeds exclusively on insects and forages over many habitats. Suitable nesting habitat for this species is absent from the project area; however, the species may forage over the Proposed Project sites during migration.

California Yellow Warbler (*Dendroica petechia*). Federal status: None; State status: Species of Special Concern. The yellow warbler is usually

found in dense riparian deciduous habitats with cottonwoods, willows, alders, and other small trees and shrubs typical of open-canopy riparian woodlands. Forage patterns usually involve gleaning and hovering for insects and spiders. The yellow warbler occurs as a summer resident in northern California, however, the number of breeding pairs in the Sacramento Valley has declined dramatically in recent decades. Riparian communities in the Proposed Project sites provide suitable nesting and foraging habitat for this species.

Golden Eagle (*Aquila chrysaetos*). Federal status: None; State status: Species of Special Concern, Fully Protected. Golden eagles are most common in rugged, open country bisected by canyons where there are ample nesting sites and food. Golden eagles nest on cliffs of all sizes or in the tops of large trees. The nests are very large stick nests, sometimes exceeding 10 feet across (Zeiner et al. 1990a). The species forages on rabbits and larger rodents, but may also take birds and reptiles; some also feed on carrion. The golden eagle is a rare permanent resident or migrant throughout California but is more common in the foothills surrounding the Sierra Nevada and Coast Ranges and in the southern California deserts. Suitable nesting habitat for this species is not present within the Proposed Project sites. However, it may occur as a forager.

Northern Goshawk (*Accipiter gentiles*). Federal status: None; State status: Species of Special Concern. The northern goshawk is found in dense, mature conifer and deciduous forests interspersed with openings and riparian habitat. Nests are typically constructed on north-facing slopes near water. They prey mainly on birds and small mammals. In California, northern goshawks breed in the North Coast Ranges through the Sierra Nevada, Klamath, Cascade, and Warner Mountains. Woodlands along the Trinity River corridor provide suitable nesting and foraging habitat for this species.

Vaux's Swift (*Chaetura vauxi*). Federal status: None; State status: Species of Special Concern. Vaux's swifts are a summer resident of northern California that forage over most terrains and habitats, commonly at lower levels in forest openings, above burns, and above rivers. The species roosts in hollow trees and snags and occasionally in chimneys and buildings. Suitable nesting (e.g., Douglas-fir) and foraging habitat for this species is present along portions of the Trinity River in the project area.

Yellow-Breasted Chat (*Icteria virens*). Federal status: None; State status: Species of Special Concern. The yellow-breasted chat is an uncommon Neotropical migrant in coastal California and in the foothills of the Sierra Nevada. They are often found in dense, brushy thickets and tangles near water, and in the thick understory of riparian woodlands. Foraging patterns usually involve gleaning insects, spiders, and berries from the foliage of shrubs and low trees. Nests are often in dense shrubs along

streams. Riparian communities in the Proposed Project sites provide suitable nesting and foraging habitat for this species.

Long-eared Myotis (*Myotis thysanodes*). Federal status: None; State status: None. The long-eared myotis occurs in a variety of brush, woodland, and forested habitats from sea level to at least 9,000 feet. It forages for a variety of arthropods in open habitats, along habitat edges, and over water. Long-eared myotis bats roost singly or in small groups in buildings, crevices, under bark, and in snags. In California, the species is widespread but avoids the Central Valley and hot deserts. Suitable roosting and foraging habitat for the long-eared myotis is present along portions of the Trinity River in the project area.

Pallid Bat (*Antrozous pallidus).* Federal status: None; State listing status: Species of Special Concern. The pallid bat is a medium-sized bat that occurs throughout much of California. It prefers foraging on terrestrial arthropods in dry open grasslands near water and rocky outcroppings or old structures. It may also occur in oak woodlands and at the edge of redwood forests along the coast. Roosting typically occurs in groups, and roosts often occur in caves and mine tunnels. Buildings and trees may be used for day roosts, and more open sites, such as buildings, porches, garages, highway bridges, and mines, may be used for night roosts. Pallid bats are sensitive to human disturbances at roost sites. Suitable roosting and foraging habitat for the long-eared myotis is present along portions of the Trinity River in the project area.

Ring-tailed Cat (*Bassariscus astutus*). Federal status: None; State status: Fully Protected Species. The ring-tailed cat is widely distributed in California, occurring in riparian habitats and brush stands of most forest and shrub communities. Nocturnal and primarily carnivorous, ring-tailed cats mainly eat small mammals but also feed on birds, reptiles, insects, and fruit. They forage on the ground, among rocks, and in trees, usually near water. Hollow trees and logs, cavities in rocky areas, and other recesses are used for cover. In the project area, montane riparian habitat along the Trinity River provides suitable nesting and foraging habitat for this species.

Townsend's Western Big-eared Bat (*Corynorhinus townsendii*). Federal status: None; State listing status: Species of Special Concern. The Townsend's western big-eared bat is found in a variety of habitats. It captures its prey, principally small moths, while in flight as well as gleaning them from foliage. The Townsend's big-eared bat is a colonial species, and females aggregate in the spring at nursery sites known as maternity colonies. Although this species is usually cave-dwelling, many colonies are found in human-made structures, such as the attics of buildings or old abandoned mines. It is easily disturbed while roosting in buildings, and females are known to abandon completely their young when disturbed. Suitable habitat for this species is present along the Trinity River in the project area.

Yuma Myotis (*Myotis yumanensis*). Federal status: None; State status: None. The Yuma myotis is found in a wide variety of habitats from sea level to 11,000 feet; however, it prefers open woodlands and forests near water. It forages for insects over water sources and roosts in buildings, mines, caves, crevices, abandoned swallow nests, and under bridges. Yuma myotis are widespread throughout California. Suitable habitat for this species is present along the Trinity River in the project area.

References

Ashton, Don T., Amy J. Lind, and Kary E. Schlick. 2007. *Western pond turtle (Clemmys marmorata). Natural History*. USDA Forest Service, Pacific Southwest Research Station, Redwood Sciences Laboratory 1997 [cited July 20, 2007]. Available from http://www.krisweb.com/biblio/gen_usfs_ashtonetal_1997_turtle.pdf .

California Department of Fish and Game. 2008a. Status review of the American peregrine falcon in California. October 2008.

California Department of Fish and Game. 2008b. CWHR version 8.2 personal computer program: California Department of Fish and Game, California Interagency Wildlife Task Group.

California Department of Fish and Game. 2003. California natural diversity database (CNDDB): California Department of Fish and Game. Updated 2008.

Craig, D. and P. L. Williams. 1998. Willow flycatcher (*Empidonax traillii*). In *The riparian bird conservation plan: A strategy for reversing the decline of riparian-associated birds in California*: California Partners in Flight.

Herrera, P. A. 2006. Trinity River restoration program bird monitoring Indian Creek environmental study limit surveys 2003-2005. Draft. Arcata, CA: USDA Forest Service, Redwood Sciences Laboratory.

Miller, S. L., C. G. Ralph, and P. A. Herrera. 2003. Monitoring riparian and aquatic birds along the mainstem of the Trinity River (Trinity River Restoration Program Biannual Report 2003). Arcata, California: USDA Forest Service.

Wilson, R. A. 1995. Trinity River willow flycatcher surveys, 1990-1992. Weaverville, California: Final report submitted to Wildlife Task

Group, Trinity River Restoration Project, U.S. Department of the Interior, Fish and Wildlife Service, and Bureau of Reclamation.

Zeiner, D. C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, eds. 1990a. *California's wildlife Volume II: Birds*. Sacramento, California: California Department of Fish and Game.

Zeiner, D.C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, eds. 1990b. *California's wildlife Volume I: Amphibians and reptiles*. Sacramento, California: California Department of Fish and Game.

Programmatic Agreement Among the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Hoopa Valley Tribe, California State Historic Preservation Officer, and The Advisory Council on Historic Preservation Regarding Implementation of the Trinity River Mainstem Fishery Restoration and Section 106 Consultation

PROGRAMMATIC AGREEMENT
AMONG THE U. S. BUREAU OF RECLAMATION,
U. S. FISH AND WILDLIFE SERVICE, U.S. BUREAU OF LAND MANAGEMENT,
HOOPA VALLEY TRIBE,
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING IMPLEMENTATION OF
THE TRINITY RIVER MAINSTEM FISHERY RESTORATION

WHEREAS, the U.S. Bureau of Reclamation (Reclamation), U. S. Fish and Wildlife Service (Service), U.S. Bureau of Land Management (Bureau), and the Hoopa Valley Tribe (Tribe) have determined that implementing the actions (Undertaking) outlined in the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Report (Trinity EIS/R) for purposes of protecting, restoring, and enhancing fish and wildlife, may affect historic properties; and

WHEREAS, Reclamation, the Service, the Bureau (agencies) and the Tribe have elected to comply with Section 106 of the National Historic Preservation Act(NHPA) for the Undertaking through execution and implementation of a Programmatic Agreement (Agreement) pursuant to 36 CFR Section 800.14, because not all Trinity EIS/R implementing actions have as yet been identified and because neither the scope and magnitude of the Undertaking's effects to historic properties nor the historic properties themselves have been identified at the time of execution of this Agreement; and

WHEREAS, the agencies, pursuant to 36 CFR 800.8(a)(1) and 800.8(a)(3), will coordinate compliance with the requirements of the National Environmental Policy Act (NEPA) for actions covered by this Agreement with the requirements of Subpart B of 36 CFR Part 800, and as part of this process of coordination, may use the NEPA process and associated documentation to supplement compliance with Subpart B; and

WHEREAS, pursuant to 36 CFR Section 800.2(c)(2)(ii), the Tribe=s representative shall be included in the term Tribal Historic Preservation Officer (THPO) for undertakings occurring on or affecting historic properties on its tribal lands and affecting properties of religious and cultural significance to the Tribe located on or off-tribal lands, and for any such undertakings, the primary responsible Federal agency (RFA) shall also consult with the THPO, in addition to the SHPO, where consultation is required under this Agreement; and

WHEREAS, the agencies have consulted with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 800.14 (b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f) to resolve any adverse effects of the Undertaking on historic properties; and

WHEREAS, throughout the implementation of this Agreement, Reclamation and the Service the shall consult with Indian tribes, organizations and individuals that may attach religious and cultural significance to, or that may have concerns about the Undertaking's effects on historic properties,

NOW, THEREFORE, Reclamation, the Service, the Bureau, the Tribe, the SHPO, and the Council agree that the following stipulations shall be implemented in order to take into account the effects of the Undertaking on historic properties, and that these stipulations shall govern the Undertaking and all of its parts until this Agreement expires or is terminated.

STIPULATIONS

Reclamation and the Service shall ensure that the following measures are carried out:

I. ASSIGNMENT OF RESPONSIBILITY

Either Reclamation or the Service will be responsible for ensuring that the terms of this Agreement are carried out for all individual actions authorized or funded by the Department of the Interior comprising the Undertaking, irrespective of where or by whom the action will be carried out. Prior to preparation of environmental documentation for each action covered by this Agreement, Reclamation and the Service will consult to determine which agency will serve as primary responsible federal agency (RFA) for such action. The selected RFA will be responsible for implementing the terms of this Agreement with respect to the action proposed. The Service shall comply with the terms of this Agreement for the Undertaking and all individual actions therein, in lieu of the Programmatic Agreement among the Service, Council, and the SHPO executed on May 7, 1997.

II. AREAS OF POTENTIAL EFFECTS (APEs)

a. For purposes of this Agreement, the APE for the Undertaking in its entirety shall consist of the area within the 500 year floodplain of the Trinity River from the Trinity Reservoir downstream to the Hoopa Valley Indian Reservation, the area within the drawdown zones of the Trinity Reservoir, and ancillary areas within or outside of the 500 year floodplain that will be affected by implementing actions and associated facilities, such as material borrow sites, access roads, sediment pond construction and maintenance.

b. At the earliest stage of planning for any action comprising the Undertaking, the RFA will determine and document an area of potential effects (APE)in strict accordance with the definition set forth in 36 CFR 800.16(d). The APE for an action covered by this Agreement will be defined either before or concurrently with the earliest stages of NEPA compliance for the action.

III. REVIEW OF TRINITY EIS/R IMPLEMENTING ACTIONS

a. Coordination with NEPA

The RFA shall ensure that compliance with the terms of this Agreement is coordinated with NEPA compliance. When a specific Trinity EIS/R implementing action is identified, the RFA=s archaeologist will establish an APE pursuant to Stipulation III.B., below, and ensure that an appropriate level of effort is conducted to identify historic properties within that APE. Specific steps taken to comply with this Agreement will be included in an Environmental Assessment (EA) or categorical exclusion checklist (CEC) prepared for a Trinity EIS/R implementing action. An EA will, to the extent possible,

describe efforts to identify historic properties and, if applicable, identify and discuss measures that will avoid, minimize or mitigate potential adverse effects to historic properties. CECs will be prepared for minor actions where no historic properties have been identified within the APE. All CECs will be reviewed by Reclamation's Regional Archeologist, or by the Bureau=s Redding or Arcata Field Archeologist, or by the Service=s Regional Archeologist, to ensure that no historic properties will be affected by a proposed action. The final EIS or subsequent NEPA documentation for a Trinity EIS/R implementing action shall include, to the extent possible, appropriate documentation evidencing compliance with the terms of this Agreement. The RFA will ensure that the Finding of No Significant Impact or the Record of Decision for any action includes a plan for the treatment of historic properties adversely affected by such action.

b. IDENTIFYING HISTORIC PROPERTIES

36 CFR 800.4(b)(1) is the general standard which the RFA will use to determine the level of effort needed to identify historic properties within the APE of each Trinity EIS/R implementing action covered by this Agreement. In addition, as part of identification, the RFA will place special emphasis on the consultation prescribed by 36 CFR 800.4(a)(4) and by 36 CFR 800.4(b). The general standard set forth in 36 CFR 800.4(b)(1) will be supplemented by the following:

(1) The results of the cultural resources overview prepared for the Trinity River Mainstem Fishery Restoration EIS/R;

(2)Applicable inventory standards identified in Reclamation Instructions (376.3B) or in the Service's Administrative Manual and the Service's Cultural Resource Management Handbook (1985). Cultural resources and historic properties identified during inventory will be recorded as follows:

(a) A new or updated California Department of Parks and Recreation Form DPR 523 (series 1/95) will be completed in accordance with the Instructions for Recording Historical Resources (Office of Historic Preservation, March 1995). The RFA will ensure that forms are submitted to the appropriate Information Center of the California Historical Resources Information System (CHRIS) for assignment of permanent site numbers. These site numbers will be used to the extent possible as inventory reports are prepared.

(b) National Register Bulletin 38 will be the standard used by the RFA to identify and document traditional cultural properties, based on consultation with the Tribe and other tribes, organizations, or individuals who may attach religious and cultural significance to historic properties that may be affected by the Undertaking. Traditional cultural properties identified during inventory may be recorded on the DPR 523 unless the Tribe or another Indian tribe, organization or individual objects. If such objection arises, the properties may be recorded on a form and in a manner that is in accordance with the recommendations of the Tribe or other Indian tribes, organizations or individuals, subject to the confidentiality requirements set forth in Stipulation VI.C., below. If traditional cultural properties affiliated with

other parties are identified during inventory, these parties will be consulted by the RFA in accordance with 36 CFR 800.2(c)(6).

(c) The applicable cultural resource data base including information available from the appropriate Information Center of the California Historical Resources Information System (CHRIS), and professional staff estimation; and

(d) The National Park Service publication, "The Archeological Survey: Methods and Uses" (King 1978);

c. EVALUATING PROPERTIES AND DETERMINING EFFECTS

(1) A Trinity EIS/R implementing action will be exempt from further consideration under this Agreement if any of the following conditions are met:

(a) The RFA=s archaeologist determines that there are no cultural resources in the APE, based on the results of identification efforts outlined in Stipulation III.B. above; or

(b) The RFA=s archaeologist determines that no cultural resources will be affected, based on the results of identification efforts outlined in Stipulation III.B.and C.; or

(c) The RFA=s archaeologist determines that cultural resources may be affected, but based on the evaluation prescribed in paragraph C.2.of this stipulation, such resources are determined ineligible for inclusion in the National Register of Historic Places (NRHP).

(2) If the RFA=s archaeologist determines that an action covered by this Agreement may affect a cultural resource, the RFA=s archaeologist will evaluate the cultural resource in accordance with the process set forth in 36 CFR 800.4(c)(1) before any activity that may affect the resource is initiated. If the resource in question may be a traditional cultural property, the RFA will use National Register Bulletin 38 in conducting the evaluation.

(3) If the RFA determines pursuant to paragraph C.2. of this stipulation, that the cultural resources subject to effects are eligible for inclusion in the NRHP, the RFA=s archaeologist will follow 36 CFR 800.5 to determine whether such effects may be adverse.

(a) If this consultation results in a finding of no adverse effect to historic properties, the RFA=s archaeologist will conclude the consultation by complying with 36 CFR 800.5(d).

(b) If this consultation results in a finding that historic properties will be adversely affected, the RFA=s archaeologist will ensure that the adverse effects are taken into account in accordance with paragraph D. of this stipulation.

d. HISTORIC PROPERTY TREATMENT PLANS (HPTPs)

(1) The RFA=s archaeologist will develop HPTPs to resolve the adverse effects on historic properties of actions covered by this Agreement. Separate HPTPs may be prepared for individual Trinity EIS/R implementation actions. HPTPs will be developed by the RFA in consultation with the SHPO, the Tribe, other Indian tribes, organizations and individuals, and the Council if it so requests, and with any interested parties identified by the signatory parties to this Agreement. HPTPs will be submitted for review according to the procedures set forth in paragraph D.4. of this stipulation.

(2) HPTPs will be consistent with the AArchaeology and Historic Preservation: Secretary of Interior=s Standards and Guidelines (FR 44716-44742), including the "Secretary of the Interior's Standards and Guidelines for Archaeological Documentation" (48 FR 44734-37)" and the Council's "Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites" (64 FR 27085-87). HPTPs shall at a minimum:

Describe the historic property or portion of the property where treatment will be implemented. The HPTP shall contain a description of the values that make the property eligible for the National Register of Historic Places, and describe the measures proposed to protect each historic property. These measures may include, but not necessarily be limited to avoidance, monitoring, capping, fencing, land use policy and planning techniques such as zoning restrictions, protective covenants, etc. The preservation of historic properties is the preferred alternative, wherever feasible; if data recovery is proposed, the HPTP also shall:

(a) Specify the research questions to be addressed through recovery of data;

(b) Explain why it is in the public interest to address these research questions, including a description of any efforts to interpret the result of the investigations for the public;

(c) Explain how the historic properties subject to data recovery can address these research questions;

(d) Specify the methods to be used in field work and analysis, and explain how these methods are relevant to the research questions;

(e) Indicate how recovered material and records will be disposed of, taking into account the expressed wishes of the Tribe, of other Indian tribes, organizations, or individuals and, as applicable, of interested parties;

(f) Provide a schedule for completing data recovery, including analysis, reporting and disposition of materials and records;

(g) Include a schedule for providing the Tribe, other Indian tribes, organizations and individuals, SHPO and, as applicable, interested parties, with the opportunity to review and comment on reports documenting implementation of HPTPs.

(h) Include a schedule for completing final data recovery reports and specify when and to whom this report will be distributed;

(i) Provide for development and implementation of a Plan of Action in accordance with 43 CFR 10 for the management of Native American cultural items that will be repatriated to the Tribe or to other Indian tribes pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA); or, where non-federal property is involved, a plan providing for the treatment of Native American human remains and items associated with Native American burials in accordance with the requirements of Sections 5097.98 and 5097.991 of the California Public Resources Code;

(j) Specify that, following any repatriation pursuant to item I., above, the RFA will ensure that all records and all non-repatriated objects resulting from data recovery are curated in accordance with 36 CFR 79;

(k) Include a plan for the treatment of properties discovered during implementation of an action covered by this Agreement;

(l) Include a plan for monitoring construction activities that may affect historic properties; this plan shall include a monitoring schedule, provide for the participation of a professional archeologist, and, as appropriate, Tribal member(s), members of other Indian tribes, organizations, individuals and interested parties.

(3) The RFA will submit draft HPTPs to the SHPO, the Tribe, other Indian tribes, organizations and individuals, the Council if it so requests after being informed of its development, and to any interested parties identified by the signatory parties, for review and comment. These parties shall have 30 days from receipt of any draft HPTP to comment. Failure to respond within this time frame shall not preclude the RFA from finalizing the HPTP. Before it finalizes the HPTP, the RFA will provide the reviewing parties with documentation indicating whether and how any comments from the parties will be incorporated into the final HPTP. Unless the reviewing parties object to this documentation within 15 days following receipt, the RFA may finalize the HPTP as it deems appropriate, and proceed to implement the final HPTP. If the RFA proposes to change a final HPTP, it will notify the reviewing parties about the proposed changes. Reviewing parties will have 10 days from receipt of notification to comment. Failure to respond within this time frame shall not preclude the RFA from changing the final HPTP. Before it changes the final HPTP, the RFA will provide the reviewing parties with documentation indicating whether and how any comments from the parties will be incorporated into the proposed changes. Unless the parties object to this documentation within 10 days following receipt, the RFA may change the final HPTP as it deems appropriate, and proceed to implement the amended final HPTP.

IV. NATIVE AMERICAN CONSULTATION, CURATION AND TREATMENT OF CULTURAL MATERIALS AND HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

a. Reclamation and the Service will ensure that Indian tribes, organizations and individuals are consulted during, and are invited to participate in, the implementation of the terms of this Agreement. Such

consultation and participation shall include the preparation of reports that document such implementation.

b. Reclamation and the Service shall ensure that all records and materials resulting from activities carried out pursuant to this Agreement are curated pursuant to 36 CFR 79 and the provisions of the NAGPRA, 43 CFR 10, as applicable.

c. Reclamation and the Service shall ensure that any Native American human remains and objects defined under NAGPRA encountered through activities carried out pursuant to this Agreement are treated with due respect, and according to the provisions of NAGPRA, its implementing regulations, 43 CFR 10, and, as appropriate, in accordance with applicable state law.

d. Reclamation and the Service will ensure that the expressed wishes of Indian tribes, organizations, and individuals are taken into account when decisions are made relating to the treatment and disposition of Native American archaeological materials and records not subject to the provisions of NAGPRA.

V. PUBLIC PARTICIPATION

Reclamation and the Service shall use the NEPA process, and any other process they deem appropriate, to solicit public comment on the actions covered by this Agreement. The RFA shall ensure that historic preservation issues are included in notices of public meetings so that these issues can be considered and addressed in a timely manner.

VI. DOWNSTREAM AND RESERVOIR DRAWDOWN IMPACTS TO HISTORIC PROPERTIES

Reclamation and the Service shall incorporate and consider effects to historic properties in its conduct of the overall adaptive management program for the Trinity River, should such program be carried out.

Within 1 year of the execution of this Agreement, Reclamation and the Service shall ensure that a cultural resources management plan is developed addressing the identification, evaluation, and assessment of effects to historic properties within the APE downstream of and within the drawdown zone of Trinity Dam that may be affected by inundation, erosion, vandalism, and other indirect effects of the Undertaking. A draft version of the Plan shall be provided to the signatories to this Agreement for a 30-day review, revised to address the comments received, and then implemented. The Plan, developed in consultation with the SHPO, the Tribe, the agencies, and other tribes, organizations, and individuals who may attach religious and cultural significance to historic properties within this specified area, shall discuss:

a. How historic properties will be identified and evaluated for their National Register of Historic Places eligibility;

b. How changes to the integrity and physical condition of historic properties attributable to erosion, inundation, vandalism, and other effects of the Undertaking will be identified and treated; and

c. A schedule for carrying out items 1 and 2, above.

VII. ADMINISTRATIVE STIPULATIONS

a. PROFESSIONAL STANDARDS

(1) All work required by this Agreement that addresses the identification, evaluation, treatment and documentation of historic or potentially historic properties shall be carried out by or under the direct supervision of a person or persons meeting at a minimum the Secretary of Interior=s Professional Qualifications Standards (48 FR 44738-39) (PQS) in the appropriate disciplines. However, nothing in this stipulation may be interpreted to preclude Reclamation and/or Service or any agent or contractor thereof from using the properly supervised services of persons who do not meet the PQS.

(2) All documentation required by this Agreement that addresses the identification, evaluation, and treatment of historic or potentially historic properties shall be responsive to contemporary professional standards, to the Secretary of Interior=s Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-40), National Park Service Bulletin 38, as well as to standards and guidelines established by the SHPO.

b. REPORT DISTRIBUTION

The RFA shall ensure that copies of all technical reports prepared to satisfy the terms of this Agreement are provided upon completion to the SHPO, the Tribe, other Indian tribes, the appropriate CHRIS Information Center, and to any interested parties designated by the signatory parties to this Agreement. The content of these reports shall be subject to the confidentiality requirements set forth in paragraph C. of this stipulation.

c. CONFIDENTIALITY

(1) Reclamation and the Service shall ensure that all sensitive information, as defined in Section 9 of the Archeological Resources Protection Act (ARPA), Section 304 of the NHPA, and NAGPRA, is managed in such a way that historic properties, traditional cultural properties, sacred objects, and human remains are not compromised, to the fullest extent available under law.

(2) Signatory and concurring parties to this Agreement shall safeguard information about the nature and location of archeological, historic, and traditional cultural properties, and not reveal that information to any additional parties, pursuant to Section 304 of the NHPA and Section 9 of the ARPA, without the express written permission of Reclamation or the Service.

d. REVIEWING IMPLEMENTATION OF THE AGREEMENT

(1) No later than one year after execution of this Agreement, and by the anniversary date of such execution each year thereafter, until the signatory parties to this Agreement agree in writing that its terms have been

fulfilled, Reclamation assisted by the Service, will prepare and provide to all parties to this Agreement, and to each Indian tribe involved in any action covered by this Agreement, a written report that includes, but is not necessarily limited to the following:

(a) A narrative that indicates how many actions were undertaken and that describes and discusses how and with what results, the requirements of Stipulations III. - V., inclusive, were met for each action;

(b) An assessment of the effectiveness of this Agreement;

(c) A discussion of any problems or unexpected issues encountered during the year;

(d) Any changes that Reclamation or the Service believe should be made in implementing this Agreement.

The reviewing parties shall have 45 days from the date of receipt to provide Reclamation and the Service with comments on the annual report. Reclamation and the Service shall take all comments received into account when considering modifications to this Agreement.

(2) At the request of any signatory, Reclamation or the Service shall hold a consultation meeting to facilitate review and comment on the annual report, or to resolve questions, issues or adverse comments that have been raised by the other signatories or by a member of the public. The signatory parties shall consult to identify other parties who may be invited to attend this meeting.

e. RESOLVING OBJECTIONS

(1) Should any signatory to this Agreement, any Indian tribe, organization or individual, or member of the public object in writing to Reclamation or to the Service regarding the manner in which the terms of this Agreement are carried out, or to any documentation prepared in accordance with and subject to the terms of this Agreement, the RFA shall consult with the objecting party to address the objection. The RFA shall determine a reasonable time frame for this consultation. If resolution is reached within this time frame, the RFA may proceed with its action in accordance with the terms of the resolution. If resolution is not reached within this time frame, the RFA shall forward all documentation relevant to the objection to the Council, including the RFA=s proposed response to the objection. Within 30 days after receipt of all pertinent documentation, the Council shall exercise one of the following options:

(a) Advise the RFA that the Council concurs in its proposed response to the objection, whereupon the RFA will respond to the objection accordingly. Thereafter, the RFA may proceed with its action in a manner consistent with its proposed response; or

(b) Provide the RFA with recommendations, which the RFA will take

into account in reaching a final decision regarding its response to the objection. Upon reaching its final decision, the RFA will notify the objecting party and the Council of its final decision, and may thereafter proceed with its action; or

(c) Notify the RFA that the objection will be referred for comment, pursuant to 36 CFR 800.7(a)(4), and proceed to refer the objection and comment. In this event, the RFA shall ensure that their agency heads are prepared to take the resulting comment into account in accordance with 36 CFR 800.7(c)(4) and Section 110(l) of the NHPA. Thereafter, the RFA shall notify the objecting party and the Council of its final decision regarding the objection ,and may thereafter proceed with its action.

(2) Should the Council not exercise one of the foregoing options within 30 days after receipt of all pertinent documentation, the RFA may assume the Council=s concurrence in its proposed response to the objection, advise the objecting party of that response and proceed with its action in a manner consistent with that response.

(3) Disputes pertaining to the NRHP eligibility of cultural resources covered by this Agreement shall be addressed through consultation among the signatories. If such consultation fails to resolve the dispute within a time frame deemed reasonable by the RFA, the dispute will be addressed by the RFA in accordance with 36 CFR ' 800.4(c)(2).

f. AMENDMENT AND TERMINATION

(1) If any signatory believes that this Agreement should be amended, that signatory may at any time propose amendments, whereupon the signatories will consult to consider the amendment pursuant to 36 CFR ' 800.6(c)(7) and 800.6(c)(8). This Agreement may be amended only upon the written concurrence of the signatory parties.

(2) Any signatory party may terminate this Agreement. Termination of this Agreement shall proceed in accordance with the applicable provisions of 36 CFR Part 800.

(3) If this Agreement is terminated and the RFAs elect to proceed with the Undertaking, the RFAs shall comply with 36 CFR ' 800.14(b)(2)(v).

g. DURATION OF THE AGREEMENT

This Agreement will remain in effect for a period of 20 years after all the signatory parties have executed it. At the end of this time period, the Agreement will become null and void, unless it is extended by written agreement of the signatory parties. Not later than 6 months prior to the expiration of the Agreement the RFAs will notify all other parties to the Agreement of its pending expiration and, if the parties choose to continue considering the Undertaking, the RFAs shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.

h. EFFECTIVE DATE

This Agreement shall take effect when it has been executed by all of the signatory parties.

EXECUTION of this Programmatic Agreement by Reclamation, the Service, the Bureau, the Tribe, the SHPO and the Council and implementation of its terms, evidence that Reclamation, the Service, the Bureau and the Tribe have afforded the Council a reasonable opportunity to comment on the implementation of the alternatives evaluated in the Trinity EIS/R and its effects on historic properties, and that Reclamation, the Service, the Bureau and the Tribe have taken into account the effects of each action comprising implementation of the Trinity River Mainstem Fishery Restoration program on historic properties.

APPENDIX E

Mitigation Monitoring and Reporting Program

Appendix E
Draft Mitigation Monitoring And Reporting Program

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

June 2009

Project Proponent and NEPA Lead Agency
U. S. Department of the Interior
Bureau of Reclamation– Trinity River Restoration Program
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Hoopa Valley Tribe
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Applicant's Consultant
North State Resources, Inc

Draft Mitigation Monitoring and Reporting Program

Introduction

This document comprises the Draft Mitigation Monitoring and Reporting Program (MMRP) for the Trinity River Restoration Program Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites (project). The purpose of providing the MMRP as a stand-alone document in the Draft Master Environmental Impact Report – Environmental Assessment/Draft Environmental Impact Report (Draft MEIR – EA/DEIR) is to make clear 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 are required by law or regulation and will be adopted by the Regional Water Board as part of the overall project approval.

Mitigation is defined by both the California Environmental Quality Act (CEQA) – Section 15370 and the National Environmental Policy Act (NEPA) 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
- 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. Project design elements and construction criteria and methods provided in this MMRP have been identified in Chapter 2, Project Description and Alternative Development of the Draft MEIR – EA/Draft EIR. Mitigation measures provided in this MMRP have

been identified in Chapter 4, Environmental Impacts and Mitigation Measures of the Draft MEIR – EA/Draft EIR, as feasible and effective in mitigating project-related environmental impacts.

This MMRP includes the discussions on 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 Intent of the Mitigation Monitoring and Reporting Program

The legal basis for the development and implementation of the MMRP lies within both CEQA (including the California Public Resources Code) and NEPA. Sections 21002 and 21002.1 of the California Public Resources Code 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; and

- 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 Public Resources Code 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.

NEPA 40 CFR Sections 1502.14f requires:

- Agencies shall include appropriate mitigation measures not already included in the proposed action or alternatives

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 has been provided in detail through this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

Authorities And Responsibilities

Reclamation, functioning as the Trinity River Restoration Program (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

- Maintenance of records concerning the status of all approved mitigation measures

Summary Of Monitoring Requirements

Table E-1, which follows, summarizes the mitigation measures and associated monitoring requirements proposed for the project. These mitigation measures are presented in the same form as originally prescribed in Chapter 4 of the Draft MEIR – EA/Draft EIR, Environmental Impacts and Mitigation Measures. The mitigation measures are organized by environmental issue area (i.e., Land Use, Water Quality, etc.) for both the Proposed Project and Alternative 1. Table E-1 is comprised of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Draft MEIR-EA/Draft EIR for the project. The mitigation numbering system used in the Draft MEIR-EA/Draft EIR is carried forward in this MMRP.

- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure will need to be implemented.

- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., "implementation" or "monitoring").

- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

Resolution Of Noncompliance Complaints

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the project. The complaint shall be directed to Reclamation, via the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, CA 96093), in written form providing detailed information on the purported violation. Reclamation 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 complaint shall receive written confirmation indicating the results of the investigation or the final corrective action that was implemented to response to the specific noncompliance issue.

Table E-1. Summary of Mitigation Monitoring Requirements

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.2 Land Use			
Impact 4.2-3: Implementation of the project may affect the availability of a locally important mineral resource recovery site.			
4.2-3a Reclamation shall provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closure.		Reclamation	
4.3 Geology, Fluvial Geomorphology, and Soils			
Impact 4.3-2: Construction activities associated with the project could potentially result in increased erosion and short-term sedimentation of the Trinity River.			
4.3-2a Reclamation will implement the following measures during construction activities: ▪ Areas where ground disturbance would 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 (SWPPP review and approval) BLM (SWPPP review) NFMS (SWPPP review) CDFG (SWPPP review)	
4.3-2b Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention 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 CDFG) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following measures will be used as a guide to develop this plan: ▪ Restore disturbed areas to pre-construction contours to the fullest extent feasible.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ Salvage, store, and use the highest quality soil for revegetation. ▪ Discourage noxious weed competition and control noxious weeds. ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction. ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. ▪ To the fullest extent possible, cease excavation activities during significantly wet or windy weather. ▪ Use bales, wattles, and/or silt fencing as appropriate. ▪ Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. ▪ Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway. ▪ Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site would 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. ▪ 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 revegetated. If work activities take place during the rainy season, erosion control structures must be in place and operational at the end of each construction day.			
Impact 4.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.			
4.3-3a Reclamation will implement the following measures during construction: ▪ Areas where ground disturbance would 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.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.			
4.3-3b Reclamation will prepare an erosion and sedimentation control plan (SWPPP) as stipulated in Mitigation Measure 4.3-2b.			
4.3-3c Reclamation will coordinate with private land owners and owners of active mining claims to 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.			
4.5 Water Quality			
Impact 4.5-1: Construction of the 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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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 would 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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 (4.5-1a) 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 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
4.5-1d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed 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 4.5-2: Construction of the project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.			
4.5-2a Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River basin (North Coast Regional Water Quality Control Board 2007).			
4.5-2b To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed. ▪ If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. ▪ If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed.			
4.5-2c To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in Chapter 2 (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.			
Impact 4.5-3: Construction of the 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 would 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 must 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. 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.			
Water quality Mitigation Measures 4.5-1a-e, 4.5-2a-c, and 4.5-3a-c provide measures to protect the beneficial uses of the Trinity River.			
4.6 Fishery Resources			
Impact 4.6-1: 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.			
4.6-1a The proposed construction schedule avoids in-channel work during the time period that 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, 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 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.			
Impact 4.6-2: 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.			
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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ Due to the nature of the proposed restoration activities and the clarity of			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 would be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
BMPs until turbidity levels are at or below 20 NTU.			
4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
4.6-2d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. ▪ Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.6-3: 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.			
4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: ▪ Equipment and materials will be stored away from wetland and surface water features. ▪ Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. ▪ The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.		Reclamation (implementation)	
Impact 4.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state listed coho salmon.			
4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.			
4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials within 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.			
4.6-4e To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select locations where water velocities are too high, and juvenile salmonids would not be expected to be holding.			
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, would 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 4.6-5: Implementation of the project would result in the permanent and temporary loss of shaded riverine aquatic habitat (SRA) for anadromous salmonids.			
4.6-5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project 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 marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 Project site boundaries after 10 years.		Reclamation (implementation)	
Impact 4.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.			
4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.		Reclamation (implementation)	
4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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, or result in a temporary impairment to fish passage related to a bridge.			
4.7 Vegetation, Wildlife, and Wetlands			
Impact 4.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters, including wetlands.			
4.7-1a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 3 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 boundaries established for TRRP rehabilitation sites after 10 years.			
Impact 4.7-3: Construction of the project could result in the loss of individuals of a special-status plant species.			
4.7-3a A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, Mitigation Measures 4.7-3b and 4.7-3c will be implemented.		Reclamation (implementation)	
4.7-3b Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary.			
4.7-3c If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFG staff.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.			
4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, 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.		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 project site(s) and a 250-foot buffer around the site(s). The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey will be used to ensure that no nests of this species within or immediately adjacent to the project site(s) would be disturbed during project implementation. If an active nest is found, CDFG 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 project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project 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 4.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog.			
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 yellow-		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey would need to 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.			
4,7-5b In the event that a yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.			
4.7-5c Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.			
4.7-5d The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.			
Impact 4.7-6: Construction activities associated with the project could result in impacts to the western pond turtle.			
4.7-6a A minimum of one survey for 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 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 turtles out of the construction area to nearby suitable habitats.			
4.7-6c During construction, in the event that a pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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-c) will be fully implemented.			
Impact 4.7-7: Construction activities associated with the project could result in impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts.			
4.7-7a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, 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 August. 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.		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 August. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.			
4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the project site(s) and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be used to ensure that no nests of these species within or immediately adjacent to the project site(s) would 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 project 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 4.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawk.			
4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, 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 would 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.		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 would be expected. If it is not possible to schedule construction during this Mitigation Measures 4.7-8c and 4.7-8d will be implemented.			
4.7-8c Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald eagle and northern goshawk nests. If an active nest is found close enough (i.e., within 500 feet) to the construction area to be disturbed by these activities, the biologist, in consultation with the CDFG, will determine the			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
extent of a construction-free buffer zone to be established around the nest.			
4.7-8d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the project 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 4.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.			
4.7-9a A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would 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. CDFG 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 project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project 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 (as determined by a Memorandum of Understanding with CDFG), 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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.			
4.7-9c If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that 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, the individuals will be safely evicted under the direction of a qualified biologist. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.			
Impact 4.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.			
Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less-than-significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less-than-significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less-than-significant level.		Reclamation (implementation)	
Impact 4.7-13: Implementation of the 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 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
4.8 Recreation			
Impact 4.8-1: Construction associated with the project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.			
4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas within the project area managed by BLM, STNF, and DFG (e.g., Bucktail River Access, Steel Bridge Campground, Douglas City Campground, Indian Creek River Access, Junction City Campground). Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction.		Reclamation (implementation)	
4.8-1b Reclamation will repair and/or replace any facilities associated with Remaining Phase 1 or Phase 2 sites that are impacted by project activities. This measure would include installation of interpretive signage consistent with the requirements of the STNF and BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
vegetative screening to be retained at each recreation site within the project area.			
Impact 4.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries.			
Implementation of Mitigation Measures 4.8-1a-b, which provide precautionary signage and/or buoys adjacent to project boundaries and public notice at river access sites, would make this impact less than significant.		Reclamation (implementation)	
Impact 4.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing turbidity levels in the Trinity River.			
4.8-3a 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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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 would 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
4.8-3b To ensure that turbidity levels do not exceed the thresholds described above (4.8-3a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. ▪ If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.8-3c 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.			
4.8-3d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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 BMPs and sediment and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 met during stockpiling of materials.			
4.8-3e 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 or its contractor will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. ▪ Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			
4.10 Cultural Resources			
Impact 4.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural resources, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist shall be consulted. Once the find has been identified, Reclamation shall be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the Programmatic Agreement (PA) and in compliance with the National Historic Preservation Act (NHPA).		Reclamation (implementation)	
4.10-2b If human remains are encountered during construction on non-federal lands, work in that area must be halted and the Trinity County			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC shall 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 U.S.C. 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 shall be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.			
4.11 Air Quality			
Impact 4.11-1: 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.			
4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: ▪ Inactive construction areas will be watered as needed to ensure dust control. ▪ Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1–2 feet vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion. ▪ 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.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ 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 miles per hour, as directed by the North Coast Unified Air Quality Management District (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 4.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.			
4.11-2a Reclamation will comply with NCUAQMD Rule 104 (3.0) Particulate Matter. This compliance could occur through the use of portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		Reclamation (implementation)	
Impact 4.11-3: Construction activities associated with the project and removal of vegetation could result in vegetative materials that managers will 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: ▪ Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined via 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 ºF). ▪ 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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
be covered and the plastic anchored to preserve a dry ignition point. Dry fuel conditions would minimize smoke emissions. ▪ Slash piles will not be constructed on logs, stumps, on 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 4.11-5: 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 the Lewiston or Douglas City 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 Phase 2 and Remaining Phase 1 project activity and the Lewiston, Douglas City, and Junction City elementary schools of construction activity located near the schools prior to site construction activities.			
4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation sites, which contains a phone number for the public to contact for concerns related to air quality.			
4.12 Aesthetics			
Impact 4.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.			
Mitigation Measures 4.7-1a-c (Vegetation, Wildlife, and Wetlands), which generally describes the Riparian Revegetation and Monitoring Plan that is required, will be implemented where applicable. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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. Visual impacts related to water quality (i.e., the potential for increased turbidity to adversely affect the aesthetic quality of the river) will be mitigated through implementation of mitigation measures 4.8-3a-f.			
4.14 Noise			
Impact 4.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.			
4.14-1a Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, 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 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 (i.e., behind existing barriers, storage piles, unused equipment).			
4.15 Public Services and Utilities/Energy			
Impact 4.15-3: Implementation of the project could result in disruption to emergency services or disruption to 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
4.16 Transportation/Traffic Circulation			
Impact 4.16-2: 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 the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.			
Impact 4.16-3: Implementation of the project would obstruct access to adjacent land uses.			
4.16-3a Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River.			
4.16-3b During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period.		Reclamation (implementation)	
Impact 4.16-4: Construction activities would increase wear-and-tear on local roadways.			
4.16-4a Reclamation will perform a pre-construction survey of local federal, state, and private 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 would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, or equestrians.			
4.16-5a Reclamation will prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians and equestrians from construction activities.		Reclamation (implementation)	

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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 Remaining Phase 1 project sites.

Hydraulics

The Project would occur in areas that FEMA has designated as Special Hazard Zones AE and X, as described in section 4.4 of the Draft MEIR – EA/DEIR. 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 any action alternative 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 described in Chapter 2 of the Draft MEIR – EA/DEIR, 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 alternatives. 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 action alternatives requires comparing estimated seasonal base flows and estimated return-period flows. U.S. Army Corps of Engineer's Hydraulic Engineering Center River Analysis System (HEC-RAS) hydraulic model will be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table 2-4 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 alternatives meet the flood constraints described above.

Table 2-4. Estimated Mainstem Trinity River Flow Conditions Used for Alternative Designs

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 DWR and provided to the TRRP as part of the administrative record. This model was calibrated to match measured water-surface elevations (WSEs) in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the project sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the action alternatives. 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 2-4 as the "best available information" per FEMA requirements. The FEMA Q100 "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (U.S. Army Corps of Engineers 1976) used by FEMA to develop the current flood insurance rate maps (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 action alternatives.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter

portray the design topography concepts. The final designs will ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

Roadway Approaches

The Remaining Phase 1 sites are accessible by vehicles from roads, parking areas, and private driveways. Primary roadways for each of the Remaining Phase 1 sites are described in Chapter 2 of the Draft MEIR – EA/DEIR. Public roads that access these sites are managed by the Bureau of Land Management (BLM), Caltrans, or Trinity County. In addition to Trinity County, the BLM, DWR, and CDFG maintain river access points within the boundaries of these sites.

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 Project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, with up to 36 trucks per day hauling materials offsite, generally between August 1 and October 15. Depending on funding and timing of implementation, these trucks would be used for approximately 5 seasons of construction work. 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, Department of Water Resources (DWR), and California Department of Fish and Game (CDFG), 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, DWR, and CDFG; 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, particularly in the area surrounding the Upper Rush Creek and Steel Bridge sites to ensure that service would not be disrupted. Additional information on utilities is provided in sections 4.15 and 7.15 of the Draft MEIR – EA/DEIR.

Construction Criteria and Methods

Project construction criteria and methods are specific 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 construction criteria and methods have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, project construction criteria and methods 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 Remaining Phase 1 project sites.

Construction Process Overview

The following provides a general overview of the construction process for the Remaining Phase 1 Project sites. A list of equipment that may be used is provided in section 4.14, Noise of the Draft MEIR – EA/DEIR.

- 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 M) would be used to access the activity areas. New access roads (activity N) and haul routes 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 will 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 will 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, including removal of grade control features and introduction of coarse sediment, 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. High-flow coarse sediment augmentation would occur during high flows at various rehabilitation sites described previously. Coarse sediment would be introduced at these high flow sites by pushing gravel into the river with heavy equipment or by using a conveyor system to carry the gravel to mid-channel locations (see Figure 2.3j at the end of the chapter). Long-term annual coarse sediment introduction will also replenish material transported downstream from activity areas within the Lewiston-Dark Gulch sites, using either a conveyor or shoreline placement method.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures will be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps will 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 will remove materials used to isolate these side channels after they have been constructed.

- Final grading would occur as necessary for all activity areas.

- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.

- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects will be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.

In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.

In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation will 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 recreation access to BLM, DWR, CDFG, and private recreation facilities within the boundaries of the Remaining Phase 1 sites will be provided in coordination with agencies and landowners. Once construction activities are complete, Reclamation, in consultation with these agencies and landowners, would ensure that these temporary access facilities are rehabilitated consistent with any land use agreements. Temporary access facilities may be closed to the public after the project is completed to prevent damage to private property and public resources.

- 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 and Alternative 1 are shown on Figures 2-1a through 2-1f and 2-2a through 2-2f, respectively, and listed in Tables 2-3 and 2-6. 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 will 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 will 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 will also be required to provide recycling bins for on-site waste materials.

Contract documents will also specify that the contractor will be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes will be in

conformance with criteria established by NMFS and CDFG 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 will 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 shall implement water pollution control measures that conform to applicable and appropriate permits. Reclamation will 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 shall be implemented by Reclamation are listed below:

- Every reasonable precaution will be exercised and BMPs will 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 will be cleaned of dirt and grease prior to any in-channel activities. All construction equipment will be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits will be onsite at all times and, where feasible, berms or other containment methods will 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 shall 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 shall 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 shall develop an agency-approved Storm Water Pollution Prevention Plan (SWPPP) to effectively control water pollution during construction of the project. The SWPPP shall 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 shall 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 shall not be allowed to enter, or be placed where they will later enter, a live stream, soil, or groundwater.

Tentative Schedule

Construction associated with either of the action alternatives cannot begin until the environmental process is completed. In addition, the following must have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; hazardous materials site assessments; acquisition of rights-of-way; acquisition of permits; and design approvals from local, state, and federal agencies.

The total construction time for the project (completion of Remaining Phase 1 sites) is anticipated to be 3 to 5 years, with approximately 140 days of construction annually between July 15, 2009, and December 31, 2013. However, the schedule depends on funding and the availability of coarse sediment for in-river placement. Initial in-channel gravel additions would be completed during the summer work season (July 15 to September 15). Prior to, or in conjunction with high spring flows (May), coarse sediment augmentation would occur at the sites illustrated on Figure 1-2.

To minimize impacts to breeding bird habitat, vegetation removal activities would also occur in the early spring before nesting. 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. Excavation and other grading activities would typically occur between July 15 and December 1 and prior to the onset of the wet season, as site

conditions permit. Processing of coarse sediment where stockpiles are large (e.g., SM C-7 and C-13 areas) may extend beyond typical work windows, and processing is expected to continue until the quantity of gravel is depleted (>5 years). Any revegetation (planting/seeding) would take place in the wet season (fall/winter) following construction. It is expected that annual spring additions of coarse sediment will continue indefinitely during peak annual releases from Lewiston Dam.

Phase 2 Sites

As described in the Draft MEIR – EA/DEIR, Phase 2 of the Project is conceptual. While the specific timing, location, and extent of these activities have not been fully defined, the nature of these activities is similar to those included in the Remaining Phase 1 sites and previous projects implemented by the Trinity River Restoration Program. The timing and extent of work activities at selected Phase 2 sites would be similar to the schedule described for Remaining Phase 1 sites.

Site-specific information (e.g., biological, physical, and social information) would influence the planning and design efforts at Phase 2 sites. In general, the design elements and construction criteria and methods applied in the planning, design, and implementation of Phase 2 sites will be similar to those described for the Remaining Phase 1 sites in the preceding section of this document.

APPENDIX F

Soils — Remaining Phase 1 and Phase 2 Sites

Appendix F
Soils — Remaining Phase 1 and Phase 2 Sites

SOILS TYPE REPRESENTATIVE OF REMAINING PHASE 1 AND PHASE 2 SITES

MAP UNIT	DESCRIPTION	ACRES	% OF TOTAL AREA
117	BROWNSCREEK-DOUGCITY COMPLEX, 50 TO 75 PERCENT SLOPES	170.324	12.0%
111	BROCKGULCH-DEDRICK-BROWNBEAR COMPLEX, 50 TO 75 PERCENT SLOPES	153.636	10.8%
102	ATTER-DUMPS, DREDGE TAILINGS-XEROFLUVENTS COMPLEX, 2 TO 9 PERCENT SLOPES	142.777	10.0%
217	XEROFLUVENTS-RIVERWASH COMPLEX, 0 TO 5 PERCENT SLOPES	112.698	7.9%
213	XERALFS-XERORTHENTS COMPLEX, 5 TO 50 PERCENT SLOPES	99.529	7.0%
114	BROWNSCREEK GRAVELLY LOAM, 50 TO 75 PERCENT SLOPES	95.688	6.7%
129	CREFORK CLAY LOAM, 15 TO 30 PERCENT SLOPES	43.451	3.0%
171	MARPA-HOOSIMBIM-BAMTUSH COMPLEX, 50 TO 75 PERCENT SLOPES	43.205	3.0%
112	BROWNBEAR-BAMTUSH COMPLEX, 30 TO 50 PERCENT SLOPES	39.572	2.8%
173	MARPA VARIANT-GOULDING-HOLKAT VARIANT COMPLEX, 30 TO 50 PERCENT SLOPES	36.091	2.5%
166	JAFA GRAVELLY LOAM, 2 TO 9 PERCENT SLOPES	34.501	2.4%
186	PARDALOE-GOULDING COMPLEX, 50 TO 75 PERCENT SLOPES	34.02	2.4%
182	MUSSERHILL-WEAVERVILLE COMPLEX, 30 TO 50 PERCENT SLOPES	31.486	2.2%
131	CREFORK-MUSSERHILL COMPLEX, 30 TO 50 PERCENT SLOPES	30.205	2.1%
101	ATTER EXTREMELY GRAVELLY LOAMY SAND, 9 TO 15 PERCENT SLOPES	28.387	2.0%
123	CARRCREEK GRAVELLY LOAM, 0 TO 2 PERCENT SLOPES	28.269	2.0%
218	XERORTHENTS-ROCK OUTCROP COMPLEX, 2 TO 15 PERCENT SLOPES	20.776	1.5%
104	BAMTUSH-BROWNBEAR COMPLEX, 50 TO 75 PERCENT SLOPES	19.378	1.4%
158	HOOSIMBIM-ETSEL COMPLEX, 30 TO 50 PERCENT SLOPES	18.93	1.3%

SOILS TYPE REPRESENTATIVE OF REMAINING PHASE 1 AND PHASE 2 SITES

MAP UNIT	DESCRIPTION	ACRES	% OF TOTAL AREA
152	HAYSUM GRAVELLY LOAM, 5 TO 9 PERCENT SLOPES	15.002	1.1%
146	GOULDING-VITZTHUM-VANVOR COMPLEX, 50 TO 75 PERCENT SLOPES	13.283	0.9%
198	TALLOWBOX-MINERSVILLE COMPLEX, 30 TO 50 PERCENT SLOPES	13.224	0.9%
134	DEMOGUL GRAVELLY LOAM, 50 TO 75 PERCENT SLOPES	12.813	0.9%
147	HAPLOXEROLLS, WARM, 0 TO 2 PERCENT SLOPES	12.609	0.9%
161	HOTAW LOAM, 30 TO 50 PERCENT SLOPES	12.117	0.9%
157	HOOSIMBIM-BAMTUSH-MARPA COMPLEX, 30 TO 50 PERCENT SLOPES	10.869	0.8%
118	CARGENT-DEMOGUL ASSOCIATION, 50 TO 75 PERCENT SLOPES	10.608	0.7%
199	TALLOWBOX-MINERSVILLE COMPLEX, 50 TO 75 PERCENT SLOPES	10.287	0.7%
162	INDLETON-CARIS-HOOSIMBIM COMPLEX, 50 TO 75 PERCENT SLOPES	9.803	0.7%
150	HAYSUM GRAVELLY LOAM, 0 TO 2 PERCENT SLOPES	7.89	0.6%
209	WEAVERVILLE LOAM, 30 TO 50 PERCENT SLOPES	7.654	0.5%
164	JAFA LOAM, 5 TO 15 PERCENT SLOPES	7.486	0.5%
128	CREFORK LOAM, 9 TO 15 PERCENT SLOPES	6.661	0.5%
170	MARPA-HOOSIMBIM COMPLEX, 30 TO 50 PERCENT SLOPES	6.486	0.5%
192	SHEETIRON VARIANT-DEDRICK COMPLEX, 50 TO 75 PERCENT SLOPES	6.363	0.4%
179	MUSSERHILL GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES	6.106	0.4%
156	HOOSIMBIM GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES	5.768	0.4%
207	VITZTHUM-CARGENT COMPLEX, 50 TO 75 PERCENT SLOPES	5.674	0.4%
172	MARPA-VITZTHUM COMPLEX, 50 TO 75 PERCENT SLOPES	5.178	0.4%
142	ETSEL VERY GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES	4.828	0.3%
149	HAYSUM LOAM, 5 TO 9 PERCENT SLOPES	4.731	0.3%
181	MUSSERHILL-WEAVERVILLE COMPLEX, 15 TO 30 PERCENT SLOPES	4.471	0.3%
188	ROCK OUTCROP	4.425	0.3%
133	DEDRICK-ROCK OUTCROP COMPLEX, 50 TO 75 PERCENT SLOPES	4.385	0.3%

SOILS TYPE REPRESENTATIVE OF REMAINING PHASE 1 AND PHASE 2 SITES

MAP UNIT	DESCRIPTION	ACRES	% OF TOTAL AREA
127	CREFORK LOAM, 2 TO 9 PERCENT SLOPES	4.172	0.3%
176	MILLSHOLM-AZULE COMPLEX, 15 TO 30 PERCENT SLOPES	3.99	0.3%
105	BAMTUSH-BROWNBEAR-WEAVERVILLE COMPLEX, 30 TO 75 PERCENT SLOPES	3.339	0.2%
116	BROWNSCREEK-DOUGCITY COMPLEX, 30 TO 50 PERCENT SLOPES	3.276	0.2%
163	JAFA LOAM, 0 TO 5 PERCENT SLOPES	3.264	0.2%
113	BROWNSCREEK GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES	2.931	0.2%
208	WEAVERVILLE LOAM, 9 TO 30 PERCENT SLOPES	2.435	0.2%
216	XERERTS-HAYSUM COMPLEX, 2 TO 5 PERCENT SLOPES	2.24	0.2%
215	XERERTS, 2 TO 15 PERCENT SLOPES	1.647	0.1%
151	HAYSUM GRAVELLY LOAM, 2 TO 5 PERCENT SLOPES	1.588	0.1%
138	DUBAKELLA COBBLY CLAY LOAM, 15 TO 30 PERCENT SLOPES	1.552	0.1%
132	DEDRICK GRAVELLY LOAM, 50 TO 75 PERCENT SLOPES	1.447	0.1%
121	CARIS EXTREMELY GRAVELLY SANDY LOAM, 75 TO 90 PERCENT SLOPES	0.774	0.1%
180	MUSSERHILL GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES	0.706	0.0%
154	HOLKAT-HOOSIMBIM COMPLEX, 50 TO 75 PERCENT SLOPES	0.065	0.0%
201	URBAN LAND-XERALFS COMPLEX, 5 TO 30 PERCENT SLOPES	0.065	0.0%
120	CARIS EXTREMELY GRAVELLY SANDY LOAM, 50 TO 75 PERCENT SLOPES	0.007	0.0%
	Total	1,425.142	100%

APPENDIX G

Special Status Fish Species Life History and Habitat Needs for Anadromous Salmonid Fish in the Trinity River Basin

Appendix G
Special Status Fish Species — Life History and Habitat Needs for Anadromous Salmonid Fish in the Trinity River Basin

Table G-1
Life History and Habitat Needs for Anadromous Salmonid Fish in the Trinity River Basin

Species	Migration	Spawning	Rearing	Habitat Requirements
Spring-run Chinook	Spring – Summer	Early Fall	Winter, Spring, Summer	Adults oversummer in deep, cool river pools. Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and shallow, slow-moving waters adjacent to higher water velocities for rearing and feeding.
Fall-run Chinook	Fall	Fall	Spring	Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and shallow, slow-moving waters adjacent to higher water velocities for rearing and feeding.
Winter-run Steelhead	Fall – Winter	February – April	Year-round	Spawns and rears in mainstem river and its tributaries. Requires cool, swift water; clean, loose gravel for spawning; runs and suitable pools in which to rear and over-summer; and clean cobble for refuge from high velocities. Juveniles overwinter for 1–2 or more years.
Summer-run Steelhead	Spring – Summer	February – April	Year-round	Adults ascend river and hold over in deep pools/runs through fall months. Spawns and rears in mainstem river and its tributaries. Requires cool, swift water; clean, loose gravel for spawning; suitable pools and riffles in which to rear and over-summer; and clean cobble for refuge from high velocities. Juveniles overwinter for 1–2 or more years.
Coho	October – December	November – December	Year-round	Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and suitable pools/runs in which to rear and over-summer. Juveniles prefer backwater/ slackwater areas and pool margins; juveniles overwinter for 1 year.

Source: Leidy and Leidy 1984, Hassler 1987, U.S. Fish and Wildlife Service et al. 2000, Moyle 2002

Table G-2
Life History and Habitat Needs for Non-Salmonid Native Anadromous Fish in the Trinity River Basin

Species	Migration	Spawning	Rearing	Habitat Requirements
Pacific Lamprey	April – July	Spring – Early Summer	Year-round	Spawns and rears in the mainstem and tributaries. Requires cool streams with clean, gravelly bottom for spawning. Developing larvae burrow into silty river-bottom, where they remain for 4–5 years before metamorphosing and emigrating to the ocean.
Green Sturgeon White Sturgeon	February – July	March – July	Year-round	Adults spawn in large, mainstem river channels with cool water. Juveniles inhabit estuarine environments for 4–6 years before emigrating to the open ocean.
Eulachon	March – April	March – April	--	Adults run up into the lower reaches of coastal streams to spawn. Adhesive eggs stick to small gravel/sand/detrital bottom until hatched; larvae are quickly transported downstream to ocean.

Source: U.S. Fish and Wildlife Service et al. 2000, Moyle 2002

Table G-3
Special-Status Fish Species Considered for Analysis

Common Name (Scientific Name)	Status FED/ST	General Habitat	Comments
Green sturgeon *(Acipenser medirostris)*	SSC/SC	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.**
Pacific lamprey *(Lampetra tridentata)*	NW/--	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 (Deibel 1988); Ammoecetes abundant during spring near the project reach. **The species may occur at the Remaining Phase 1 and Phase 2 sites.**

Table G-3
Special-Status Fish Species Considered for Analysis

Common Name (Scientific Name)	Status FED/ST	General Habitat	Comments
Southern Oregon/ Northern California Coasts ESU coho salmon *(Oncorhynchus kisutch)* Designated critical habitat	T/T	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 at a number of the Remaining Phase 1 and Phase 2 sites. **The Remaining Phase 1 and Phase 2 sites are within designated critical habitat for SONCC coho salmon. The species is known to occur at the Remaining Phase 1 and Phase 2 sites.**
Klamath Mts. Province ESU steelhead *(Oncorhynchus mykiss irideus)* (summer/fall- and winter-run races)	NW/SSC	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 (CNDDB, 2002).	Summer-run race is a state species of special concern. Suitable spawning, rearing, and/or migration corridor habitat exists at or near a number of the Remaining Phase 1 and Phase 2 sites. **The species is known to occur at the Remaining Phase 1 and Phase 2 sites**
Upper Klamath-Trinity Rivers ESU Chinook salmon *(Oncorhynchus tshawytscha)* (spring- and fall-run races)	NW/SSC	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 a number of the Remaining Phase 1 and Phase 2 sites. **The species is known to occur at the Remaining Phase 1 and Phase 2 sites.**

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

References

Leidy, R. A., and G. R. Leidy. 1984. *Life stage periodicities of anadromous salmonids in the Klamath River basin, Northwestern California.*

Hassler, T. J. 1987. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest) – coho salmon. U.S. Fish and Wildlife Service Biological Report 82(11.70).

Moyle, P. B. 2002. *Inland fishes of California.* Berkeley, California: University of California Press.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. State Clearinghouse No. 1994123009. October 2000.

APPENDIX H

Mitigation Measures Specific to Coho Salmon

Appendix H
Mitigation Measures
Specific to Coho Salmon

Introduction

This document summarizes the mitigation measures for potential impacts to coho salmon (*Oncorhynchus kisutch*) resulting from the activities proposed at the Remaining Phase 1 and Phase 2 sites. The purpose of providing this summary as a stand-alone document is to make clear to the reader the mitigation responsibilities as regards coho salmon of the Bureau of Reclamation (Reclamation), and the Regional Water Board, North Coast Region (Regional Water Board) in implementing the project. The mitigation measures listed herein are required by law or regulation and will be adopted by the Regional Water Board as part of the overall project approval.

Mitigation Measures

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).

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 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.

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 2007), is summarized below.

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

- 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 would 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.

2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.

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

2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.

2d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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.

2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:

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

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

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

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

3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary:

- Equipment and materials will be stored away from wetland and surface water features.

- Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area.

- 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.

4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.

4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, and 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.

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.

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.

4e To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select locations where water velocities are too high and juvenile salmonids would not be expected to be holding.

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, would 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.

5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project 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.

5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.

5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 Project site boundaries after 10 years.

6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.

6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and 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.

6c The number of vehicle and equipment crossings of the Trinity River will be minimized.

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.

Additional Measures

In addition to the mitigation measures detailed above and in the MEIR, Reclamation shall implement the following measures:

- Reclamation will implement all practical measures to minimize sedimentation/turbidity in the mainstem arising from the proposed mechanical disturbances.

- Reclamation will coordinate with the National Marine Fisheries Service (NMFS) and other resource agency partners to develop construction techniques which might further reduce turbidity impacts.

- Following completion of the ROD addressing the proposed project, Reclamation shall immediately implement the components of the proposed flow schedule (as described in the Trinity River Mainstem Fisheries Restoration (TRMFR) Draft Environmental Impact Statement (DEIS), page 2-19, Table 2-5) equal or less than 6,000 cfs, and implement the entire flow schedule as soon as possible.

- As necessary infrastructure modifications are made, Reclamation shall incrementally implement higher Trinity River flows (consistent with the proposed flow regime).

- Reclamation shall provide two reports per year detailing flows released into the Trinity River below Lewiston Dam; reports will be provided to NMFS by August 31 and March 31 annually.

- Reclamation shall meet with NMFS annually in March to coordinate during the advanced development and scheduling of habitat rehabilitation projects, including mainstem rehabilitation projects, sediment augmentation program, and dredging of sediment collection pools.

- Reclamation shall provide for review of individual mainstem channel rehabilitation projects via the technical team ore equivalent group, and provide a written recommendation to NMFS whether the projects are similar to those described in the TRMFR DEIS and should be covered by the Incidental Take Statement (ITS); if the technical team determines that these projects and their impacts to aquatic habitat are substantially different than described in the TRMFR DEIS and USFWS and Reclamation (2000), the technical team will recommend to NMFS that additional Federal Endangered Species Act (ESA) Section 7 consultation is appropriate.

- Reclamation shall initiate emergency consultation procedures during implementation of any flood control or “safety of dam” releases, pursuant to 50 CFR §402.05.

- Reclamation shall be prepared to make use of auxiliary bypass outlets on Trinity Dam as needed, and pursuant to re-initiation of ESA Section 7 consultation regarding Sacramento River Winter-run Chinook salmon, to protect water quality standards; associated actions may include modification of the export schedule of Trinity Basin diversions to the Sacramento River.

- Reclamation shall make every effort to ensure that the entire Mainstem Trinity River Restoration Program is funded and implemented.

References

North Coast Regional Water Quality Control Board. 2001. Water quality control plan for the north coast region (Basin Plan), as Amended 28 June 2001.

APPENDIX I

California Natural Diversity Database and California Native Plant Society

Appendix I
California Natural Diversity Database and California Native Plant Society

QUAD NAME	SCI NAME	COM NAME	FED STATUS	CAL STATUS	CDFG	CNPS LIST
Dedrick	Rana boylii	foothill yellow-legged frog	None	None	SC	
Dedrick	Oncorhynchus tshawytscha spring-run	spring-run chinook salmon	Threatened	Threatened		
Dedrick	Oncorhynchus mykiss irideus	summer-run steelhead trout	None	None	SC	
Dedrick	Martes americana	American (=pine) marten	None	None		
Dedrick	Martes pennanti (pacifica) DPS	Pacific fisher	Candidate	None	SC	
Dedrick	Actinemys marmorata marmorata	northwestern pond turtle	None	None	SC	
Dedrick	Ancotrema voyanum	hooded lancetooth	None	None		
Dedrick	Helminthoglypta talmadgei	Trinity shoulderband	None	None		
Dedrick	Atractylocarpus flagellaceus	flagella-like atractylocarpus	None	None		2.2
Dedrick	Lewisia cotyledon var. heckneri	Heckner's lewisia	None	None		1B.2
Dedrick	Lewisia cotyledon var. heckneri	Heckner's lewisia	None	None		1B.2
Weaverville	Rana boylii	foothill yellow-legged frog	None	None	SC	
Weaverville	Aquila chrysaetos	golden eagle	None	None		
Weaverville	Oncorhynchus tshawytscha spring-run	spring-run chinook salmon	Threatened	Threatened		
Weaverville	Lepus americanus klamathensis	Oregon snowshoe hare	None	None	SC	
Weaverville	Martes pennanti (pacifica) DPS	Pacific fisher	Candidate	None	SC	
Weaverville	Actinemys marmorata marmorata	northwestern pond turtle	None	None	SC	
Weaverville	Juncus dudleyi	Dudley's rush	None	None		2.3

QUAD NAME	SCI NAME	COM NAME	FED STATUS	CAL STATUS	CDFG	CNPS LIST
Lewiston	Rana boylii	foothill yellow-legged frog	None	None	SC	
Lewiston	Haliaeetus leucocephalus	bald eagle	Delisted	Endangered		
Lewiston	Oncorhynchus tshawytscha spring-run	spring-run chinook salmon	Threatened	Threatened		
Lewiston	Antrozous pallidus	pallid bat	None	None	SC	
Lewiston	Martes pennanti (pacifica) DPS	Pacific fisher	Candidate	None	SC	
Lewiston	Actinemys marmorata marmorata	northwestern pond turtle	None	None	SC	
Lewiston	Eriogonum ursinum var. erubescens	blushing wild buckwheat	None	None		1B.3
Lewiston	Carex hystericina	porcupine sedge	None	None		2.1
Lewiston	Carex vulpinoidea	brown fox sedge	None	None		2.2

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 6 items - Fri, Sep. 12, 2008 07:34 c
ECOLOGICAL REPORT

SCIENTIFIC	FAMILY	LIFE FORM	BLOOMING	COMMUNITIES	ELEVATION	CNPS
Atractylocarpus flagellaceus	Dicranaceae	moss		•Cismontane woodland (CmWld)	100 - 500 meters	List 2.2
Carex hystericina	Cyperaceae	perennial rhizomatous herb	Jun	•Marshes and swamps (MshSw)(streambanks)	610 - 915 meters	List 2.1
Carex vulpinoidea	Cyperaceae	perennial herb	May-Jun	•Marshes and swamps (MshSw)(freshwater) •Riparian woodland (RpWld)	30 - 1200 meters	List 2.2
Eriogonum ursinum var. erubescens	Polygonaceae	perennial herb	Jun-Sep	•Chaparral (Chprl)montane •Lower montane coniferous forest (LCFrs)/rocky, scree, talus	1434 - 1900 meters	List 1B.3
Juncus dudleyi	Juncaceae	perennial herb	Jul-Aug	•Lower montane coniferous forest (LCFrs)(mesic)	455 - 2000 meters	List 2.3
Lewisia cotyledon var. heckneri	Portulacaceae	perennial herb	May-Jul	•Lower montane coniferous forest (LCFrs)(rocky)	225 - 2100 meters	List 1B.2

APPENDIX J

U.S. Fish and Wildlife Service List

Appendix J
U.S. Fish and Wildlife Service List

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Listed/Proposed Threatened and Endangered Species for Trinity County (Candidates Included)

September 11, 2008

Document number: 219709013-174441

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KEY:
(PE) Proposed Endangered Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened Proposed as likely to become endangered within the foreseeable future
(E) Endangered Listed in the Federal Register as being in danger of extinction
(T) Threatened Listed as likely to become endangered within the foreseeable future
(C) Candidate Candidate which may become a proposed species Habitat Y = Designated, P = Proposed, N = None Designated
* Denotes a species Listed by the National Marine Fisheries Service

Type		Scientific Name	Common Name	Category	Critical Habitat
Plants					
		Arabis macdonaldiana	McDonald's rock-cress	E	N
Fish					
		Hypomesus transpacificus	delta smelt	T	Y
	*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
	*	*Oncorhynchus mykiss*	Northern California steelhead	T	Y
	*	*Oncorhynchus mykiss*	Central Valley steelhead	T	Y
	*	*Oncorhynchus tshawytscha*	winter-run chinook salmon	E	Y
	*	*Oncorhynchus tshawytscha*	CA coastal chinook salmon	T	Y
	*	*Oncorhynchus tshawytscha*	Central Valley fall/late-fall chinook salmon	C	N
	*	*Oncorhynchus tshawytscha*	Central Valley spring-run chinook salmon	T	Y
Amphibians					
		Rana aurora draytonii	California red-legged frog	T	Y
Birds					
		Brachyramphus marmoratus	marbled murrelet	T	Y
		Coccyzus americanus	Western yellow-billed cuckoo	C	N
		Strix occidentalis caurina	northern spotted owl	T	Y
Mammals					
		Martes pennanti	fisher, West Coast DPS	C	N

APPENDIX K

Observed Plant Species Remaining Phase 1 Sites

Appendix K
Observed Plant Species
Remaining Phase 1 Sites

Table K-1. TRRP Sawmill and Upper Rush Creek

Observer(s): Paul Kirk, Colby Boggs

Comments: Surveyed 5/24/07, 6/19/07, and 6/20/07

Scientific Name	Common Name	Family
Achillea millefolium	yarrow	Asteraceae
Achnatherum occidentale	western needlegrass	Poaceae
Aira caryophyllea	silver European hairgrass	Poaceae
Allium amplectens	paper onion	Liliaceae
Alnus rhombifolia	white alder	Betulaceae
Amelanchier alnifolia	Saskatoon service-berry	Rosaceae
Amsinckia menziesii var. intermedia	common fiddleneck	Boraginaceae
Arbutus menziesii	pacific madrone	Ericaceae
Arctostaphylos patula	greenleaf manzanita	Ericaceae
Artemisia douglasiana	mugwort	Asteraceae
Asclepias fascicularis	narrow-leaf milkweed	Asclepiadaceae
Asclepias speciosa	showy milkweed	Asclepiadaceae
Avena barbata	slender wild-oat	Poaceae
Barbarea orthoceras	winter cress	Brassicaceae
Brassica nigra	black mustard	Brassicaceae
Brickellia californica	California brickellbush	Asteraceae
Briza minor	small quaking grass	Poaceae
Brodiaea elegans	harvest brodiaea	Liliaceae
Bromus carinatus	California brome	Poaceae
Bromus diandrus	ripgut brome	Poaceae
Bromus hordeaceus	soft brome	Poaceae
Bromus madritensis	foxtail chess	Poaceae
Bromus tectorum	cheat grass	Poaceae
Calocedrus decurrens	incense cedar	Cupressaceae
Carex barbarae	valley sedge	Cyperaceae
Carex densa	dense sedge	Cyperaceae
Carex nebrascensis	Nebraska sedge	Cyperaceae
Carex nudata	torrent sedge	Cyperaceae
Ceanothus cuneatus	buck brush	Rhamnaceae
Centaurea solstitialis	yellow star-thistle	Asteraceae
Centaurium muehlenbergii	Muhlenberg's centaury	Gentianaceae
Cercis occidentalis	western redbud	Fabaceae
Cercocarpus betuloides	alder-leaf mountain mahogany	Rosaceae
Chamomilla suaveolens	pineapple weed	Asteraceae
Clarkia purpurea	purple clarkia	Onagraceae
Claytonia perfoliata	miner's lettuce	Portulacaceae
Clematis ligusticifolia	virgin's bower	Ranunculaceae
Conium maculatum	poison hemlock	Apiaceae
Cornus glabrata	brown dogwood	Cornaceae
Cornus sericea	American dogwood	Cornaceae
Dichelostemma capitatum	blue dicks	Liliaceae
Dichelostemma volubile	twining ookow	Liliaceae
Eleocharis acicularis	needle spikerush	Cyperaceae
Elymus glaucus	blue wildrye	Poaceae
Elymus multisetus	big squirreltail	Poaceae

Table K-1. TRRP Sawmill and Upper Rush Creek

Observer(s): Paul Kirk, Colby Boggs

Comments: Surveyed 5/24/07, 6/19/07, and 6/20/07

Scientific Name	Common Name	Family
Elytrigia intermedia ssp. intermedia	intermediate wheatgrass	Poaceae
Equisetum arvense	field horsetail	Equisetaceae
Equisetum laevigatum	smooth scouring rush	Equisetaceae
Eriodictyon californicum	yerba santa	Hydrophyllaceae
Eriogonum nudum	naked eriogonum	Polygonaceae
Eriophyllum lanatum	woolly sunflower	Asteraceae
Erodium cicutarium	red-stemmed filaree	Geraniaceae
Eschscholzia californica	California poppy	Papaveraceae
Festuca idahoensis	Idaho fescue	Poaceae
Fraxinus latifolia	Oregon ash	Oleaceae
Galium aparine	goose grass	Rubiaceae
Gayophytum diffusum	diffuse gayophytum	Onagraceae
Grindelia camporum	great valley gumweed	Asteraceae
Heliotropium curassavicum	heliotrope	Boraginaceae
Hieracium albiflorum	white-flowered hawkweed	Asteraceae
Holcus lanatus	common velvet grass	Poaceae
Hordeum marinum ssp. gussoneanum	Mediterranean barley	Poaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Iris hartwegii	Hartweg's iris	Iridaceae
Juncus effusus	common bog rush	Juncaceae
Leontodon taraxacoides	hawkbit	Asteraceae
Lepidium campestre	English pepper-grass	Brassicaceae
Leymus triticoides	creeping wildrye	Poaceae
Linaria genistifolia ssp. dalmatica	dalmatian toad-flax	Scrophulariaceae
Lolium multiflorum	Italian ryegrass	Poaceae
Lolium perenne	perennial ryegrass	Poaceae
Lomatium sp.	lomatium	Apiaceae
Lotus corniculatus	birdfoot trefoil	Fabaceae
Lotus humistratus	short-podded lotus	Fabaceae
Lotus micranthus	small-flowered lotus	Fabaceae
Lupinus albifrons	silver bush lupine	Fabaceae
Lupinus bicolor	miniature lupine	Fabaceae
Luzula parviflora	small-flowered wood rush	Juncaceae
Micropus californicus	slender cottonweed	Asteraceae
Mimulus guttatus	seep monkey flower	Scrophulariaceae
Monardella odoratissima	mountain-monardella	Lamiaceae
Nasella pulchra	purple needlegrass	Poaceae
Navarretia intertexta	interwoven navarretia	Polemoniaceae
Navarretia sp.	navarretia	Polemoniaceae
Panicum acuminatum	witchgrass	Poaceae
Panicum capillare	witchgrass	Poaceae
Petrorhagia dubia	grass pink	Caryophyllaceae
Pinus ponderosa	ponderosa pine	Pinaceae
Pinus sabiniana	gray pine	Pinaceae
Plantago lanceolata	English plantain	Plantaginaceae
Poa annua	annual blue grass	Poaceae
Poa bulbosa	bulbous bluegrass	Poaceae
Poa pratensis	Kentucky blue grass	Poaceae
Polypogon sp.	polypogon	Poaceae
Populus balsamifera ssp. trichocarpa	black cottonwood	Salicaceae
Pseudotsuga menziesii var. menziesii	Douglas-fir	Pinaceae
Quercus chrysolepis	canyon live oak	Fagaceae
Quercus kelloggii	black oak	Fagaceae
Quercus wislizenii	interior live oak	Fagaceae

Table K-1. TRRP Sawmill and Upper Rush Creek

Observer(s): Paul Kirk, Colby Boggs

Comments: Surveyed 5/24/07, 6/19/07, and 6/20/07

Scientific Name	Common Name	Family
Ranunculus occidentalis	western buttercup	Ranunculaceae
Rhamnus alnifolia	alder-leaved coffeeberry	Rhamnaceae
Rhus trilobata	skunkbrush	Anacardiaceae
Ribes divaricatum	spreading gooseberry	Grossulariaceae
Rosa californica	California rose	Rosaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rubus ursinus	California blackberry	Rosaceae
Rumex acetosella	common sheep sorrel	Polygonaceae
Rumex crispus	curly dock	Polygonaceae
Sagina apetala	dwarf pearlwort	Caryophyllaceae
Salix exigua	narrow-leaved willow	Salicaceae
Salix gooddingii	Goodding's black willow	Salicaceae
Salix lasiolepis	arroyo willow	Salicaceae
Salix lucida	shining willow	Salicaceae
Sambucus mexicana	blue elderberry	Caprifoliaceae
Sanicula bipinnatifida	purple sanicle/shoe buttons	Apiaceae
Scirpus microcarpus	small-fruited bulrush	Cyperaceae
Scutellaria sp.	skullcap	Lamiaceae
Silene antirrhina	sleepy catchfly	Caryophyllaceae
Spartium junceum	gorse	Fabaceae
Spiraea sp.	spiraea	Rosaceae
Symphoricarpos albus var. laevigatus	snowberry	Caprifoliaceae
Taeniatherum caput-medusae	medussa head	Poaceae
Thysanocarpus radians	spokepod	Brassicaceae
Torilis arvensis	field hedge-parsley	Apiaceae
Toxicodendron diversilobum	poison oak	Anacardiaceae
Tragopogon dubius	goat's beard	Asteraceae
Trifolium campestre	hop clover	Fabaceae
Trifolium dubium	shamrock	Fabaceae
Trifolium hirtum	rose clover	Fabaceae
Triteleia hyacinthina	white brodiaea	Liliaceae
Typha angustifolia	narrow-leaved cattail	Typhaceae
Urtica dioica	stinging nettle	Urticaceae
Verbascum blattaria	moth mullein	Scrophulariaceae
Verbascum thapsus	woolly mullein	Scrophulariaceae
Verbena hastata	blue verbena	Verbenaceae
Vicia villosa	winter vetch	Fabaceae
Vitis californica	California wild grape	Vitaceae
Vulpia microstachys	small fescue	Poaceae
Vulpia myuros	rattail fescue	Poaceae
Wyethia angustifolia	narrowleaf mule ears	Asteraceae

Table K-2. TRRP Lowden Ranch

Observer(s): Colby Boggs, Paul Kirk

Comments: Surveyed on 5/24, 6/18, 6/19, and 8/9/07

Scientific Name	Common Name	Family
Achillea millefolium	yarrow	Asteraceae
Agropyron sp.	wheatgrass	Poaceae
Agrostis stolonifera	creeping bentgrass	Poaceae
Alnus rhombifolia	white alder	Betulaceae
Amsinckia menziesii var. intermedia	common fiddleneck	Boraginaceae
Arbutus menziesii	pacific madrone	Ericaceae
Artemisia douglasiana	mugwort	Asteraceae
Asclepias speciosa	showy milkweed	Asclepiadaceae
Avena barbata	slender wild-oat	Poaceae
Brassica nigra	black mustard	Brassicaceae
Bromus carinatus	California brome	Poaceae
Bromus catharticus	rescue grass	Poaceae
Bromus diandrus	ripgut brome	Poaceae
Bromus hordeaceus	soft brome	Poaceae
Bromus japonicus	Japanese chess	Poaceae
Bromus tectorum	cheat grass	Poaceae
Carex barbarae	valley sedge	Cyperaceae
Carex bolanderi	Bolander's sedge	Cyperaceae
Carex densa	dense sedge	Cyperaceae
Carex fracta	fragile sheath sedge	Cyperaceae
Carex integra	smooth-beaked sedge	Cyperaceae
Carex lanuginosa	wooly sedge	Cyperaceae
Carex nebrascensis	Nebraska sedge	Cyperaceae
Carex sp.	sedge	Cyperaceae
Carex vulpinoidea	fox sedge	Cyperaceae
Ceanothus cuneatus	buck brush	Rhamnaceae
Ceanothus integerrimus	deerbrush	Rhamnaceae
Centaurea solstitialis	yellow star-thistle	Asteraceae
Centaurium muehlenbergii	Muhlenberg's centaury	Gentianaceae
Cercis occidentalis	western redbud	Fabaceae
Cercocarpus betuloides	alder-leaf mountain mahogany	Rosaceae
Cheilanthes sp.	lipfern	Pteridaceae
Cichorium intybus	chicory	Asteraceae
Cirsium vulgare	bull thistle	Asteraceae
Clarkia purpurea	purple clarkia	Onagraceae
Clarkia purpurea ssp.quadrivulnera	purple clarkia	Onagraceae
Claytonia perfoliata	miner's lettuce	Portulacaceae
Clematis ligusticifolia	virgin's bower	Ranunculaceae
Conium maculatum	poison hemlock	Apiaceae
Convolvulus arvensis	bindweed	Convolvulaceae
Convovulus sp.	morning glory	Convolvulaceae
Cornus sericea ssp.sericea	American dogwood	Cornaceae
Cynoglossum sp.	houndstoungue	Boraginaceae
Cynosurus echinatus	hedgehog dogtail	Poaceae
Cyperus sp.	flatsedge	Cyperaceae
Dactylis glomerata	orchard grass	Poaceae
Daucus carota	carrot	Apiaceae
Daucus pusillus	rattlesnake weed	Apiaceae
Deschampsia danthonioides	annual hairgrass	Poaceae
Dianthus armeria ssp.armeria	grass pink	Caryophyllaceae
Eleocharis macrostachya	common spikerush	Cyperaceae
Elymus elymoides	squirreltail	Poaceae
Elymus glaucus	blue wildrye	Poaceae
Elymus multisetus	big squirreltail	Poaceae
Epilobium ciliatum	willowherb	Onagraceae

Table K-2. TRRP Lowden Ranch

Observer(s): Colby Boggs, Paul Kirk

Comments: Surveyed on 5/24, 6/18, 6/19, and 8/9/07

Scientific Name	Common Name	Family
Equisetum arvense	field horsetail	Equisetaceae
Eriogonum nudum	naked eriogonum	Polygonaceae
Erodium botrys	long-beaked stork's bill	Geraniaceae
Erodium cicutarium	red-stemmed filaree	Geraniaceae
Eschscholzia californica	California poppy	Papaveraceae
Festuca californica	California fescue	Poaceae
Festuca pratensis	meadow fescue	Poaceae
Fraxinus latifolia	Oregon ash	Oleaceae
Galium aparine	goose grass	Rubiaceae
Geranium dissectum	cut-leaved geranium	Geraniaceae
Gnaphalium sp.	cudweed	Asteraceae
Gnaphalium stramineum	Chilean cudweed	Asteraceae
Grindelia camporum	great valley gumweed	Asteraceae
Heliotropium curassavicum	heliotrope	Boraginaceae
Holcus lanatus	common velvet grass	Poaceae
Hordeum jubatum	foxtail barley	Poaceae
Hordeum marinum ssp. gussoneanum	Mediterranean barley	Poaceae
Hordeum murinum ssp. leporinum	foxtail barley	Poaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Juglans nigra	eastern black walnut	Juglandaceae
Juncus balticus	Baltic rush	Juncaceae
Juncus bufonius	toad rush	Juncaceae
Juncus effusus	common bog rush	Juncaceae
Juncus patens	common rush	Juncaceae
Lactuca serriola	prickly lettuce	Asteraceae
Leontodon taraxacoides	hawkbit	Asteraceae
Leymus triticoides	creeping wildrye	Poaceae
Linaria genistifolia ssp.dalmatica	dalmatian toad-flax	Scrophulariaceae
Lomatium californicum	California lomatium	Apiaceae
Lomatium dasycarpum	woolly-fruited lomatium	Apiaceae
Lotus corniculatus	birdfoot trefoil	Fabaceae
Lotus purshianus	Spanish lotus	Fabaceae
Lupinus albifrons	silver bush lupine	Fabaceae
Lupinus bicolor	miniature lupine	Fabaceae
Malus sylvestris	domestic apple	Rosaceae
Melica californica	California melic	Poaceae
Mentha pulegium	pennyroyal	Lamiaceae
Mentha spicata var. spicata	spearmint	Lamiaceae
Micropus californicus	slender cottonweed	Asteraceae
Minuartia sp.	sandwort	Caryophyllaceae
Monardella sp.	monardella	Lamiaceae
Navarretia intertexta	interwoven navarretia	Polemoniaceae
Panicum acuminatum	western witch grass	Poaceae
Penstemon deustus	hot-rock beardtongue	Scrophulariaceae
Penstemon sp.	penstemon	Scrophulariaceae
Petrorhagia dubia	grass pink	Caryophyllaceae
Phacelia sp.	phacelia	Hydrophyllaceae
Phalaris paradoxa	paradox canary-grass	Poaceae
Phleum pratense	timothy	Poaceae
Phleum sp.	timothy grass	Poaceae
Pinus ponderosa	ponderosa pine	Pinaceae
Plagiobothrys stipitatus var. micranthus	common vernal pool allocarya	Boraginaceae
Plantago erecta	erect plantain	Plantaginaceae
Plantago lanceolata	English plantain	Plantaginaceae
Poa bulbosa	bulbous bluegrass	Poaceae

Table K-2. TRRP Lowden Ranch

Observer(s): Colby Boggs, Paul Kirk

Comments: Surveyed on 5/24, 6/18, 6/19, and 8/9/07

Scientific Name	Common Name	Family
Poa palustris	fowl blue grass	Poaceae
Poa pratensis	Kentucky blue grass	Poaceae
Poa secunda	one-sided blue grass	Poaceae
Polygonum sp.	knotweed	Polygonaceae
Polypogon maritimus	Mediterranean beard grass	Poaceae
Potentilla glandulosa	sticky cinquefoil	Rosaceae
Psilocarphus oregonus	Oregon woolly marbles	Asteraceae
Quercus garryana var. garryana	Oregon oak	Fagaceae
Quercus kelloggii	black oak	Fagaceae
Ranunculus sp.	buttercup	Ranunculaceae
Rhus trilobata	skunkbrush	Anacardiaceae
Robinia pseudoacacia	black locust	Fabaceae
Rorippa curvisiliqua	curvepod yellow-cress	Brassicaceae
Rorippa nasturtium-aquaticum	water cress	Brassicaceae
Rosa californica	California rose	Rosaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rubus laciniatus	cut-leaved blackberry	Rosaceae
Rumex acetosella	common sheep sorrel	Polygonaceae
Rumex crispus	curly dock	Polygonaceae
Sagina apetala	dwarf pearlwort	Caryophyllaceae
Salazaria mexicana	Mexican bladder sage	Lamiaceae
Salix exigua	narrow-leaved willow	Salicaceae
Salix lasiolepis	arroyo willow	Salicaceae
Salix lucida	shining willow	Salicaceae
Scirpus americanus	American tule	Cyperaceae
Scirpus microcarpus	small-fruited bulrush	Cyperaceae
Scutellaria siphocampyloides	curve-flowered skullcap	Lamiaceae
Spergularia rubra	ruby sandspurry	Caryophyllaceae
Taeniatherum caput-medusae	medussa head	Poaceae
Thysanocarpus radians	spokepod	Brassicaceae
Tragopogon dubius	goat's beard	Asteraceae
Trifolium dubium	shamrock	Fabaceae
Trifolium hirtum	rose clover	Fabaceae
Typha angustifolia	narrow-leaved cattail	Typhaceae
Verbascum thapsus	woolly mullein	Scrophulariaceae
Verbena hastata	blue verbena	Verbenaceae
Veronica peregrina ssp. xalapensis	purslane speedwell	Scrophulariaceae
Vitis californica	California wild grape	Vitaceae
Vulpia microstachys	small fescue	Poaceae
Vulpia myuros	rattail fescue	Poaceae
Wyethia angustifolia	narrow-leaved mules ears	Asteraceae
Xanthium strumarium	cocklebur	Asteraceae

Table K-3. TRRP Trinity House Gulch
Observer(s): Paul Kirk, Colby Boggs
Comments: Surveyed on 5/24/07

Scientific Name	Common Name	Family
Acer macrophyllum	bigleaf maple	Aceraceae
Achnatherum occidentale	western needlegrass	Poaceae
Aira caryophyllea	silver European hairgrass	Poaceae
Alnus rhombifolia	white alder	Betulaceae
Amsinckia menziesii	Menzie's fiddleneck	Boraginaceae
Arabis glabra	smooth rock-cress	Brassicaceae
Arbutus menziesii	pacific madrone	Ericaceae
Arctostaphylos patula	greenleaf manzanita	Ericaceae
Artemisia douglasiana	mugwort	Asteraceae
Asclepias fascicularis	narrow-leaf milkweed	Asclepiadaceae
Barbarea orthoceras	winter cress	Brassicaceae
Brassica nigra	black mustard	Brassicaceae
Brickellia californica	California brickellbush	Asteraceae
Bromus diandrus	ripgut brome	Poaceae
Bromus hordeaceus	soft brome	Poaceae
Bromus tectorum	cheat grass	Poaceae
Carex barbarae	valley sedge	Cyperaceae
Centaurea solstitialis	yellow star-thistle	Asteraceae
Cerastium glomeratum	sticky mouse-eared chickweed	Caryophyllaceae
Cercis occidentalis	western redbud	Fabaceae
Chrysanthemum vulgare	Common tansy	Asteraceae
Cirsium vulgare	bull thistle	Asteraceae
Clarkia purpurea	purple clarkia	Onagraceae
Claytonia perfoliata	miner's lettuce	Portulacaceae
Clematis ligusticifolia	virgin's bower	Ranunculaceae
Conium maculatum	poison hemlock	Apiaceae
Cornus sericea	American dogwood	Cornaceae
Cryptantha flaccida	flaccid cryptantha	Boraginaceae
Dactylis glomerata	orchard grass	Poaceae
Deschampsia cespitosa	tufted hair-grass	Poaceae
Deschampsia danthonioides	annual hairgrass	Poaceae
Eleocharis acicularis	needle spikerush	Cyperaceae
Elymus glaucus	blue wildrye	Poaceae
Elymus multisetus	big squirreltail	Poaceae
Epilobium brachycarpum	tall annual willowherb	Onagraceae
Epilobium ciliatum	willowherb	Onagraceae
Eriogonum nudum	naked eriogonum	Polygonaceae
Eschscholzia californica	California poppy	Papaveraceae
Fraxinus latifolia	Oregon ash	Oleaceae
Heterotheca oregona	Oregon goldenaster	Asteraceae
Holcus lanatus	common velvet grass	Poaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Juncus patens	common rush	Juncaceae
Lepidium campestre	English pepper-grass	Brassicaceae
Leucanthemum vulgare	ox-eye daisy	Asteraceae
Leymus triticoides	alkali ryegrass	Poaceae
Linaria genistifolia ssp. dalmatica	dalmatian toad-flax	Scrophulariaceae
Lonicera sp.	Honeysuckle	Caprifoliaceae
Lotus purshianus var. purshianus	Spanish clover	Fabaceae
Lupinus albifrons	silver bush lupine	Fabaceae
Melica californica	California melic	Poaceae
Mimulus guttatus	seep monkey flower	Scrophulariaceae
Mimulus moschatus	musk monkeyflower	Scrophulariaceae
Nassella pulchra	purple needlegrass	Poaceae

Table K-3. TRRP Trinity House Gulch
Observer(s): Paul Kirk, Colby Boggs
Comments: Surveyed on 5/24/07

Scientific Name	Common Name	Family
Panicum acuminatum	western panicum	Poaceae
Petrorhagia dubia	grass pink	Caryophyllaceae
Pinus ponderosa	ponderosa pine	Pinaceae
Pinus sabiniana	gray pine	Pinaceae
Plagiobothrys strictus	Calistoga popcorn flower	Boraginaceae
Polypogon sp.	Polypogon	Poaceae
Populus balsamifera ssp. trichocarpa	black cottonwood	Salicaceae
Pseudotsuga menziesii var. menziesii	Douglas-fir	Pinaceae
Pteridium aquilinum var. pubescens	western bracken fern	Dennstaedtiaceae
Quercus chrysolepis	canyon live oak	Fagaceae
Quercus garryana	Oregon oak	Fagaceae
Quercus wislizenii	interior live oak	Fagaceae
Rhamnus purshiana	cascara	Rhamnaceae
Rhus trilobata	skunkbrush	Anacardiaceae
Ribes divaricatum	spreading gooseberry	Grossulariaceae
Rosa californica	California rose	Rosaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rubus ursinus	California blackberry	Rosaceae
Rumex acetosella	common sheep sorrel	Polygonaceae
Rumex crispus	curly dock	Polygonaceae
Sagina apetala	dwarf pearlwort	Caryophyllaceae
Salix exigua	narrow-leaved willow	Salicaceae
Salix gooddingii	Goodding's black willow	Salicaceae
Salix laevigata	red willow	Salicaceae
Silene californica	Indian pink	Caryophyllaceae
Thysanocarpus curvipes	fringepod	Brassicaceae
Thysanocarpus radians	spokepod	Brassicaceae
Tragopogon dubius	goat's beard	Asteraceae
Trifolium hirtum	rose clover	Fabaceae
Verbascum blattaria	moth mullein	Scrophulariaceae
Verbascum thapsus	woolly mullein	Scrophulariaceae
Verbena lasiostachys	western vervain	Verbenaceae
Veronica peregrina ssp. xalapensis	purslane speedwell	Scrophulariaceae
Vitis californica	California wild grape	Vitaceae
Vulpia microstachys	small fescue	Poaceae
Vulpia myuros	rattail fescue	Poaceae

Table K-4. TRRP Steel Bridge Day Use
Observer(s) Paul Kirk, Colby Boggs
Comments Surveyed on 5/24/07

Scientific Name	Common Name	Family
Achnatherum occidentale	western needlegrass	Poaceae
Achnatherum sp.	needlegrass	Poaceae
Aira caryophyllea	silver European hairgrass	Poaceae
Alnus rhombifolia	white alder	Betulaceae
Amelanchier alnifolia	Saskatoon service-berry	Rosaceae
Arctostaphylos patula	greenleaf manzanita	Ericaceae
Barbarea orthoceras	winter cress	Brassicaceae

Table K-4. TRRP Steel Bridge Day Use
Observer(s) Paul Kirk, Colby Boggs
Comments Surveyed on 5/24/07

Scientific Name	Common Name	Family
Brickellia californica	California brickellbush	Asteraceae
Bromus carinatus	California brome	Poaceae
Bromus carinatus var. carinatus	California brome	Poaceae
Bromus catharticus	rescue grass	Poaceae
Bromus diandrus	ripgut brome	Poaceae
Bromus hordeaceus	soft brome	Poaceae
Bromus tectorum	cheat grass	Poaceae
Calystegia sp.	morning glory	Convolvulaceae
Carex nudata	torrent sedge	Cyperaceae
Centaurea solstitialis	yellow star-thistle	Asteraceae
Cercis occidentalis	western redbud	Fabaceae
Cirsium vulgare	bull thistle	Asteraceae
Clarkia purpurea	purple clarkia	Onagraceae
Dactylis glomerata	orchard grass	Poaceae
Elymus glaucus	blue wildrye	Poaceae
Elymus multisetus	big squirreltail	Poaceae
Equisetum laevigatum	smooth scouring rush	Equisetaceae
Eriogonum nudum	naked eriogonum	Polygonaceae
Festuca pratensis	meadow fescue	Poaceae
Fraxinus latifolia	Oregon ash	Oleaceae
Galium sp.	bedstraw	Rubiaceae
Hordeum marinum ssp. gussoneanum	Mediterranean barley	Poaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Hypochaeris sp.	smooth catsear	Asteraceae
Juncus bufonius	toad rush	Juncaceae
Juncus effusus	common bog rush	Juncaceae
Lactuca serriola	prickly lettuce	Asteraceae
Lathyrus latifolius	everlasting sweet pea	Fabaceae
Leontodon taraxacoides	hawkbit	Asteraceae
Lepidium campestre	English pepper-grass	Brassicaceae
Linaria genistifolia ssp. dalmatica	dalmatian toad-flax	Scrophulariaceae
Lupinus bicolor	miniature lupine	Fabaceae
Melica californica	California melic	Poaceae
Petrorhagia dubia	grass pink	Caryophyllaceae
Pinus ponderosa	ponderosa pine	Pinaceae
Plantago lanceolata	English plantain	Plantaginaceae
Poa bulbosa	bulbous bluegrass	Poaceae
Poa pratensis	Kentucky blue grass	Poaceae
Populus balsamifera ssp. trichocarpa	black cottonwood	Salicaceae
Prunus sp.	feral root stock	Rosaceae
Pseudotsuga menziesii var. menziesii	Douglas-fir	Pinaceae
Psilocarphus brevissimus	short woolly marbles	Asteraceae
Quercus kelloggii	black oak	Fagaceae
Ribes sp.	gooseberry	Grossulariaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rumex acetosella	common sheep sorrel	Polygonaceae
Sagina apetala	dwarf pearlwort	Caryophyllaceae
Salix exigua	narrow-leaved willow	Salicaceae
Salix laevigata	red willow	Salicaceae
Salix lucida	shining willow	Salicaceae
Senecio vulgaris	old man of spring	Asteraceae
Thysanocarpus radians	spokepod	Brassicaceae
Tragopogon dubius	goat's beard	Asteraceae
Trifolium dubium	shamrock	Fabaceae

Table K-4. TRRP Steel Bridge Day Use
Observer(s) Paul Kirk, Colby Boggs
Comments Surveyed on 5/24/07

Scientific Name	Common Name	Family
Trifolium hirtum	rose clover	Fabaceae
Vitis californica	California wild grape	Vitaceae
Vulpia myuros	rattail fescue	Poaceae

Table K-5. TRRP Reading Creek
Observer(s): Paul Kirk, Colby Boggs
Comments: Surveyed 5/25/07

Scientific Name	Common Name	Family
Acer macrophyllum	bigleaf maple	Aceraceae
Achnatherum sp.	wheatgrass	Poaceae
Aira caryophyllea	silver European hairgrass	Poaceae
Alnus rhombifolia	white alder	Betulaceae
Arbutus menziesii	pacific madrone	Ericaceae
Arctostaphylos viscida	white leaf manzanita	Ericaceae
Artemisia douglasiana	mugwort	Asteraceae
Asclepias speciosa	showy milkweed	Asclepiadaceae
Athysanus pusillus	petty athysanus	Brassicaceae
Avena barbata	slender wild-oat	Poaceae
Baccharis sp.	baccharis	Asteraceae
Brassica nigra	black mustard	Brassicaceae
Brassica rapa	field mustard	Brassicaceae
Bromus carinatus	California brome	Poaceae
Bromus diandrus	ripgut brome	Poaceae
Bromus hordeaceus	soft brome	Poaceae
Bromus tectorum	cheat grass	Poaceae
Camissonia contorta	contorted sun-cup	Onagraceae
Ceanothus integerrimus	deerbrush	Rhamnaceae
Ceanothus lemmonii	Lemmon's ceanothus	Rhamnaceae
Centaurea solstitialis	yellow star-thistle	Asteraceae
Cercis occidentalis	western redbud	Fabaceae
Cercocarpus betuloides	alder-leaf mountain mahogany	Rosaceae
Chrysanthemum sp.	tansy	Asteraceae
Cirsium andersonii	rose thistle	Asteraceae
Cirsium vulgare	bull thistle	Asteraceae
Claytonia perfoliata	miner's lettuce	Portulacaceae
Claytonia rubra	red-stemmed spring beauty	Portulacaceae
Clematis ligusticifolia	virgin's bower	Ranunculaceae
Collomia sp.	collomia	Polemoniaceae
Cornus sericea	American dogwood	Cornaceae
Corylus cornuta var. californica	California hazelnut	Betulaceae
Cryptantha intermedia	common cryptantha	Boraginaceae
Cynodon dactylon	Bermuda grass	Poaceae
Cytisus scoparius	scotch broom	Fabaceae
Dactylis glomerata	orchard grass	Poaceae
Daucus carota	carrot	Apiaceae
Dichelostemma multiflorum	round-toothed ookow	Liliaceae
Dichelostemma sp.	wild hyacinth	Liliaceae
Elymus elymoides	squirreltail	Poaceae

Table K-5. TRRP Reading Creek

Observer(s): Paul Kirk, Colby Boggs

Comments: Surveyed 5/25/07

Scientific Name	Common Name	Family
Elymus glaucus	blue wildrye	Poaceae
Elymus multisetus	big squirreltail	Poaceae
Epilobium angustifolium ssp. angustifolium	fireweed	Onagraceae
Epilobium brachycarpum	tall annual willowherb	Onagraceae
Equisetum laevigatum	smooth scouring rush	Equisetaceae
Eriogonum nudum	naked eriogonum	Polygonaceae
Eriophyllum lanatum	woolly sunflower	Asteraceae
Eriophyllum lanatum var. croceum	sierra woolly-sunflower	Asteraceae
Eschscholzia californica	California poppy	Papaveraceae
Festuca pratensis	meadow fescue	Poaceae
Fraxinus latifolia	Oregon ash	Oleaceae
Heterotheca oregona	Oregon goldenaster	Asteraceae
Hordeum marinum ssp. gussoneanum	Mediterranean barley	Poaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Hypochaeris glabra	smooth cat's-ear	Asteraceae
Juglans californica	California black walnut	Juglandaceae
Lathyrus latifolius	everlasting sweet pea	Fabaceae
Linaria genistifolia ssp. dalmatica	dalmatian toad-flax	Scrophulariaceae
Lomatium californicum	California lomatium	Apiaceae
Lotus humistratus	short-podded lotus	Fabaceae
Lotus purshianus var. purshianus	Spanish clover	Fabaceae
Lupinus albifrons	silver bush lupine	Fabaceae
Lupinus bicolor	miniature lupine	Fabaceae
Madia glomerata	mountain tarweed	Asteraceae
Melilotus officinalis	yellow sweetclover	Fabaceae
Micropus californicus	slender cottonweed	Asteraceae
Nemophila heterophylla	variable-leaved nemophila	Hydrophyllaceae
Osmorhiza chilensis	mountain sweet-cicely	Apiaceae
Panicum capillare	witchgrass	Poaceae
Petrorhagia dubia	grass pink	Caryophyllaceae
Phacelia heterophylla ssp. virgata	virgate phacelia	Hydrophyllaceae
Phalaris sp.	canarygrass	Poaceae
Pinus ponderosa	ponderosa pine	Pinaceae
Pinus sabiniana	gray pine	Pinaceae
Plantago lanceolata	English plantain	Plantaginaceae
Poa bulbosa	bulbous bluegrass	Poaceae
Poa pratensis	Kentucky blue grass	Poaceae
Poa secunda	one-sided blue grass	Poaceae
Polygonum sp.	knotweed	Polygonaceae
Populus balsamifera ssp. trichocarpa	black cottonwood	Salicaceae
Pseudotsuga menziesii var. menziesii	Douglas-fir	Pinaceae
Quercus chrysolepis	canyon live oak	Fagaceae
Quercus garryana	Oregon oak	Fagaceae
Quercus kelloggii	black oak	Fagaceae
Quercus wislizenii	interior live oak	Fagaceae
Rhus trilobata	skunkbrush	Anacardiaceae
Ribes sp.	gooseberry	Grossulariaceae
Robinia pseudoacacia	black locust	Fabaceae
Rosa californica	California rose	Rosaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rubus ursinus	California blackberry	Rosaceae
Rumex acetosella	common sheep sorrel	Polygonaceae
Salix exigua	narrow-leaved willow	Salicaceae

Table K-5. TRRP Reading Creek
Observer(s): Paul Kirk, Colby Boggs
Comments: Surveyed 5/25/07

Scientific Name	**Common Name**	**Family**
Salix lasiolepis	arroyo willow	Salicaceae
Sanguisorba officinalis	great burnet	Rosaceae
Scirpus microcarpus	small-fruited bulrush	Cyperaceae
Smilax sp.	smilax	Liliaceae
Stellaria media	common chickweed	Caryophyllaceae
Symphoricarpos albus var. laevigatus	snowberry	Caprifoliaceae
Toxicodendron diversilobum	poison oak	Anacardiaceae
Tragopogon dubius	goat's beard	Asteraceae
Trifolium dubium	shamrock	Fabaceae
Trifolium hirtum	rose clover	Fabaceae
Verbascum thapsus	woolly mullein	Scrophulariaceae
Vitis californica	California wild grape	Vitaceae
Vulpia myuros	rattail fescue	Poaceae
Xanthium strumarium	cocklebur	Asteraceae

APPENDIX L

Soils — Remaining Phase 1 Sites

Appendix L
Soils — Remaining Phase 1 Sites

Table L-1 Mapped Soil Units Within the Sawmill Site

Map Unit	Map Unit Name	Slope Occupies
112	Brownbear-Bamtush Complex	30 to 50 percent slopes
146	Goulding-Vitzthum-Vanor Complex	50 to 75 percent slopes
149	Haysum Loam	5 to 9 percent slopes
152	Haysum Gravelly Loam	5 to 9 percent slopes
157	Hoosimbim-Bamtush-Marpa Complex	30 to 50 percent slopes
161	Hotaw Loam	30 to 50 percent slopes
171	Marpa-Hoosimbim-Bamtush Complex	50 to 75 percent slopes
173	Marpa-Goulding-Holkat Complex	30 to 50 percent slopes
179	Musserhill Gravelly Loam	15 to 30 percent slopes
181	Musserhill-Weaverville Complex	15 to 30 percent slopes
186	Pardaloe-Goulding complex	50 to 75 percent slopes
199	Tallowbox-Minersville Complex	50 to 75 percent slopes
203	Neuns family	40 to 60 percent slopes
213	Xeralfs-Xerorthents Complex	5 to 50 percent slopes
217	Xerofluvents-Riverwash Complex	0 to 5 percent slopes

Table L-2 Mapped Soil Units Within the Upper Rush Creek Site

Map Unit	Map Unit Name	Slope Occupies
112	Brownbear-Bamtush Complex	30 to 50 percent slopes
146	Goulding-Vitzthum-Vanor Complex	50 to 75 percent slopes
149	Haysum Loam	5 to 9 percent slopes
152	Haysum Gravelly Loam	5 to 9 percent slopes
157	Hoosimbim-Bamtush-Marpa Complex	30 to 50 percent slopes
161	Hotaw Loam	30 to 50 percent slopes
171	Marpa-Hoosimbim-Bamtush Complex	50 to 75 percent slopes
173	Marpa-Goulding-Holkat complex	30 to 50 percent slopes
179	Musserhill Gravelly Loam	15 to 30 percent slopes
181	Musserhill-Weaverville Complex	15 to 30 percent slopes
186	Pardaloe-Goulding complex	50 to 75 percent slopes
199	Tallowbox-Minersville Complex	50 to 75 percent slopes
203	Neuns family	40 to 60 percent slopes
213	Xeralfs-Xerorthents Complex	5 to 50 percent slopes
217	Xerofluvents-Riverwash Complex	0 to 5 percent slopes

Table L-3 Mapped Soil Units Within the Lowden Ranch Site

Map Unit	Map Unit Name	Slope Occupies
112	Brownbear-Bamtush Complex	30 to 50 percent slopes
114	BROWNSCREEK GRAVELLY LOAM	50 to 75 percent slopes
147	Haploxerolls, Warm	0 to 2 percent slopes
152	Haysum Gravelly Loam	5 to 9 percent slopes
160	Hotaw Loam	15 to 30 percent slopes
162	Indleton-Caris_Hoosimbim Complex	50 to 75 percent slopes
166	Jafa Gravelly Loam	2 to 9 percent slopes
172	Marpa-Vitzthum Complex	50 to 75 percent slopes
173	Marpa Variant-Goulding-Holkat Variant Complex	30 to 50 percent slopes
181	Musserhill-Weaverville Complex	15 to 30 percent slopes
182	Musserhill-Weaverville Complex	30 to 50 percent slopes
198	Tallowbox-Minersville Complex	30 to 50 percent slopes
199	Tallowbox-Minersville Complex	50 to 75 percent slopes
213	Xeralfs-Xerorthents Complex	5 to 50 percent slopes
217	Xerofluvents-Riverwash Complex	0 to 5 percent slopes

Table L-4 Mapped Soil Units Within the Upper Rush Creek Site

Map Unit	Map Unit Name	Slope Occupies
112	Brownbear-Bamtush Complex	30 to 50 percent slopes
114	Browns Creek Gravelly Loam	50 to 75 percent slopes
147	Haploxerolls, Warm	0 to 2 percent slopes
152	Haysum Gravelly Loam	5 to 9 percent slopes
160	Hotaw Loam	15 to 30 percent slopes
162	Indleton-Caris-Hoosimbim Complex	50 to 75 percent slopes
166	Jafa Gravelly Loam	2 to 9 percent slopes
172	Marpa-Vitzthum Complex	50 to 75 percent slopes
173	Marpa Variant-Goulding-Holkat Variant Complex	30 to 50 percent slopes
181	Musserhill-Weaverville Complex	15 to 30 percent slopes
182	Musserhill-Weaverville Complex	30 to 50 percent slopes
198	Tallowbox-Minersville Complex	30 to 50 percent slopes
199	Tallowbox-Minersville Complex	50 to 75 percent slopes
213	Xeralfs-Xerorthents Complex	5 to 50 percent slopes
217	Xerofluvents-Riverwash Complex	0 to 5 percent slopes

Table L-5 Mapped Soil Units Within the Steel Bridge Day Use Site

Map Unit	Map Unit Name	Slope Occupies
117	Brownscreek-Dougcity Complex	50 to 75 percent slopes
217	Xerofluvents-Riverwash Complex	0 to 5 percent slopes

Table L-6 Mapped Soil Units Within the Reading Creek Site

Map Unit	Map Unit Name	Slope Occupies
117	Brownscreek-Dougcity Complex	50 to 75 percent slopes
118	Cargent-Demogul Association	50 to 75 percent slopes
134	Demogul Gravelly Loam	50 to 75 percent slopes
152	Haysum Gravelly Loam	5 to 9 percent slopes
207	Vitzthum-Cargent Complex	50 to 75 percent slopes
213	Xeralfs-Xerorthents Complex	5 to 50 percent slopes
217	Xerofluvents-Riverwash Complex	0 to 5 percent slopes

APPENDIX M

Key Observation Point Photographs

Sawmill Site
VAU SM1, KOP 1, Photo 1a
View from river right, looking southwest toward river.

Sawmill Site
VAU SM1, KOP 2, Photo 1b
View from river right, looking west toward river.

Sawmill Site
VAU SM1, KOP 3, Photo 1c
View from river right, looking south toward river.

Sawmill Site
VAU SM1, KOP 4, Photo 2
View of the Sawmill site looking upstream from Goose Ranch Road.

Sawmill Site
VAU SM1, KOP 5, Photo 3
View of the Sawmill site looking upstream from Goose Ranch Road.

Sawmill Site
VAU SM2, KOP 1, Photo 4a
View looking southwest toward river from the Sawmill site parking area.

Sawmill Site
VAU SM2, KOP 2, Photo 4b
View looking west toward river from the Sawmill site parking area.

Sawmill Site
VAU SM2, KOP 3, Photo 4c
View looking south toward river from the Sawmill site parking area.

Sawmill Site
VAU SM2, KOP 4, Photo 5a
View of oxbow, looking downstream.

Sawmill Site
VAU SM2, KOP 5, Photo 5b
View of oxbow, looking upstream.

Sawmill Site
VAU SM2, KOP 6, Photo 6
View of oxbow from the footbridge.

Sawmill Site
VAU SM2, KOP 7, Photo 7a
View from left bank, looking at island created by oxbow.

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Sawmill Site
VAU SM2, KOP 8, Photo 7b
View looking west from left bank of oxbow.

Sawmill Site
VAU SM2, KOP 9, Photo 8a
View upstream from right bank of river, south of the power line crossing.

Sawmill Site
VAU SM2, KOP 10, Photo 8b
View across river from right bank of river, south of the power line crossing.

Sawmill Site
VAU SM2, KOP 11, Photo 8c
View downstream from right bank of river, south of the power line crossing.

Sawmill Site
VAU SM2, KOP 12, Photo 9a
View upstream from right bank of river, north of the power line crossing.

Sawmill Site
VAU SM2, KOP 13, Photo 9b
View downstream from right bank of river, north of the power line crossing.

Sawmill Site
VAU SM2, KOP 14, Photo 10
View of the Sawmill site looking downstream from Goose Ranch Road.

Sawmill Site
VAU SM3, KOP 1, Photo 11
View towards river from Rush Creek Road.

Upper Rush Creek Site
VAU UR1, KOP 1, Photo 12
View towards river from Rush Creek Road at downstream end of rehabilitation site near Upper Rush Creek site boundary.

Upper Rush Creek Site
VAU UR1, KOP 2, Photo 13
View towards river from residences east of the Trinity River Lodge RV Park.

Upper Rush Creek Site
VAU UR1, KOP 3, Photo 14
View towards river from the Trinity River Lodge RV Park.

Upper Rush Creek Site
VAU UR2, KOP 1, Photo 15a
View upstream from the BLM Rush Creek River Access.

Upper Rush Creek Site
VAU UR2, KOP 2, Photo 15b
View across river from the BLM Rush Creek River Access.

Upper Rush Creek Site
VAU UR2, KOP 3, Photo 15c
View downstream from the BLM Rush Creek River Access.

Upper Rush Creek Site
VAU UR3, KOP 1, Photo 16
View from Rush Creek Road near downstream end of rehabilitation site.

Upper Rush Creek Site
VAU UR3, KOP 2, Photo 17a
View upstream from end of Partridge Lane.

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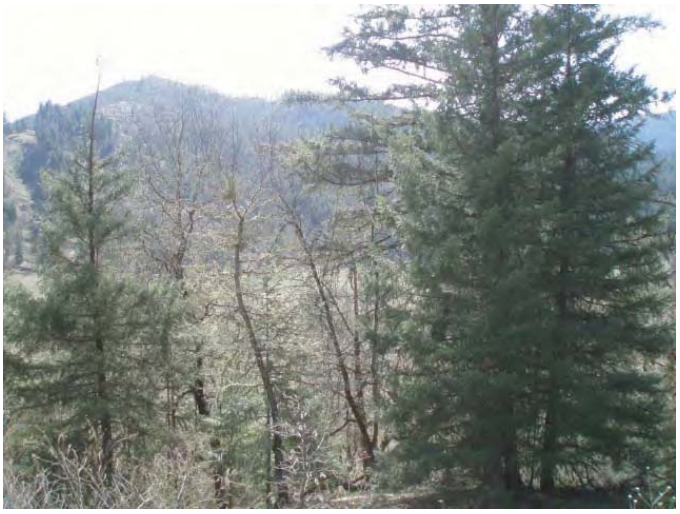
Upper Rush Creek Site
VAU UR3, KOP 3, Photo 17b
View across river from end of Partridge Lane.

Upper Rush Creek Site
VAU UR3, KOP 4, Photo 17c
View downstream from end of Partridge Lane.

Lowden Ranch Site
VAU LR1, KOP 1, Photo 18
View downstream from Bucktail Road near Salmon Drive.



Lowden Ranch Site
VAU LR2, KOP 1, Photo 19
View from Browns Mountain Road at Mountain Springs Road intersection.

Lowden Ranch Site
VAU LR2, KOP 2, Photo 20
View from west side of residence on Browns Mountain Road.

Lowden Ranch Site
VAU LR2, KOP 3, Photo 21
View upstream from Browns Mountain Road at downstream end of rehabilitation site near Trinity House Gulch site boundary.

Lowden Ranch Rehabilitation Site
VAU LR2, KOP 4, Photo 22a
View looking south from Lewiston Road near north end of rehabilitation site.

Lowden Ranch Site
VAU LR2, KOP 5, Photo 22b
View looking west from Lewiston Road near north end of rehabilitation site.

Lowden Ranch Site
VAU LR2, KOP 6, Photo 23a
View looking north from the Lowden Ranch Trailhead.

Lowden Ranch Site
VAU LR2, KOP 7, 23b
View looking west from the Lowden Ranch Trailhead.

Lowden Ranch Site
VAU LR2, KOP 8, Photo 24
View looking north from the Lowden Ranch Trail, west of trailhead parking area.

Lowden Ranch Site
VAU LR2, KOP 9, Photo 25
View looking east from the Lowden Ranch Trail near downstream end of rehabilitation site.

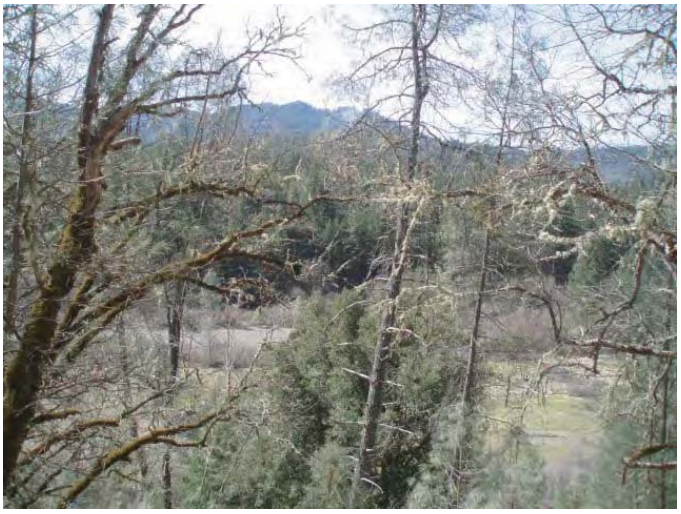
Lowden Ranch Site
VAU LR2, KOP 10, Photo 26
View of the Lowden Ranch Trail near downstream end of rehabilitation site at point where trail parallels left bank of river.

Lowden Ranch Site
VAU LR2, KOP 11, Photo 27a
View looking downstream from the Lowden Ranch Trail river access near downstream end of rehabilitation site.

Lowden Ranch Site
VAU LR2, KOP 12, Photo 27b
View looking upstream from the Lowden Ranch Trail river access near downstream end of rehabilitation site.

Lowden Ranch Site
VAU LR2, KOP 13, Photo 28
View of dredger tailings from the Lowden Ranch Trail near downstream end of rehabilitation site.

Lowden Ranch Site
VAU LR2, KOP 14, Photo 29
View from gate near ponds, west of trailhead parking area.



Trinity House Gulch Site
VAU THG1, KOP 1, Photo 30
View from Browns Mountain Road.

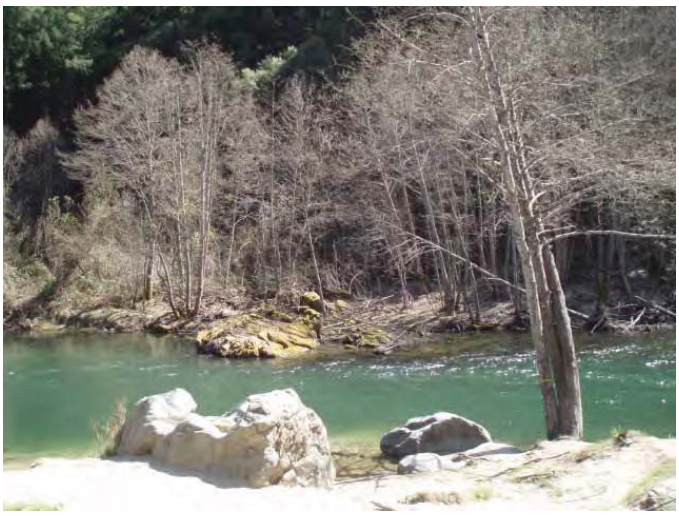
Trinity House Gulch Site
VAU THG1, KOP 2, Photo 31
View from Browns Mountain Road.

Trinity House Gulch Site
VAU THG1, KOP 3, Photo 32
View from Browns Mountain Road.

Trinity House Gulch Site
VAU THG1, KOP 4, Photo 33
View from residence at end of Wellock Road.

Steel Bridge Day Use
VAU SB1, KOP 1, Photo 34a
View from left bank of river, looking upstream at the day use area.

Steel Bridge Day Use
VAU SB1, KOP 2, Photo 34b
View from left bank of river, looking downstream at the day use area.



Steel Bridge Day Use
VAU SB1, KOP 3, Photo 34c
View from left bank of river, looking across river at the day use area.

Steel Bridge Day Use
VAU SB1, KOP 4, Photo 35a
View from left bank of river near upstream end of rehabilitation site, looking upstream.

Steel Bridge Day Use
VAU SB1, KOP 5, Photo 35b
View from left bank of river near upstream end of rehabilitation site, looking downstream.

Steel Bridge Day Use
VAU SB1, KOP 6, Photo 35c
View from left bank of river near upstream end of rehabilitation site, looking south.

Reading Creek
VAU RC1, KOP 1 Photo 36
View of upstream end of rehabilitation site from Frank's Trinity River Mobile Home Park.

Reading Creek
VAU RC3, KOP 1, Photo 37a
View from right bank of river south of the BLM Reading Creek Campground, looking south.

Reading Creek
VAU RC3, KOP2, Photo 37b
View from right bank of river south of the BLM Reading Creek Campground, looking downstream.

Reading Creek
VAU RC3, KOP 3, Photo 37c
View from right bank of river south of the BLM Reading Creek Campground, looking upstream.

Reading Creek
VAU RC3, KOP 4, Photo 38a
View looking upstream at river bend.

Reading Creek
VAU RC3, KOP 5, Photo 38b
View looking across river at river bend.

Reading Creek
VAU RC4, KOP 1, Photo 39a
View looking upstream from BLM river access near downstream end of rehabilitation site.

Reading Creek
VAU RC4, KOP 2, Photo 39b
View looking downstream from BLM river access near downstream end of rehabilitation site.

ATTACHMENT 1

Glossary

Attachment 1

Glossary

Alcove – An elongated depression in the edge of a bar or floodplain surface that remains inundated when river discharge is 300 cubic feet per second. Alcoves are usually located downstream from a hydraulic control, often at the downstream end of a bar or floodplain, directly at the end of a chute. Purpose/Function – Alcoves increase bank length and provide slow water habitat.

Alternate Bar – A bar composed of coarse sediment that extends diagonally from one bank across the channel toward the opposite bank. Gross bar morphology will be specified with a design terrain model. Alternate bars may include one or more point-bar-like components attached to the banks and a partially submerged diagonal component. The diagonal component may or may not extend completely across the channel. Oversized coarse sediment may (infrequently) be incorporated in alternate bar construction. Purpose/Function – Alternate bars may be more effective than point bars for steering flow into side channel or pilot meanders. Alternate bars create a hydraulic control that raises the water surface elevation, and the diagonal orientation of the bar crest produces a lateral component in the flow direction that causes flow to impinge on the bank.

Bank Slashing – Excavating or clearing vegetation in narrow strips (e.g., the width of an excavator bucket) perpendicular to the riverbanks. The excavated or cleared strips are separated by similarly sized narrow strips of vegetated undisturbed bank. Purpose/Function – Bank slashing is intended to increase near-bank habitat complexity and to encourage bank erosion and recruitment of woody debris with minimal mechanical intervention and minimal removal of existing cover.

Bench (Inundation Surface) – An excavated floodplain-like surface adjacent to the stream channel with a specified average elevation lower than the water surface elevation when stream discharge is 6,000 cubic feet per second. The elevation of constructed benches will typically correspond to the water surface elevation when stream discharge is 2,000 to about 4,500 cubic feet per second. Purpose/Function – Benches can potentially provide many of the same functions as floodplains, but differ in that they provide aquatic habitat at intermediate discharges, which occur far more frequently than bankfull. Benches are expected to be more effective than floodplains for encouraging bar deposition in the main channel.

Channel Realignment – The excavation of an entirely new section of channel. Purpose/Function – Channel re-alignment may be needed to significantly increase channel sinuosity or to move the channel to a more favorable position in the valley bottom.

Chute (High-Flow scour channel) – A swale or channel-like feature traversing part or all of a bar or floodplain. Chutes typically exit the main channel a short distance upstream from a hydraulic control and re-enter the main channel downstream from a hydraulic control. They are usually wide and shallow

nearer their upstream ends and become deeper and narrower in the downstream direction. Chute alignment and gross topography will be specified by a design terrain model. Purpose/Function – Chutes concentrate flow over floodplain and bar surfaces, which helps to drain those surfaces and maintain alcove structures at the downstream ends of the surfaces.

Coarse Sediment/Fish Rock – Gravel and small cobble bed material between 3/8 and 5 inches in sieve size and a particle size distribution similar to tailings and coarse alluvial deposits found along the Trinity River. Purpose/Function – Coarse sediment is used for constructing bars, islands, and other fill surfaces. It is also added to the river to replenish the coarse sediment that is transported downstream by high flows.

Coarse Sediment/Oversize – Cobble and small boulder (approximately 5–24 inches). Purpose/Function – Oversized coarse sediment may be used to construct portions of some bars or other fill surfaces that are intended to resist erosion and persist in a roughly as-built condition for an extended period.

Fine Sediment Placement – The spreading of a layer of silt–sand on floodplain and island surfaces. Purpose/Function – Placing fine sediment on floodplain and island surfaces improves soil conditions and enhances re-vegetation success.

Floodplain – A surface adjacent to the stream channel with relief typically less than about 3 feet and an average elevation approximately equal to the water surface elevation when Trinity River discharge is between 6,000 and 7,000 cubic feet per second. Construction is typically via cut, but may include areas of fill as well. Gross surface morphology, which will be specified with a design terrain model, typically includes one or more elongated areas of relatively high elevation oriented sub-parallel to the stream flow direction bounded by low-angle slopes both toward the channel and away from the channel. Floodplain designs may incorporate side channels, chutes, or alcoves. Finished floodplain surfaces should include roughness elements such as wood placement, vegetation clumps, and topographic variability at scales too small to incorporate readily into the design terrain model or drawings. Unless otherwise specified, topographic depression in floodplains must drain to the river. Purpose/Function – Constructed floodplains are ultimately expected to develop riparian vegetation and to accumulate fine sediments. The resulting surfaces have a number of potential functions. New floodplains provide areas that can potentially be planted with riparian vegetation to provide wildlife habitat and meet permitting requirements for replacing riparian vegetation removed during the construction of rehabilitation sites. Vegetated floodplains represent critical habitat for many species of birds and other wildlife. Floodplains are important for producing a variety of inputs to the aquatic flows; they provide fish with shelter from high flow velocities and direct access to food sources. Where terraces are lowered to floodplain elevation, flow conveyance outside the channel is increased, thereby decreasing flow velocities in the main channel. Likewise, increasing flow conveyance in floodplain areas can help protect infrastructure and meet FEMA requirements by lowering flood stages. Where floodplains are constructed by filling lower areas, flow velocities in the main channel may be increased, thereby increasing sediment transport capacity and/or the potential for bank erosion.

Grade Control Removal – Removal of boulders or gabion structures from within the wetted channel. Purpose/Function – Grade controls may be removed to change design hydraulic conditions. Removal will

spread elevation drops over longer reaches, which will facilitate coarse sediment transport, and may eliminate hazards.

Island – A floodplain-like surface within the main channel. Islands may be constructed by filling lower areas with bed material or by excavating a new channel around existing surfaces. Purpose/Function – Islands increase the total bank length in a reach, thereby increasing the availability of bank-related habitats. Because they are high in elevation and, if vegetated, are hydraulically rough, they maintain the main channel conveyance needed to prevent filling of the adjacent channels.

Key Wood Jam – A structure composed of one or many pieces of large wood anchored in the main channel to encourage bed material deposition and bar or island formation. Purpose/Function – Key wood jams may be used to encourage bed material deposition in order to initiate bar or island formation, or to deflect bedload transport away from side channel entrances.

Pilot Meander – A curved section of channel excavated along one bank of the existing channel to an elevation at or below the baseflow water surface elevation. Pilot meander designs will often be associated with constructed bars that encourage flow into the excavated area. Purpose/Function – Pilot meanders will almost invariably be constructed in conjunction with bar construction on the opposite bank. The intent is to force the main flow to occupy the excavated area and produce a new meander in the channel planform.

Point Bar – A bar along one stream bank that was constructed by placing coarse sediment in the channel. Gross bar morphology will be specified with a design terrain model, but will often be characterized by an arc-like planform shape and surface topography ranging from relatively flat to a form similar to that of a floodplain. Point bars will often incorporate chutes. Typically, elevations for constructed point bars correspond to the water surface elevation when Trinity River discharge is less than 6,000 cubic feet per second. Finished point bars may include roughness elements such as wood placements, vegetation clumps, and small-scale topographic variability. Oversized coarse sediment may (infrequently) be incorporated in point bar construction. Purpose/Function – Point bars construction is a simple method for augmenting the supply of gravel in the channel. In these cases, constructed point bars are expected to move with high flows, after which they may or may not be re-constructed. Point bar configurations may also be used to narrow the channel in order to increase the potential for erosion on the opposite bank or to force flow into a newly excavated pilot meander. In these instances, point bars are expected to persist as fixed bars for relatively long periods.

Off-channel Pond – A pond near the low-flow channel with no surface water connection to the main channel at baseflow, but which connects to the main channel during high flow events. These ponds should contain abundant cover and be relatively deep (3 feet or more) under baseflow conditions. Purpose/Function – Off-channel ponds are thought to provide superior over-summering habitat for coho juveniles because they provide shelter from large predatory fish and create areas of increased productivity and water temperature, which support a faster juvenile growth rate

Recontouring – Selective excavation and/or vegetation clearing to enhance drainage on floodplains and other surfaces that become inundated during high flows. Purpose/Function – Recontouring improves the drainage of floodplains and other surfaces, thereby reducing the risk of stranding fish during times of falling river stage.

Ripping – Using ripper bars to loosen the existing ground surface in rills that are parallel to the river flow. Purpose/Function – Ripping encourages erosion by loosening compacted or embedded surfaces, prepares surfaces for seeding, and prevents surface water runoff.

Scalping – The removal of a thin layer of compacted material (approximately 1 foot or less) from the existing ground surface. Purpose/Function – Scalping may be needed where a surface layer of coarse materials exists. Removing the surface layer may expose finer material that can be entrained by flows and provide a better growth medium for vegetation.

Side Channel (Low-Flow) – A relatively narrow channel (bottom width 10–30 feet) traversing floodplains or other areas adjacent to the main channel and excavated to a depth that permits flow-through when river discharge is 300 cubic feet per second. Side channels typically exit the main channel a short distance upstream from a natural or constructed hydraulic control and re-enter the main channel downstream from a hydraulic control. Side channel details may include pool-riffle topography, wood and/or boulder placements, vegetation clumps, and small-scale bank irregularities. Alignment and gross topography will be specified by a design terrain model. Purpose/Function – Low-flow side channels increase bank length and bank-related habitat in a reach, and generally provide lower velocity flows and abundant cover suitable for fry rearing. To be effective salmonid habitat, it is necessary that flow through the side channel be maintained.

Slough – A relatively long channel-like feature traversing a bar or floodplain and that remains inundated through most of its length but does not maintain continuous surface flow at baseflow. It can be described morphologically as a partially filled side-channel or an especially long alcove. Slow flow rates may be maintained in sloughs at baseflow by hyporheic flow. Purpose/Function – Sloughs increase bank length and provide slow water habitat.

Terrace – A relatively flat surface within the riverine corridor with an elevation higher than the water surface elevation when stream discharge is 7,000 cubic feet per second. Purpose/Function – Terrace surfaces may be constructed to accommodate spoiling material or to provide areas for stockpiling materials, processing gravel, or staging equipment.

Vegetation Removal – Clearing all or selected vegetation within an area that is not being excavated. Purpose/Function – Clearing vegetation may be needed to increase flow conveyance in areas where high river stages threaten structures.

Wetland Expansion – Excavation that expands or improves existing wetland areas. Purpose/Function – Creation or augmentation of wetland habitat directly supports amphibians and turtles, as well as other wildlife species, which have been negatively impacted by relatively high and cold summer releases from

Lewiston Dam. Created wetland areas will also support riparian vegetation recruitment. Site-specific conditions will determine the duration of inundation and the design selected for construction.

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Final Master Environmental Impact Report
Final Environmental Impact Report

August 2009

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

Project Proponent
Trinity River Restoration Program
U.S. Department of the Interior
Bureau of Reclamation

Federal Cooperating Agencies
Shasta-Trinity National Forest
Bureau of Land Management

Cooperating Tribal Agencies
Hoopa Valley Tribe
Yurok Tribe

Project Proponent's Consultant
North State Resources, Inc.

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

Final Master Environmental Impact Report
Final Environmental Impact Report

August 2009
State Clearinghouse SCH #2008032110

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California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd., Suite A
Santa Rosa, California 95403

Subject: Final Master Environmental Impact Report for Trinity River Restoration Program Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites

Dear Interested Parties:

Under guidance of the Trinity River Restoration Program (TRRP), the Bureau of Reclamation has acted as the Project Proponent in preparation of a programmatic Master Environmental Impact Report (Master EIR) and site specific Final Environmental Impact Report (Final EIR) to evaluate impacts of proposed TRRP activities for Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites. The California Regional Water Quality Control Board, North Coast Region (Regional Water Board), is the California Environmental Quality Act (CEQA) lead agency for preparation of these documents. The National Environmental Policy Act (NEPA) component of the original joint CEQA/NEPA EA/Draft EIR for Remaining Phase 1 Rehabilitation Activities has been completed with the signing of a federal Finding of No Significant Impact (FONSI) for these activities. When the Final Master EIR is certified under CEQA by the Regional Water Board, it will serve similar functions under CEQA, as the Trinity River Mainstem Fishery Restoration Environmental Impact Statement (FEIS) under NEPA. The Final Master EIR will provide programmatic CEQA level review from which site-specific project reviews may tier from. Both the FEIS, and now the Final Master EIR, are meant to support and facilitate implementation of the Secretary of Interior's December 2000 Record of Decision (ROD) for Trinity River Restoration.

The mechanical channel rehabilitation and sediment management activities evaluated by these environmental documents were originally identified in the ROD as necessary steps towards restoration of the Trinity River's anadromous fishery. To this end, the TRRP's efforts are intended to increase habitat for all life stages of wild salmon and steelhead native to the Trinity River. River restoration activities, as described in the Final Master EIR-Final EIR would create additional fish and wildlife habitat at a number of discrete locations; and over time, further increases in habitat are anticipated as riverine processes are restored. Work to be performed includes re-contouring bank and floodplain features, as well as conducting in-river work such as gravel placement and grade control removal. In addition to various construction activities, the Final Master EIR - Final EIR completes the analyses necessary to authorize ongoing restoration activities such as gravel addition during high spring flows and control of fine sediment. Construction activities, evaluated in the Final Master EIR – Final EIR, are scheduled to begin in late-summer 2009 at the Sawmill Restoration site, near Cemetery hole on the mainstem Trinity.

The attached Final Master EIR - Final EIR includes the Draft Master EIR - Draft EIR (incorporated by reference), a list of persons and agencies commenting on the Draft environmental documents, written comments, Lead Agency responses to comments, revised Draft Master EIR – Draft EIR text, and a Mitigation Monitoring and Reporting Program (MMRP) for the proposed Project. Prior to approving the Project, the Water Control Board will certify that the Final Master EIR- Final EIR is in compliance with CEQA. The document will then be used to support necessary permit applications as well as to identify and adopt appropriate monitoring and mitigation plans.

Electronic copies of the fore-mentioned environmental documents, as well as the signed federal Finding of No Significant Impact (FONSI), are available on the TRRP's website at: http://www.trrp.net/implementation/remainingP1.htm , or on Reclamation's Mid-Pacific Region website at: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=3138. Hard copies of the documents may also be reviewed at the TRRP Office at 1313 South Main Street (next to Tops grocery) or at the Trinity County library, 211 North Main Street; in Weaverville, California.

If you have any questions concerning this document or the Project, please contact Mr. Brandt Gutermuth, TRRP, at 530-623-1806 or bgutermuth@mp.usbr.gov. or Mr. Dean Prat, of the Water Quality Control Board, at 707-576-2801 or dprat@waterboards.ca.gov.

Sincerely,

Catherine Kuhlman
Executive Officer
Water Quality Control Board
North Coast Region
CEQA - Lead Agency

Mike A. Hamman
Executive Director
Trinity River Restoration Program
Project Proponent

Attachment – Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Part 1: Final Master EIR and Part 2: Final EIR (Final Master EIR-FEIR)

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CHAPTER 1

Introduction

Chapter 1
Introduction

This Final Master Environmental Impact Report (Final Master EIR) and Final Environmental Impact Report (Final EIR) include comments and responses to comments on the Draft Master Environmental Impact Report (Draft Master EIR) and Draft Environmental Impact Report (Draft EIR) for Channel Rehabilitation and Sediment Management for the Remaining Phase 1 and Phase 2 Sites on the Trinity River. The Final Master EIR considers activities at both the Remaining Phase 1 and the Phase 2 Sites at a programmatic level. The Final EIR tiers from the Final Master EIR and considers activities at the Remaining Phase 1 sites at a project-specific level. The Final Master EIR and the Final EIR must be considered by the North Coast Regional Water Quality Control Board (Regional Water Board) as lead agency under the California Environmental Quality Act (CEQA) before it approves or rejects the Proposed Projects described in these documents.

According to the CEQA Guidelines (Section 15132), a final EIR shall consist of the following elements:

- the draft EIR or a revision of that draft;
- comments and recommendations received on the draft EIR either verbatim or in summary;
- a list of persons, organizations, and public agencies commenting on the draft EIR;
- the responses of the lead agency to significant environmental points raised in the review and consultation process; and
- any other information added by the lead agency.

The Draft EIR was included in a combined NEPA/CEQA document; the NEPA portion of the document was an Environmental Assessment (EA). The U.S. Bureau of Reclamation (Reclamation), the project proponent and NEPA lead agency, has determined that the EA prepared for the Remaining Phase 1 sites adequately evaluates the environmental effects of the Proposed Action. Based on its evaluation, Reclamation has prepared and signed a Finding of No Significant Impact (FONSI). With the signing of the FONSI, the NEPA process for the Remaining Phase 1 sites has been completed. The FONSI is included as Attachment 1 at the end of this document.

1.1 Organization of the Document

The remainder of this document is divided into three parts.

Part 1 is the Final Master EIR, which is organized into three chapters:

- **Chapter 2 –** This chapter provides a summary of the Proposed Project evaluated in the Draft Master EIR.

- **Chapter 3 –** This chapter provides a list of commenters on the Draft Master EIR, copies of their comments (alpha-numerically coded for reference), and the lead agencies' responses to the comments. No corrections and additions to the Draft Master EIR were made as a result of these comments. However, the lead agency made two minor editorial changes to Chapter 4 of the Draft Master EIR. The figure in Chapter 4 that has been changed is identified as "Revised."

- **Chapter 4 –** Changes to Draft Master EIR.

Part 2 is the Final EIR, which is organized into three chapters:

- **Chapter 5 –** This chapter provides a summary of the Proposed Project evaluated in the Draft EIR.

- **Chapter 6 –** This chapter describes the relevancy of comments made on the Draft Master EIR to the Draft EIR.

- **Chapter 7 –** No corrections and additions to the text of the Draft EIR were made as a result of public review of the document. The chapter consists of minor editorial changes to tables and figures made by the lead agency as a result of the wetland verification for two of the Remaining Phase 1 sites (Sawmill and Trinity House Gulch). Tables and figures that have been changed are identified as "Revised."

Part 3 is the required discussion of the Mitigation Monitoring and Reporting Program (MMRP):

- **Chapter 8 –** This chapter discusses the MMRP, as required by the CEQA Guidelines (Section 15097). The chapter describes the legal requirements for the MMRP, the intent of the MMRP, the development and approval process for the MMRP, the authorities and responsibilities associated with the implementation of the MMRP, and resolution of noncompliance complaints.

Following Part 3 are two appendices that apply to both the Final Master EIR and the Final EIR:

- **Appendix A –** This appendix contains the Mitigation Monitoring and Reporting Program (MMRP) required under CEQA. It is intended to provide a stand-alone document that will be used to fulfill the requirements of the MMRP over the course of the projects evaluated in the Final Master EIR and Final EIR.

- **Appendix B –** This appendix provides documentation for the U.S. Army Corps of Engineers (USACE) verification of wetlands and jurisdictional waters for two of the Remaining Phase 1 sites.

The Final Master EIR and the Final EIR incorporate by reference the Draft Master EIR and Draft EIR.

1.2 Project Overview

1.2.1 Project History

The Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) identified mechanical channel rehabilitation activities along the Trinity River, including the proposed rehabilitation activities at the sites described in the Draft Master EIR and Draft EIR. Programmatically, the intent of these activities is to selectively remove fossilized berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); revegetate and provide conditions for regrowth and sustenance of native riparian vegetation; and recreate alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the Trinity River Division (TRD), although on a reduced scale. The Record of Decision (ROD) acknowledged that the TRD eliminated supplies of course sediment from upstream sources, resulting in the need to ensure that the sediment flux of the mainstem Trinity River is managed to complement the flow and mechanical channel rehabilitation components. The proposed rehabilitation activities are required for the restoration of Trinity River mainstem fisheries and are specifically designed for the benefit of anadromous fish and their habitat through development of properly functioning and diverse riparian, floodplain, and mainstem riverine habitat.

The Draft Master EIR and Draft EIR address the environmental issues, alternatives, and impacts associated with modification of the bed and bank of the Trinity River along approximately 40 miles of the mainstem Trinity River between the communities of Lewiston and Helena, California, and sediment management activities at select locations along the mainstem Trinity River. The Regional Water Board prepared the draft EIRs. This Final Master EIR and Final EIR satisfy its legal and regulatory requirements pursuant to CEQA.

As the project proponent, Reclamation is responsible for the funding and implementation of the rehabilitation and sediment management activities described for the Proposed Projects. Under CEQA, the Trinity County Resource Conservation District (TCRCD), in its role as a potential TRRP funding agency, serves as a cooperating agency, while responsible agencies include the California Department of Transportation (Caltrans), the California Department of Fish and Game (CDFG), the California Department of Water Resources (DWR), and Trinity County. As managers of public lands within the watershed and along the mainstem Trinity River, the Shasta-Trinity National Forest (STNF) and the Bureau of Land Management (BLM) serve as NEPA cooperating agencies for actions described in the Draft EA/EIR. Based on their past and on-going involvement in the TRRP and the Trinity Management Council (TMC) and their jurisdiction over tribal trust resources (e.g., fish, wildlife), the Hoopa Valley Tribe (HVT) and the Yurok Tribe (YT) also serve as NEPA cooperators.

1.3 Summary of Project Impacts and Mitigation Measures

The environmental setting and environmental impacts of implementing the Proposed Project and the alternatives for the Remaining Phase 1 and Phase 2 sites are described at a programmatic level in Chapter 4 of the Draft Master EIR; the environmental setting and environmental impacts of implementing the Proposed Project and the alternatives for the Remaining Phase 1 projects are described

at a project-specific level in Chapter 7 of the Draft EIR. The draft documents are both incorporated by reference. A summary of significant impacts and associated mitigation measures is provided in the MMRP as Appendix A to this document.

1.4 Environmental Review Process

The Regional Water Board initiated the public scoping process by forwarding a Notice of Preparation (NOP) of an EIR to the California State Clearinghouse on March 27, 2008. The NOP and agency comments on the NOP are on file at the TRRP office in Weaverville, California. The NOP was circulated to the public; to local, state, and federal agencies; and to other interested parties in order to solicit comments on the Proposed Project. The public scoping period was March 27, 2008, through May 12, 2008, and scoping comments were received through September 15, 2008.

Reclamation and the Regional Water Board held a joint NEPA/CEQA scoping meeting on April 16, 2008, at the Douglas City Fire Hall in Douglas City, California. During this meeting, members of the public were asked to assist Reclamation and the Regional Water Board in identifying issues that should be addressed in the Draft Master EIR and the EA/Draft EIR. As the public comment period continued, the lead agencies received letters that helped identify areas of concern. These areas of concern and other oral comments received at the scoping meeting were considered during the preparation of the Draft Master EIR and the EA/Draft EIR. The scoping and public involvement process is also described in Chapter 1 of the draft documents.

The following substantive issues associated with the Proposed Project were identified during the public scoping process:

- land use
- geology, fluvial geomorphology, and soils
- water resources
- water quality
- fishery resources
- vegetation, wildlife, and wetlands
- socioeconomics, population, and housing
- cultural resources
- air quality
- aesthetics
- hazardous materials
- noise
- public services and utilities/energy
- transportation and traffic circulation
- cumulative impacts

The Draft Master EIR and the EA/Draft EIR were circulated for a 45-day public comment period from June 5, 2009, to July 25, 2009. To ensure adequate public involvement, the lead agency received and considered additional comments submitted after this date. Fifteen copies of the document were submitted to the State Clearinghouse for distribution to state agencies having jurisdiction over resources affected by the project. The lead agencies also distributed copies to an extensive mailing list, including federal, state, and local agencies with similar jurisdiction or a stated interest in the project.

A Notice of Availability of the Draft Master EIR and EA/Draft EIR was published in the *Trinity Journal* on June 14 and 27, 2009, and the documents were posted on both the TRRP's website (http://www.trrp.net/implementation.htm) and the Bureau of Reclamation, Mid-Pacific Region's website for Northern California Area Office environmental documents (http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm). The notice was also mailed to all interested members of the public who participated in the project scoping process, an interested parties mailing list, and representatives of adjacent counties. The notice announced the availability of the Draft Master EIR and EA/Draft EIR and stated where these and supporting documents could be obtained or reviewed, the dates of the comment period, and the deadline for receiving written comments.

1.5 Other Necessary Decisions

Reclamation will prepare and submit to the Regional Water Board an application for Clean Water Act (CWA) section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill) to accompany its pre-construction notification sent to the USACE for CWA section 404 coverage. The Regional Water Board intends to develop and issue a general water quality certification for the TRRP class of activities that contains enrollment procedures for individual TRRP projects (Cal. Code Regs., tit. 23, section 3861.) The section 401 certification is likely to impose water quality limitations and project conditions. Once a general water quality certification is issued and individual projects enrolled, discharges from the individual projects will also be regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of the general water quality certification. Once a project is approved, the filing of a Notice of Determination (NOD) will complete the CEQA environmental review process. For the project, in accordance with standard procedures, the Regional Water Board, if it chooses to proceed, will certify the Final Master EIR and the Final EIR and will file the NOD. The Regional Water Board will then forward these documents to Reclamation along with a recommendation regarding what it believes should be the preferred alternative for each project.

As required under the federal Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.), implementation of the preferred alternatives requires consultation with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Consultation for this project has recently been completed. Additionally, implementation of the project will require a number of permit and agency approvals under local, state, and federal laws. Agencies with potential permit and approval requirements include the USACE, CDFG, and Trinity County.

PART 1

Final Master EIR

CHAPTER 2

Proposed Project: Remaining Phase 1 and Phase 2 Sites

Chapter 2

Proposed Project: Remaining Phase 1 and Phase 2 Sites

This chapter provides a summary of the Proposed Project evaluated in the Draft Master EIR. The Final Master EIR incorporates by reference the Draft Master EIR.

2.1 Goals and Objectives of the Proposed Project

The goals of the TRRP outlined in the Trinity River Restoration Program Strategic Plan (2003–2008) provide the framework for the specific goals and objectives used to develop the alternatives analyzed in the Draft Master EIR. The following goals and objectives apply to the project's lead/responsible agencies for CEQA purposes, support the Proposed Project, and provided the structure for developing the alternatives:

- Protect and/or enhance the outstandingly remarkable values (ORVs) associated with the designation of a Wild and Scenic River (federal and California).
- Induce changes in channel geometry in response to constructing channel and floodplain features designed for the river's current and future hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the Proposed Project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment and incorporate this information into the Adaptive Environmental Assessment and Management (AEAM) Program.
- Provide safe and reasonable access as required to support project planning, implementation, and monitoring.
- Develop partnerships with willing participants and encourage positive landowner interest and involvement.
- Use the post-ROD flow regime as the basis for site design.
- Integrate known fluvial and ecological theories and relationships with the sites' measured physical and biological attributes and evaluate the response over a definitive period.
- Balance the benefits of rehabilitation activities in a manner that minimizes or reduces the resource impacts at one or more sites.

- Where practicable, preserve unique and valuable geomorphic and biological features such as hydraulic controls, high-quality spawning or adult holding habitat, and cottonwood galleries.

- Facilitate recovery of native fish and wildlife resources that are in decline or are listed as threatened or endangered.

- Encourage the use of bioengineering techniques (e.g., use of wood and vegetation) as needed to protect and/or stabilize private properties while providing aquatic habitat.

The following objectives apply to the responsible and trustee agencies for the Proposed Project, including the STNF, BLM, Regional Water Board, the HVT, the YT, the State Lands Commission (SLC), CDFG, Caltrans, Trinity County, and the TCRCD:

- compliance with the California Water Code and the Water Quality Control Plan for the North Coast Region (Basin Plan) to ensure the highest reasonable quality of waters of the state and allocation of those waters to achieve the optimum balance of beneficial uses;

- protection of the public trust assets of the Trinity River watershed;

- conservation, restoration, and management of fish, wildlife, native plant, and jurisdictional wetland resources; and

- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation and to protect the beneficial uses of water.

2.2 Description of the Proposed Project and Project Alternatives

The Proposed Project and the alternative that were developed to implement activities along the Trinity River for the Remaining Phase 1 and Phase 2 sites are discussed in the Draft Master EIR, along with the No-Project Alternative, which represents the existing conditions. The two alternatives discussed below are considered feasible, and contain measures that would avoid or substantially lessen potentially significant environmental effects of the project.

Within the six Remaining Phase I sites, more than 150 discrete activity areas were established for planning purposes. In addition, 23 Phase 2 Sites were identified in the Master EIR. In addition to evaluating sediment management activities, 15 discrete rehabilitation activities were considered in the analysis. Access to the various activity areas requires existing and new roads and, in addition, constructed crossings over the Trinity River at five of the Remaining Phase 1 sites. The type, extent, and level of activity within each area at various sites may be different, depending on the alternative. These areas were defined by an interdisciplinary design team to include riverine areas, upland areas, and construction support areas. For each site, riverine areas are labeled with an R preceding the site number (e.g., R-1, R-2); upland areas are labeled with a U preceding the site number (e.g., U-1, U-2); in-channel work areas (e.g., gravel placement or grade control removal) are identified with an IC; and staging/use areas are identified with a C. Channel crossings are labeled with an X, and roads are identified as existing

or new. The locations of, and additional information on, these activity areas are provided in Chapter 2 of the Draft Master EIR (Volume II).

CHAPTER 3

Comments and Responses to Comments on the Draft Master EIR

Chapter 3

Comments and Responses to Comments on the Draft Master EIR

3.1 Introduction

Nearly every final EIR issued pursuant to CEQA includes new information provided in response to concerns raised in public and agency comments. These comments and their accompanying responses, however, are generally not "significant new information" that would require the recirculation of some or all of the Draft Master EIR for additional formal public review and commentary.

There were no substantive comments that required changes to the text of the Draft Master EIR. None of the comments or responses reveal any significant environmental effects not previously identified or any substantial increase in the severity of any previously identified effects. Therefore, recirculation of the Draft Master EIR, as set forth in CEQA Guidelines Section 15088.5, is not required. For these reasons, the Regional Water Board, the CEQA lead agency, directed that a Final Master EIR be prepared.

3.2 List of Commenters on the Draft Master EIR

Table 3.1 identifies individuals and representatives of agencies and organizations who submitted comments on the Draft Master EIR.

Table 3.1. Commenters on Draft Master EIR

COMMENT LETTER	INDIVIDUAL OR SIGNATORY	AGENCY/AFFILIATION	DATE PREPARED	DATE RECEIVED
1	Irma Lagomarsino	National Marine Fisheries Service	7/16/09	7/20/09
2	Mike Orcutt	Hoopa Valley Tribe	7/28/09	7/28/09
3	Tim Hayden	Yurok Tribe	7/27/09	7/27/09
4	Brian Person	Trinity Management Council	undated	7/10/09
5	Patrick M. Frost	Trinity County Resource Conservation District	7/13/09	7/13/09
6	Alex Cousins	Trinity River Watershed Council	7/13/09	7/13/09
7	Chuck Lydy	Stakeholder	6/16/2009	6/16/2009
8	Gary B. Stacey	California Department of Fish and Game	7/7/09	7/7/09
9	Marcelino Gonzalez	California Department of Transportation	7/2/09	7/6/09
10	Gail Goodyear	Landowner	7/27/09	7/27/09
11	Gail Goodyear	Landowner	7/30/09	7/30/09

3.3 Comments and Responses to Comments on the Draft Master EIR

The TRRP and the Regional Water Board received 11 letters commenting on the Draft Master EIR. These letters are reproduced on the following pages. Immediately following each of the comment letters are the responses to each of the comments made in the letters.

To assist in referencing comments and responses, each comment letter has been assigned a number and each specific comment a letter of the alphabet. Responses are coded to correspond to the codes used in the margin of the comment letters. Comments that present opinions about the project or that raise issues not directly related to the substance of the Draft Master EIR are noted without a detailed response.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region Arcata Area Office
1655 Heindon Road
Arcata, California 95521
Tel (707) 825-5163; Fax (707) 825-4840

JUL 16 2009 NCRWQCB

JUL 20 2009

☐ EO ☐ WMgmt ☐ Admin
☐ AEO ☐ Timber ☐ Legal
☐ Reg/NPS ☐ Cleanups ☐
☐ Date

Ms. Catherine Kuhlman – Executive Director
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A.
Santa Rosa, California 95403

Dear Ms. Kuhlman,

NOAA's National Marine Fisheries Service wishes to express our support for the Master Environmental Impact Report (EIR) for Trinity River Restoration Program Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites and its site specific Environmental Assessment (EA)/EIR component. We expect that the Master EIR, when certified under CEQA by the Regional Water Board, will serve similar function as the Final Trinity River Mainstem Fisheries Program Final Environmental Impact Statement (FEIS), under the National Environmental Policy Act. The Master EIR and the FEIS will provide programmatic level review that will spur site-specific project reviews.

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NMFS anticipates that the Master EIR will make possible a more cost-effective and timely implementation process leading to accelerated and enhanced benefits to the Trinity River ecosystem. NMFS expects that the projects reviewed in the EIR will benefit fish and wildlife resources of the Trinity River, such as coho salmon listed under the U.S. Endangered Species Act and California Endangered Species Act.

Sincerely,

Irma Lagomarsino
Office Supervisor
National Marine Fisheries Service
Southwest Region Arcata Office
1655 Heindon Road
Arcata California, 95521
Tel (707) 825-5163; Fax (707) 825-4840

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Hoopa Valley Tribal Council
Natural Resources Division
Fisheries Department
Post Office Box 417 • Hoopa, California 95546
(530) 625-4267 • FAX (530) 625-4995

2

28 July 2009

Per FAX transmission -- hardcopy to follow

Catherine Kuhlman CKuhlman@waterboards.ca.gov
Executive Officer
Water Quality Control Board
North Coast Region

Mike Hamman mhamman@mp.usbr.gov
Executive Director
Trinity River Restoration Program

Catherine and Mike:

I am writing today to express support for the Proposed Project as Described in the Draft Master Environmental Impact Report and Draft Environmental Impact Report, *Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites*, dated June 2009 (State Clearinghouse SCH #2008032110).

The Fisheries Department of the Hoopa Valley Tribe is fundamentally interested in the success of habitat restoration projects intended to assist fishery flow releases from Lewiston Dam in mitigating for environmental impacts of US Bureau of Reclamation Central Valley Project facilities on the Trinity River. We see successful implementation of the Proposed Project, in accordance with the Record of Decision of 2000, as critical to restoring tribal trust assets of the Hoopa Valley Tribe including native salmon, steelhead, lamprey and sturgeon populations on which the Tribe directly depends.

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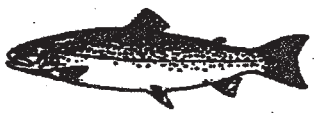
Sincerely,

Mike Orcutt,
Director

PACIFIC LAMPREY



STEELHEAD

GREEN STURGEON

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YUROK TRIBE

190 Klamath Boulevard • Post Office Box 1027 • Klamath, CA 95548
Phone: (707) 482-1350 • Fax: (707) 482-1377

3

July 27, 2009

Ms. Catherine Kuhlman – Executive Director
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A.
Santa Rosa, California 95403

Dear Ms. Kuhlman,

Since time immemorial the Yurok Tribe has relied upon the fisheries resources of the Klamath-Trinity River Basin for subsistence, ceremonial and commercial purposes. The Yurok Tribe is the single largest harvester of Trinity River fall-run Chinook salmon populations, and is dependent on sustainable annual runs of adult spring-run Chinook salmon and steelhead. The restoration and recovery of these tribal trust fish species to pre-Trinity Dam levels is of critical importance to the Yurok people and the survival of our culture and way of life.

The Yurok Tribe strongly encourages the California Regional Water Quality Control Board to approve the Master Environmental Impact Report (EIR) for Trinity River Restoration Program Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites and its site specific Environmental Assessment (EA)/EIR component. We expect that the Master EIR, when certified under CEQA by the Regional Water Board, will serve similar functions as the Final Trinity River Mainstem Fisheries Program Final Environmental Impact Statement (FEIS), under the National Environmental Protection Act. The Master EIR and the FEIS will meet all NEPA and CEQA requirements and will provide programmatic level review from which site-specific project reviews may tier from.

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It is anticipated that the Master EIR will make possible a more cost-effective and timely implementation process leading to accelerated and enhanced benefits to the Trinity River ecosystem. The Yurok Tribe has waited for nearly two decades for the best available science to be developed concerning the restoration of the Trinity River, during which time our fisheries resources have continued to decline. The Yurok Tribe believes that implementation of all non-flow measures of the 2000 Trinity River Record of Decision, including timely construction of all channel rehabilitation sites is a critical step towards restoration of Trinity River Basin fish resources.

In conclusion, the Yurok Tribe requests the Regional Water Board to certify the Master Environmental Impact Report (EIR) for Trinity River Restoration Program Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites and its site specific Environmental Assessment (EA)/EIR component.

Sincerely,

Tim Hayden
Senior Fisheries Biologist
Yurok Tribal Fisheries Program
Trinity River Fisheries Division
23001 Hwy 96, Hoopa, CA. 95546
(530) 625-4130 x1612

Cc: DH

Trinity River Restoration Program

P.O. Box 1300, 1313 South Main Street, Weaverville, California 96093
Telephone: 530-623-1800, Fax: 530-623-5944

JUL 1 0 2009

Ms. Catherine Kuhlman – Executive Director
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A.
Santa Rosa, California 95403

Dear Ms Kuhlman:

The Trinity Management Council wishes to support and acknowledge the California Regional Water Quality Control Board, North Coast Region (Regional Water Board), for your assistance, guidance, and overall production of the Draft Master Environmental Impact Report (EIR) for Trinity River Restoration Program Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites and its site specific Environmental Assessment (EA)/EIR component. The Water Board, in its role as the California Environmental Quality Act (CEQA) Lead agency for this publication, has supported Trinity River habitat restoration efforts by producing a programmatic impact analysis for TRRP proposed implementation activities. We expect that the Master EIR, when certified under CEQA by the Regional Water Board, will serve similar functions as the Final Trinity River Mainstem Fisheries Program Final Environmental Impact Statement (FEIS), under the National Environmental Protection Act. The Master EIR and the FEIS will meet all NEPA and CEQA requirements and will provide programmatic level review from which site-specific project reviews may tier from.

By taking time to lead in development of this programmatic document, the Water Board and your collaborators have provided current environmental analyses and information to better direct and facilitate implementation of the Trinity River Restoration Program (TRRP). We support the holistic approach to restoration that is outlined in the Draft Master EIR and site specific EA/Draft EIR for activities at the Remaining Phase 1 sites. By including each of the specified mitigation measures in our project designs through construction, short-term Trinity River ecosystem implementation impacts will be minimized while assuring that long-term benefits are realized sooner. The identified restoration activities will advance our mutual agency objectives to protect and recover cold water fisheries in the Trinity River. a

It is the intention of the TRRP to implement the current schedule with construction of the remaining restoration program components and the monitoring of our results. These documents will facilitate implementation by bringing our environmental analyses up to date which will be key to the continued success of this multi-agency restoration program. Thank you for your efforts.

Brian Person, Chairman

cc: Mr. Dean Prat
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A.
Santa Rosa, California 95403

Ms. Samantha Olson
Water Quality Control Board
Office of Chief Council
P.O. Box 100
Sacramento, California 95812-0100

Mr. Brandt Gutermuth
Trinity River Restoration Program
PO Box 1300
Weaverville, California 96093

Trinity County
Resource Conservation District

Post Office Box 1450 • One Horseshoe Lane • Weaverville, CA 96093

5

July 13, 2009

Mr. Brandt Gutermuth
Trinity River Restoration Program
PO Box 1300
Weaverville, California 96093

Dear Mr. Gutermuth: Brandt

The Trinity County Resource Conservation District supports the Master Environmental Impact Report (EIR) for Trinity River Restoration Program's Channel Rehabilitation and Sediment Management for the Remaining Phase 1 and Phase 2 sites and its site specific Environmental Assessment (EA)/EIR component. A certified Master EIR will complement the Final Trinity River Mainstem Fisheries Program Final Environmental Impact Statement (FEIS), completed under the National Environmental Protection Act (NEPA) and we are confident that these two documents will provide important programmatic level review from which site-specific project reviews may be completed in support of the implementation time-line. a

The Master EIR will create a more cost-effective and timely implementation process leading to accelerated and enhanced benefits to the Trinity River ecosystem and it resident fish and wildlife populations. The Trinity County RCD has been one of your partners for many years and we look forward to the more timely and effective mainstem restoration that will result from the certification of this EIR.

Sincerely,

Patrick M. Frost
District Manager

Cc: File

Telephone (530) 623-6004 • Fax (530) 623-6006 • www.tcrcd.net

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6

Trinity River Watershed Council

July 13, 2009

Mr. Brandt Gutermuth
Trinity River Restoration Program
PO Box 1300
Weaverville, California 96093

Dear Brandt,

The Trinity River Watershed Council wishes to express our support for the Master Environmental Impact Report (EIR) for Trinity River Restoration Program (TRRP) Channel Rehabilitation and Sediment Management at Remaining Phase 1 and Phase 2 sites and its site specific Environmental Assessment (EA)/EIR component. We expect that the Master EIR, when certified under California Environmental Quality Act (CEQA) by the Regional Water Board, will serve similar functions as the Final Trinity River Mainstem Fisheries Program Final Environmental Impact Statement (FEIS), under the National Environmental Protection Act (NEPA). Together, the Master EIR and the FEIS will meet all NEPA and CEQA requirements and will provide programmatic level review from which site-specific project reviews may tier from.

a

It is anticipated that the Master EIR will create a more cost-effective and timely implementation process leading to accelerated and enhanced benefits to the Trinity River ecosystem and it resident fish and wildlife populations. The Trinity River Watershed Council focuses efforts on restoration of the watersheds of the mainstem Trinity River. Our work is inter-related to activities within the mainstem, such that, more timely and effective mainstem restoration efforts will directly benefit our own Trinity River Watersheds work. TRRP restoration work that improves mainstem river processes and habitat, which tributary resident salmonids must travel through in their return to their native watersheds, will assist our own restoration efforts. All efforts to improve efficiency of restoration work within the Trinity River Watershed is greatly appreciated and supported by the Trinity River Watershed Council.

Sincerely,

Alex Cousins
Trinity River Watershed Council Coordinator
530-623-6004
acousins@tcrcd.net

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From: Charles Lydy [mailto:hawk191940@yahoo.com]
Sent: Tuesday, June 16, 2009 1:44 PM
To: Gutermuth, F. Brandt
Subject: Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites Vol. I :Executive Summary/FONSI

Brandt :Hello to all of you. Rod and Nina especially. I really enjoyed working with you people for about 4 years until about 2 years ago. Well, I'm back. Brandt and your team are doing a great job with continuing on the Trinity River. I just finished reading it from front to back. I yellow highlighted any thoughts and wrote my questions in the margins. I called Brandt with my questions and he had all answers covered. I wish all of you a successful completion of these phases. Your report is outstanding, short and to the point and yet covers all the information completely. Job well done, Chuck Lydy

a

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Response to Comment Letters 1–7

Comment letters 1 through 7 each contain one distinct comment. Because these comments are similar, one response is provided, as follows.

Comment 1-a, 2-a, 3-a, 4-a, 5-a, 6-a, and 7-a

The commenters expressed the support of the National Marine Fisheries Service, the Hoopa Valley Tribal Council, the Yurok Tribe, the Trinity Management Council, the Trinity County Resource Conservation District, the Trinity River Watershed Council, and Mr. Charles Lydy for the Proposed Project and the anticipated utility of the Master EIR for implementing future Trinity River rehabilitation projects.

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California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Northern Region
601 Locust Street, Redding, CA 96001
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, Governor
DONALD KOCH, Director

8

Date July 7, 2009

Mr. Dean Prat
North Coast Water Quality Control Board
5550 Skyline Boulevard
Santa Rosa, CA 95403

RE: **Comments on the Draft Master Environmental Impact Report and Environmental Assessment/ Draft Environmental Impact Report for the Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites (SCH# 2008032110)**

Dear Mr. Prat:

The Department of Fish and Game (Department) has reviewed the above-referenced Draft Master Environmental Impact Report and Environmental Assessment/Draft Environmental Impact Report (Draft Master EIR-EA/Draft EIR) that was received on June 5, 2009. The following comments have been prepared pursuant to the Department's roles as trustee agency with jurisdiction over natural resources affected by the project and responsible agency under the California Environmental Quality Act (CEQA).

The proposed channel rehabilitation and sediment management activities (Project) are located on the Trinity River between Lewiston Dam and the confluence of the North Fork Trinity River, in Trinity County. The Trinity River is an important tributary to the Klamath River and supports State and federally-listed "Threatened" Southern Oregon/Northern California Coast(SONCC) coho salmon (*Oncorhynchus kisutch*), SONCC fall- and spring-run Chinook salmon (*Oncorhynchus tshawytscha*), and Klamath Mountains Province steelhead (*Oncorhynchus mykiss*). The Project as described in the Draft Master EIR-EA/Draft EIR proposes to re-contour banks and floodplain features, construct backwater and side channels, and place gravel in or near the flowing river. These activities, in coordination with other actions, have been deemed necessary to restore the Trinity River anadromous fish populations.

The Department has been involved with the various partners in many aspects of the proposed Project during its planning stages, and believes the Project will benefit several species of salmonids within the Trinity River watershed by restoring necessary habitats crucial for increased production and survival.

a

The Department has reviewed the subject Draft Master EIR-EA/Draft EIR and believes that it adequately addresses and mitigates any potential Project impacts to the environment. However, the Department offers the following comments and recommendations:

Page 7.6-12 (Volume III) discusses the No-Project Alternative impacts to Trinity River fish species indicating "there would be no impact." We believe the Draft Master EIR-EA/Draft EIR needs more discussion regarding the impacts to the Trinity River fish populations under the No-Project Alternative. This alternative fails to meet the underlying purpose of and need for the Project. Without the Project it is expected that the Trinity River would continue to support relatively low numbers of anadromous fish, and would not achieve fish population goals as outlined in the 2000 Trinity River Mainstem Fishery Restoration Record of Decision and Final EIR/EIS. The corrected language should be added throughout the Draft Master EIR-EA/Draft EIR where appropriate.

Page H-4 (Volume IV Appendices): Item number 3a, second bullet, discusses care of heavy equipment near the Trinity River. Please add some verbiage indicating equipment used near the river will be steam cleaned to remove any grease, dirt, oil, or non-native plant seed before the equipment is transported to or near the Trinity River.

Page I-1,2 (Volume IV Appendices): The table representing the California Natural Diversity Database (CNDDB) lists spring-run Chinook salmon in three separate quadrants (quads) in Trinity County and identifies them as "Federal and State Threatened species". Spring-run Chinook occurring in the Trinity River are not listed, and Central Valley spring-run Chinook salmon (which are State and federally listed threatened) do not occur in Trinity County. Additionally, coho salmon which are State and federally listed threatened and do occur in Trinity County, are not identified on the CNDDB quads in Trinity County. This should be explained in text accompanying the table in Appendix I.

Page J-1 (Volume IV Appendices): The U.S Fish and Wildlife Service list of *Listed/Proposed Threatened and Endangered Species for Trinity County (Candidates Included)*, includes fish species which do not occur in Trinity County.

Specifically mentioned are Delta smelt (*Hypomesus transpacificus*); Central Valley and Northern California steelhead; winter-run, California coastal, Central Valley fall-/late fall-run, and Central Valley spring-run Chinook salmon. To avoid any confusion, please modify this list to include only fish and wildlife species known to occur in Trinity County.

The Department appreciates the opportunity to comment on this important Project and fully supports the proposed activities. If you have any questions regarding the Department's comments please contact Staff Environmental Scientist Mike Berry at (530) 225-2131, or e-mail mberry@dfg.ca.gov.

Sincerely,

Gary B. Stacey

GARY B. STACEY
Regional Manager

cc: Mr. Mike Berry
Staff Environmental Scientist
California department of Fish and Game
601 Locust Street
Redding, CA 96001

State Clearinghouse
P. O. Box 3044
Sacramento, CA 95812-3044

Mr. Brandt Gutermuth
Environmental Specialist
Trinity River Restoration Program
P.O. Box 1300 (mailing)
1313 S. Main Street (physical)
Weaverville, CA 96093

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Response to Comment Letter 8

This comment letter contains six distinct comments. Following are the responses to those comments.

Comment 8-a

The lead agency acknowledges the comment from CDFG regarding the benefits of the Proposed Project to salmon in the Trinity River watershed.

Comment 8-b

The lead agency acknowledges that CDFG has reviewed the Draft Master EIR–EA/Draft EIR and determined that the document adequately addresses and provides mitigation for any potential impacts of the project to the environment.

Comment 8-c

The lead agency agrees that the No-Project Alternative would not meet the goals outlined in the 2000 ROD. Page 4.6-18 of the Draft Master EIR acknowledges the inability of the No-Project Alternative to meet these goals by stating, "While the No-Project alternative is expected to improve the quality and quantity of fish habitat, it would not ensure that the TRRP meets the fundamental project objectives to restore fish populations and increase spawning or rearing habitat for anadromous fish, including coho salmon within the Trinity River." The lead agency believes that the text in the referenced section meets the intent of CDFG's request. To limit redundancy and because section 7.6 of the EA/Draft EIR tiers from the Draft Master EIR, this text was not repeated in section 7.6.

Comment 8-d

Appendix H is a summary of mitigation measures developed by the lead agency to assist CDFG in providing regulatory support regarding coho salmon to the TRRP. The Draft Master EIR is a comprehensive document that includes commitments from the project proponent and the lead agency, including mitigation measures. These commitments include requiring cleaning of equipment near the Trinity River. Page 2-50 of the Draft Master EIR describes specific water pollution control measures that are incorporated into the action alternatives, including the Proposed Project, to ensure that equipment is clean prior to working near the Trinity River. Additionally, Mitigation Measure 4.7-13d on page 4.7-42 requires thorough washing of all construction equipment prior to entering the worksite. Although steam cleaning is not specified, the lead agency believes that, taken collectively, the measures included in the Draft Master EIR are adequate to address CDFG concerns related to the potential for water pollution and the introduction of non-native plant material. Therefore, the lead agency does not agree that Appendix H requires revision.

Comment 8-e

The lead agency acknowledges that Trinity River basin populations of spring-run chinook salmon are not listed under either the state or federal endangered species acts and that the Southern Oregon Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU) is the only fish population in the project reach that is protected by listing under both the federal and state acts. However, Appendix I

is an exact copy of the results of a search of CDFG's California Natural Diversity Database (CNDDB), as described on page 4.7-8. Section 4.6, "Fisheries," provides a comprehensive discussion of aquatic organisms that occur in the Trinity River, including their status with respect to federal and state statutes. The lead agency does not agree that Appendix I requires revision.

Comment 8-f

The lead agency acknowledges that the only fish population in the Trinity River that is listed under the state and federal endangered species act is the SONCC coho salmon ESU. However, Appendix J is an exact copy of the U.S. Fish and Wildlife Service list for Trinity County retrieved from its database. Similar to our response to comment 8-e, this list was used to inform the characterization and analysis of special-status plants and animals relevant to the proposed project. Sections 4.6 and 4.7 provide comprehensive characterizations of the fish and wildlife species known to occur in Trinity County, including their listing status. The lead agency does not agree that Appendix J requires revision.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF COMMUNITY PLANNING
1657 RIVERSIDE DRIVE
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Flex your power!
Be energy efficient!

IGR/CEQA Review
Tri-3/299-Admin
Trinity River Restoration
Channel Rehab
DEIR/FONSI
SCH# 2008032110

July 2, 2009

Mr. Dean Prat
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard
Santa Rosa, CA 95403

Dear Mr. Prat:

Thank you for the opportunity to review the Draft Environmental Impact Report and Finding of No Significant Impact (DEIR/FONSI) prepared for the Trinity River Restoration Project Channel Rehabilitation and Sediment Management for Phase 1 and Phase 2 sites submitted on behalf of the North Coast Regional Water Quality Control Board.

The document concludes that a less than significant impact is expected on the temporary or permanent increase in base flood elevation (Impact 4.4-1). It also concludes that project implementation would not result in significant risk of injury, death or loss involving flooding or erosion processes. If any restoration sites are located within one-mile upstream or downstream of a Caltrans structure, we request to be notified to verify that no significant impact to the structures are expected due to the proposed activities. a

The document also identifies the amount of traffic expected to occur due to the project. The mitigation measures adequately address our concerns (Impact 4.16-1 and 4). The pre-construction roadway condition survey, signage, and off-peak hour work address the impacts. [If traffic control is required on a State highway, a Caltrans encroachment permit is required. Similarly, any work done within the State highway right of way requires a Caltrans encroachment permit.] For more information regarding encroachment permit fees or the encroachment permit process, 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. b

If you have any questions, please call me at (530) 225-3369.

Sincerely,

MARCELINO GONZALEZ
Local Development Review
Office of Community Planning
District 2

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Response to Comment Letter 9

This comment letter contains two distinct comments. Following are the responses to those comments.

Comment 9-a

The lead agency acknowledges the need to ensure that transportation corridors are not affected by the proposed activities. Reclamation, as the project proponent, agrees to notify Caltrans if restoration sites are within 1 mile of Caltrans structures so that Caltrans can independently verify that there will be no significant impacts to these structures as a result of project activities.

Comment 9-b

The lead agency acknowledges the need to obtain a Caltrans encroachment permit when work is required within the state highway right-of-way. This requirement is discussed on page 3-9 of the Draft Master EIR. Reclamation's contractors will obtain Caltrans encroachment permits as required.

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Email from Gail Goodyear to Brandt Gutermuth (TRRP)

7/27/09

Good morning Brandt,
The environmental assessment materials you provided noted a public meeting regarding the proposed Reading's Creek project for June 2009, with notice provided in the Trinity Journal. I missed this notice and meeting. Would you please provide the outcome of this public meetings and others held regarding this project? a

During our June 26th 2009 tour with TRRP staff, I expressed interest in the opinions of those holding parcels affected by the project. Please consider this note a request for the TRRP regarding those opinions. b

Thank you,
Gail

Gail Goodyear
P.O. 1120 Weaverville, CA 96093
530-623-4822

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Response to Comment Letter 10

This comment letter contains two comments. Following are the responses to these comments.

Comment 10-a

The Draft Master EIR provides a discussion of the public involvement process established by the lead agency in conjunction with Reclamation. Specifically, pages 1-15 and 1-16 summarize the public involvement process that led to the preparation of the Draft Master EIR. Only two comment letters were received during the scoping process. During the course of three meetings held by Reclamation, approximately 40 people attended. In general, these meetings resulted in verbal acknowledgment by attendees of support for the activities described in the Master EIR.

Comment 10-b

As stated in the previous response, there was limited input from the public during the formal scoping process. During the development of the Draft Master EIR, TRRP staff met with interested landowners and other stakeholders to better understand the specific interests, issues, and concerns that may affect private property along the Trinity River. Overall, the verbal opinions expressed during these meetings between TRRP staff and individual landowners and stakeholders provided positive input on site-specific topics, such as vegetative screening.

The members of the public who attended these meetings were primarily interested in learning about potential TRRP plans for channel rehabilitation work at sites near their homes or on their own property. The projects were conceptually described and members of the public were assured that the TRRP would not work on their property without a written landowner-government contract. This contract would include payment to local owners for temporary use of their lands during construction of channel rehabilitation sites. Several citizens noted that they had worked out reasonable agreements with the TRRP during past projects and that they felt that they had received acceptable treatment.

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Email from Gail Goodyear to Brandt Gutermuth and DJ Bandrowski (TRRP)

7/30/09

DJ and Brandt,
Without a substantive response from either of to my previously posed questions, I submit additional comment regarding the draft documents you provided to me on July 14 2009.

Respectfully,
Gail

Questions for TRRP
Gail Goodyear comments on Draft EIR
(comments due to TC planning dept 7/31/09)

The Executive Summary for the Draft EIR sets a "properly functioning, diverse floodplain and riverine habitat" as the goal. ***What are the measurable parameters that will be used in assessment of the project (i.e., what reflects the proper functions and diversity of the floodplain and riverine habitat)?*** a

/What is the anticipated future hydrologic regime?/On the June 26th tour with TRRP staff, Gail Goodyear asked what modeling had been done and what did TRRP wish to happen on the land. Gail Goodyear stated that considerable loss of private land has occurred in previous government construction along the Trinity River (and its forks) when the river has been forced to bounce from one bank side to the other, and continue bouncing back and forth. The only response given was that of DJ Bandrowski who said, "after the work on the proposed project is done, we will let the river do what it wants." **/**Considering need for an EIR and river modeling studies, TRRP surely has, or needs to have, an anticipated hydrologic regime to share at this time.**/** b c

The modeling, together with the mitigation plan, is need to address disruption to existing land use; compensation for minerals; increased exposure of people to flood and erosion; and erosion of agricultural/industrial lands. d

On the June 26th tour, Hal and Gail Goodyear were asked by DJ Bandrowski what they would like their property to look like after the TRRP work. Gail Goodyear responded that review of the environmental assessment documents were necessary prior to making such a statement. Gail noted a request for these documents had been made of Brandt Gutermuth in September 2008, yet no documents were provided.**/**Gail repeated her request to TRRP staff. DJ Bandrowski provided documents on July 14 2009; however, no mention of deadlines for comments was shared, verbally or in writing.**/** e

f ***/What fine and coarse sediment management is planned?/*** This is particularly import in planning for action before, during and after a storm event. In addition to the management plan, a description of short-term sedimentation needs to be shared with landowners.

g ***What are the baseline measures for ecological response to changes in flow regimes, morphological features and habitats (aquatic/riparian/upland)?***

h ***What is the definition and description of "dynamic alluvial channel" as it relates to the Trinity River between the Douglas City Bridge and the point furthest down the river of the Douglas City BLM campground?***

i ***What is the intended use or desired movement of the "sediment supply?"*** And what will cause the TRRP to re-enter private property to add or remove materials?

j ***What are the looks of an "alternate riverine habitat?"*** This, in relation to the EA/EIR, is unstated.

k /Reading's Creek Tree Farm owns mineral rights to its landholdings. The TRRP proposed project

l would affect mineral recovery***/What compensation for removal of materials containing minerals is offered?/***

m /The EIR states that no mitigation is necessary because the proposed work area is a less than significant site. Yet, to lessen the impact of this 'locally important mineral resource recovery site" mitigation of loss is necessary./

n The Trinity County General Plan, as well as community plans, is under development. To state the project is in accord with these plans is inappropriate. In fact, the Trinity County Planning Department has chosen on numerous occasions to halt development until these plans are updated. Without mention in the General Plan and community plans of work, such as is proposed by TRRP, it is inappropriate to proceed until the plans are complete. This is particularly important when the proposed Reading's Creek work is done in a community, in this case Douglas City.

o The draft EIR states no plan for road use, yet vehicles and equipment will use roads. Mitigation is needed for use of Marshall Ranch Road and any other roads (which have yet to be contracted for use by TRRP).

p The draft EIR states "All parcels within the proposed project have been subdivided to the fullest extent possible under existing zoning designations." A portion of the Goodyear property is eligible subdivision/development.

q The draft EIR describes fuel spill containment plan measures relative to the Trinity River, yet lands 150 feet or further away from the river are not included in fuel spill containment plans. This lack leaves landowners will a potentially dangerous and libelous situation for which to pay.

r The draft EIR states the project will cause no significant impact to stormwater runoff and subsequent potential for erosion. This omission is gross. Stated mitigation is essential to this project.

The draft EIR states the BR will initiate a 10 year mitigation monitoring program after the first growing season. This long-term relationship between BR and landowners must be included in the mitigation and compensation. s

The draft EIR states there will be no net loss in riparian habitat or wetlands. This implies that nature cannot be allowed to remove these features on the land by fire, flood, disease, etc. Also the draft EIR states that a public meeting will be held to determine the amount of vegetative screening to be retained. Removal of invasive plants is essential to all healthy habitats. t

The draft EIR states that implementation of the project will have no significant impact on local businesses and no mitigation is necessary. If river activity causes changes that result in erosion of farmland/timberland business is disrupted. Mitigation is necessary. u

The draft EIR allows DR to burn vegetative matter at times determine by BR staff. Those familiar with local fire behavior and monitoring, together with landowners, should work with BR to limit months/times in which burning is done. The value of private property at Reading's Creek necessitates such mitigation. v

w The draft EIR states there will be no increased risk of landslides or flooding, and no mitigation is necessary. Yet, the stated purpose of the project is to increase the floodplain. And TRRP staff during a June 26th tour said they wished trees to fall in the river these trapped trees will cause localization of water current that will erode and will have the potential to cause landslides. The steep hillside upstream from the Douglas City BLM campground is susceptible to landslides and erosion and this hillside grows valuable timber. Mitigation is necessary.

x The draft EIR states activities will have no impact on fishing and swimming. Yet, to-date TRRP activities upstream from the proposed site have had an impact on Trinity River fishing and swimming in the proposed Reading's Creeksite. Mitigation is necessary to retain fishing and swimming access on private land.

y The draft EIR assumes that vegetation is the desired state. This is an assumption without foundation that is used to justify, in part, re-vegetation. River history lacks support of a vegetative state.

Gail Goodyear, Ph.D.
P.O. 1120
Weaverville, CA 96093
530-623-4822

Response to Comment Letter 11

This comment letter contains 25 distinct comments. Following are the responses to those comments.

Comment 11-a

As described on page 4.3-5 of the Draft Master EIR, the Trinity River Flow Evaluation Study (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999) defines a properly functioning river system in terms of its physical state and geomorphic processes. A properly functioning river system requires flows capable of mobilizing and transporting significant quantities of bed sediments. Transport of bed material is the fundamental process needed to build and maintain river bars and pools, flush fine sediments, and rejuvenate riparian communities and aquatic habitat. Monitoring measurable parameters such as sediment transport rates during high-flow periods and determining the total annual transport of fine and coarse sediment past specific locations along the river provides a basis for assessing project performance.

The quantity and quality of the riparian and aquatic habitat created by sediment transport processes are evaluated in a variety of ways by the Trinity River Restoration Program (TRRP) to assess project performance. The topographic complexity of the stream channel is assessed using repeated topographic surveys, including conventional surveys along cross sections, sonar surveys of the streambed, and occasional aerial surveys. Such data allow quantification of the volumes and rates of erosion or deposition, and changes in the shape of the channel. Large-scale changes in the river are monitored using sequential sets of aerial photographs, and can be quantified in terms of areas subjected to erosion or deposition, changes in bank length, and a number of other metrics. Riparian vegetation is mapped by time series to assess change, to evaluate and quantify available fish and wildlife habitat, to identify areas of riparian initiation or disturbance, and to evaluate the diversity of the riparian corridor. Aquatic habitat is evaluated by mapping the area of channel suitable for use by juvenile salmonids over a range of flows. In addition, a number of studies are being performed under the auspices of the TRRP to determine habitat utilization by fish and wildlife species.

Comment 11-b

Section 1.4.3 of the Draft Master EIR provides a summary of the flow regime stipulated by the 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration EIS. The ROD identifies five distinct water-year types that are used by the TRRP to determine the exact water allocation for release down-river each water year. The amount of water released from Lewiston Dam into the Trinity River depends on the water-year type. As described on page 1-8, the ROD set forth prescribed Trinity River water volumes and associated peak flows for the following five water-year types: extremely wet (815,200 acre-feet annually [afa] with an 11,000 cubic feet per second (cfs) peak; wet (701,000 afa with an 8,500 cfs peak); normal (646,900 afa with a 6,000 cfs peak); dry (452,600 afa with a 4,500 cfs peak); and critically dry (368,600 afa with a 1,500 cfs peak). The typical hydrographs for each of these water year types are available at http://www.trrp.net/water/flow.htm

Comment 11-c

Section 4.4 of the Draft Master EIR describes the anticipated hydrologic regime referenced in the preceding response. The flow regimes stipulated in the ROD are considered the existing condition for purposes of comparing the proposed project to the no-project alternative under CEQA. The ROD acknowledged the need for flexibility, and the TRRP is required to work with other members of the Trinity Management Council (TMC) to identify the specific flow schedule for a particular year. Consequently, Reclamation adjusts the TRD water release schedules within the water year to meet geomorphic needs (primarily targeted in wet years) or to meet habitat and temperature objectives (primarily targeted in dryer years). The most current information on the year's Trinity River releases is available to the public at http://www.trrp.net/water/index.htm

Comment 11-d

The lead agency acknowledges the necessity for studies to validate the hydraulic model and to ensure that the Master EIR is informed by the model outputs. As described in Section 2.5.2 of the Draft Master EIR, Reclamation, with assistance from technical staff from other TMC organizations, developed and calibrated the HEC-RAS hydraulic model with measured water-surface elevations at a number of locations along the Trinity River between Lewiston Dam and the North Fork Trinity River. This model has the ability to predict water surface elevations that may occur during various flow events, including base flow conditions (450 cfs), bankfull releases (bankfull releases equate to the definition of the ordinary high water mark accepted by the Federal Emergency Management Agency, the U.S. Army Corps of Engineers, and Trinity County for regulatory purposes), and high flow releases, as described in Table 2-2 of the Master EIR, including flow regimes required to implement the 2000 ROD.

The hydraulic modeling of expected flows and their surface elevations was integral to the development of the Draft Master EIR, including the mitigation measures. The Water Resources section (Section 4.4) of the Draft Master EIR describes the modeling approach for designing floodplain activities and the potential impacts of the restoration activities. The thresholds for significant impacts related to hydraulics are listed on page 4.4-7 of the Master EIR, and these impacts are addressed in the document.

Section 4.2 of the Draft Master EIR states that significant portions of the areas included within the boundaries of the Remaining Phase 1 and Phase 2 sites are located within the 100-year floodplain of the Trinity River. Figure 4.4-2 supports this discussion. Consistent with the requirements of Trinity County's Floodplain Protection Ordinance, all TRRP designs and engineering specifications are prepared under the direction of a Professional Engineer licensed in the State of California. In general, the activities described in Chapter 2 are intended to enhance fish habitat while also reducing the risk of flooding and erosion by expanding the surface area for water to move, and thereby reducing its velocity and depth.

Impacts 4.4-1 and 4.4-3 address project impacts related to an increase in the base flood elevation and exposure of people or property to risk of injury, death, or loss involving flooding or erosional processes. Based on the best available scientific information, the lead agency determined that these impacts are less than significant and that mitigation measures were therefore not needed. Because the analysis in the Draft

Master EIR was performed at a programmatic level, the lead agency acknowledges the need for final site-specific hydraulic analysis prior to implementing activities.

Similar to Reclamation's approach to previous Trinity River restoration projects, willing landowner participation is required to perform restoration activities on private lands. In such situations, the site-specific hydraulic information will be used by Reclamation to address landowners concerns, including those specifically related to flooding, erosion, and protection of existing natural resources and physical improvements on the property.

Chapter 4.2, Land Use, provides background information and the analytical framework for assessing project impacts to existing land uses, including the availability of locally important mineral resources. It also analyzes the impacts of the project with respect to federal, state, and local plans, policies, and ordinances. A key factor in determining that Impacts 4.2-1, 4.2-2, and 4.2-3 are less than significant is the requirement that the project be consistent with the Land Use Element of the Trinity County General Plan, which is summarized on Page 4.2-22 and 4.2-23.

Impact 4.2-3 concerns mineral resources, including those that occur on federal mining claims and private lands along the Trinity River. The locations of the activity areas for Phase 1 sites were established based in part on the fact that alluvial materials associated with the river might have mineral values. Based on information available to Reclamation, including input received during scoping, some activity areas were excluded from further consideration for various reasons. To account for the uncertainty concerning the type and location of mineral resources that could be encountered during restoration activities, the lead agency determined that either action alternative considered in the Draft Master EIR would have a significant impact on mineral resources. In addition to Reclamation's willing landowner policy, Mitigation Measure 4.2-3a was developed to reduce this impact to a less than significant level. For these reasons, the lead agency believes that the Master EIR has adequately addressed the issues in this comment and no revisions to the EIR are required.

Comment 11-e

Reclamation and the Regional Water Board made a considerable effort to provide notice of the environmental document to all interested parties; however, it is possible that not everyone was fully informed for a variety of reasons.

Although the commenter was not personally informed by TRRP of the date the public comment period would end during their private meeting on July 14, 2009, the comment period was well noticed, consistent with CEQA guidelines. In addition to two public notices posted in the Trinity Journal (dated June 17 and 24, 2009), the deadline for public comment was also stated in the cover letter included in Volume I of the Draft Master EIR. The time period for comment was also posted on the TRRP website at: http://www.trrp.net/implementation/remainingP1.htm.

Several comment letters were submitted to the lead agency after July 25, 2009, as shown on Table 3-1 and considered in the preparation of the Final Master EIR and Final EIR.

Comment 11-f

Figure 1-2 of the Draft Master EIR illustrates the location of the specific fine and coarse sediment management activities proposed by the lead agency. Section 2.3.4 of the document describes the specific fine and coarse sediment management activities proposed in the two action alternatives.

Fine sediment management is anticipated at one site: the Hamilton Ponds, located near the mouth of Grass Valley Creek. The Hamilton Ponds were constructed by DWR, with Reclamation's involvement, to reduce the amount of fine sediment delivered from the Grass Valley Creek watershed to the Trinity River. Over time, these ponds fill up and periodic maintenance, consisting of excavation of fine sediment, is required to maintain their efficiency. The fine sediment management activity described in the Draft Master EIR is specifically related to ongoing maintenance of the Hamilton Ponds within the boundary of the Lowden Ranch site.

Pages 2-8, 2-13, and 2-14 discuss coarse sediment management (e.g., gravel augmentation), including how specific sites are selected, the types of methods that may be used, and the timing. Table 2-2 provides a detailed list of activity areas considered for coarse sediment addition within the Remaining Phase 1 sites, and Section 2.4.2 provides a narrative discussion of the Phase 2 sites that may be candidates for coarse sediment management.

In addition to the coarse sediment management incorporated into site-specific designs for Remaining Phase 1 and Phase 2 sites, the locations of five discrete long-term, high-flow sediment augmentation sites are illustrated on Figure 1-2. Reclamation and the U.S. Forest Service have used some of these sites for the past several years. These sites are associated with areas commonly referred to as the Lewiston Hatchery, Diversion Pool (or New Lewiston Bridge), Cableway (upstream of Old Lewiston Bridge), Sawmill (downstream from Cemetery Hole), and Lowden Ranch. Located downstream of Lewiston Dam, these sites were selected by Reclamation in consultation with the members of the Trinity Management Council (TMC) in order to ensure that introduced material is transported downstream to replenish the alluvial material that is remobilized over time.

Augmentation at these five sites is expected to occur primarily during high spring flows, when coarse sediment may be introduced to the river mechanically and immediately transported downstream. Figure 2-3j illustrates typical methods used in the past several years to augment gravel to the river during high flows. Reclamation, along with TMC representatives, will use ongoing monitoring in conjunction with water year projections to determine the precise location and extent of these activities on a yearly basis. The flow release schedule established by Reclamation for the water year type is also a factor in determining the volume of material used for augmentation during high-flow periods.

Comment 11-g

Reclamation and other members of the TMC, in conjunction with the TMC's Science Advisory Board (composed of five scientists who assist the TRRP and who are recognized as experts in the disciplines of fisheries biology, fluvial geomorphology, hydraulic engineering, hydrology, riparian ecology, wildlife biology, or aquatic ecology), have been developing an Integrated Assessment Plan (IAP). If the

commenter is interested in understanding the specific components of the IAP, it is available at http://www.trrp.net/science/IAP.htm. In addition to other informational documents on the TRRP website, some supporting documents can be accessed at http://www.fws.gov/arcata/fisheries/reportsDisplay.html. If the commenter would like a hard copy of the IAP, she is welcome to call the TRRP office at (530) 623-1800 with a specific request. TRRP staff would be happy to answer specific questions about the IAP and other source documents once the commenter has had the opportunity to review them.

Comment 11-h

This question references a relatively short section (< 2 miles of river length) of the Trinity River, including the reach upstream and within the boundary established for the Reading Creek site. Downstream of the Douglas City Bridge, the river is confined by State Route 3 on the left bank and by a high valley wall on the right side upstream of the Douglas City Campground. Without the mechanical measures described in Chapter 2 of the Draft Master EIR, these features limit the potential for the river to meander, particularly in the reach upstream of Reading Creek. Figure 2.1f illustrates the specific activity areas at the Remaining Phase 1 site identified as Reading Creek that are analyzed in the Draft Master EIR. Currently, the mechanical measures intended to initiate channel meanders at the Reading Creek site focus on expanding the inundation surfaces and establishing alternate point bars to increase the quantity and quality of riparian and aquatic habitat while maintaining bed relief, channel complexity, and riparian succession. Definitions of some of the rehabilitation features included in the Draft Master EIR are provided in the Glossary in Volume IV of the draft CEQA document.

Comment 11-i

When the TRD was completed, the coarse sediment supply that originally moved through the river from upstream of the dams was eliminated. In general, prior to the TRD, watershed erosion and sediment delivery rates to the Trinity River were in balance with the fluvial transport and export of sediment from the basin. This condition can be called a “dynamic equilibrium” in that a balance between supply and export of bed material persists.

Implementation of the ROD is a science-based effort to reverse TRD impacts below Lewiston Dam by using a combination of high-flow releases, sediment management, and channel rehabilitation along the river corridor. Over time, through the integration of the management efforts described in the ROD, the TRRP is required to implement measures to restore adequate coarse sediment storage to the channel so that the ability of the river to create and maintain high-quality aquatic and riparian habitat for a diversity of species (including invertebrates, fish, and wildlife) is restored.

As sediment is moved downriver, the TRRP is obliged to continually add more to maintain the coarse sediment supply. To the extent possible, the TRRP plans to annually replenish the gravel supply from public land sources at the designated long-term, high-flow sediment augmentation sites (Figure 1-2). Because the TRRP projects are designed to avoid exposing people or structures to a significant risk of injury, death, or loss involving flooding and erosion on private lands, the TRRP intends to limit gravel placement during channel rehabilitation projects and does not intend to reenter private property to add or remove additional alluvial material.

Comment 11-j

The comment refers to the phrase "alternate riverine habitat." The lead agency is unaware that this term was used in the document. The term used on page 2-36 of the Draft Master EIR is alternate bar riverine habitat. The document also refers to alternate point bar sequences or simply alternate bars.

These habitat features are referred to as "alternate" because they extend across the river in alternating patterns, from one side to the other. Alternate bars are coarse sediment (gravel) bars that extend diagonally from one bank across the channel toward the opposite bank. Alternate bars may include one or more point-bar-like components attached to the riverbanks and a submerged or partially submerged diagonal component. As stated previously, a glossary of terms is included in Volume IV.

Comment 11-k

As stated previously, consistent with the Trinity County General Plan, it is Reclamation policy to implement restoration activities in accordance with the requirements of willing landowners. Reclamation understands that mineral resources on private lands are of value to the owner of the mineral rights. Prior to receipt of this comment, the lead agency was not aware that Reading's Creek Tree Farm owned mineral resources that could be affected by restoration activities. Consistent with previous restoration efforts, Reclamation is committed to work with landowners to revise activity areas and proposed activities prior to entering into agreements with specific landowners. It is not Reclamation's intent to affect any landowner's ability to manage the resources that occur on their property without their express permission.

Comment 11-l

Consistent with the response to Comment 11-k, Reclamation policy is to work with willing landowners to develop realty agreements that stipulate the conditions of both parties prior to performing any restoration activities on private lands. These agreements, including any requirements for compensation, cannot be executed unilaterally by Reclamation. At this point in the planning process, it is premature to establish a level of compensation, if any, that will be required to perform restoration activities on the Remaining Phase 1 or Phase 2 sites described in the Draft Master EIR.

Comment 11-m

Impact 4.2-3 concerns effects to locally important mineral resources. Through the discovery process, including a review of readily available information on file with Trinity County and BLM supplemented by input provided to the lead agency during scoping, only two active mineral recovery operations were identified. Although these operations (aggregate mining) are not within the boundary of any of the Remaining Phase 1 or Phase 2 sites, one is located within the boundary of the Hocker Flat restoration project completed by Reclamation in 2006. The analysis of this impact acknowledged that mineral resources may exist within or near sites described in the Draft Master EIR, and the impact was determined to be significant. Mitigation Measure 4.2-3a was developed to reduce the potential effects on mineral resources by ensuring that Reclamation notifies landowners of proposed activities on their property in order to develop appropriate agreements to protect any resources, including minerals that may occur on private lands.

Comment 11-n

The lead agency acknowledges that some elements of the Trinity County General Plan are currently in the process of being updated; the last major update to the plan was in 2003, and there is no anticipated date for completion of the new update. The goals and policies of the currently adopted General Plan, including community plans, apply until a new General Plan is adopted. Therefore, it is appropriate for the lead agency to make the determination that the Proposed Project is consistent with the currently adopted Trinity County General Plan.

The Planning Department does not make decisions to halt development. Decisions to approve or deny a permit application are made by the Trinity County Planning Commission. Decisions to approve or deny an application for a rezone are made by the Board of Supervisors.

Through the Douglas City Community Plan, the Trinity County General Plan established several natural resource goals (Douglas City Community Plan, page 37). Goal number 3 is to protect and improve fish habitat within the Plan Area, which is the fundamental objective of the TRRP, as described in the Draft Master EIR. Page 41 of the Douglas City Community Plan goes on to acknowledge the benefits of the TRRP in restoring the fishery of the Trinity River and its tributaries.

Comment 11-o

Sections 4.16 and 7.16 of the Draft Master EIR and Draft EIR, respectively, discuss transportation and traffic circulation. In addition to characterizing the environmental setting for the Remaining Phase 1 and Phase 2 sites for this topic, six discrete impact statements were developed and analyzed. Three of these—impacts related to short-term construction traffic, wear and tear on local roadways, and safety hazards—were deemed significant by the lead agency. Mitigation measures 4.16-2a, 4.16-3a and 3b, and 4.16-5a were developed by the lead agency to reduce these impacts to a less-than-significant level. The full text of the impact statements and mitigation measures is reproduced in Appendix A, Mitigation Monitoring and Reporting Program.

The impact analysis in Section 7.16.2 provides a detailed discussion of the roads that may be used to support various restoration activities. Table 7.16-1 and Figure 7.16-1d specifically acknowledge that Marshall Ranch Road is within the boundary of the Reading Creek site and could be used in the event that landowner access is granted to Reclamation. As stated in a previous response, a legally binding agreement with any landowner will be required before any project activities occur on private lands.

Comment 11-p

Under the heading “Proposed Land Uses,” page 4.2-13 states, “In general, parcels within the rehabilitation site boundaries have been subdivided to the fullest extent possible under existing zoning designations; therefore, future rural residential development on the uplands above the river’s floodplain would be minimal. Future development is restricted by the proximity of the parcels to the Trinity River; many of these parcels are currently zoned Flood Hazard and Open Space.”

The lead agency acknowledges the reviewer's comment that some lands within the project boundaries established for the Remaining Phase 1 and Phase 2 sites may be eligible for subdivision or development.

Comment 11-q

The lead agency recognizes the importance of minimizing the impacts to lands or resources within and along the Trinity River that could occur as a result of inadequate containment of potential pollutants (e.g., diesel fuel). Impact 4.5-3, which addresses hazardous materials spills, was found to be significant. The mitigation developed by the lead agency has been used successfully to ensure that fuel containment and spill control measures do not result in significant impacts to the Trinity River or to lands (including private property) within the boundaries of the restoration sites.

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. Every reasonable precaution will be exercised during project implementation and Best Management Practices will be implemented to protect the Trinity River from being polluted. Standard water pollution prevention practices that will be employed during all channel rehabilitation projects are described on page 2-50. Additionally, Mitigation Measure 4.5-3 details pollution control requirements for hazardous material spills.

Comment 11-r

The lead agency identified that impacts related to erosion and sedimentation would be significant. In addition to the measures described on page 2-50, the Mitigation Monitoring and Reporting Plan contains a number of mitigation measures required by the lead agency to reduce these impacts to a less-than-significant level.

Detailed information concerning storm water runoff and turbidity are provided in Sections 4.5.1 and 4.5.2.

Comment 11-s

The lead agency believes that the comment refers to the Riparian Revegetation and Monitoring Plan, which is referred to in Mitigation Measure 4.7-1. A copy of this plan is on file at the TRRP's Weaverville office and available for review.

Subsequent to the ROD, the TRRP developed the Riparian Revegetation and Monitoring Plan in conjunction with key regulatory agencies, including the U.S. Army Corps of Engineers, the Regional Water Board, and the California Department of Fish and Game. This plan is a required component of any discretionary action authorized by the responsible agencies involved in restoring the Trinity River. Implementation of this plan is intended to ensure these regulatory agencies that the TRRP will protect, restore, and, if necessary, enhance riparian vegetation and wetlands along the Trinity River between Lewiston dam and the North Fork Trinity River over the long term. These agencies are responsible for approving (permitting) the TRRP projects and in some cases also have jurisdiction over public trust resources. Under the plan, Reclamation is responsible for ensuring that no net loss of riparian habitat and

jurisdictional wetlands occurs within the overall channel rehabilitation site boundaries, and generally within the 40-mile channel rehabilitation reach, regardless of ownership.

As stated previously, Reclamation is required to formulate agreements with private and public landowners before they perform work on their lands. At this time, agreements have not been established for all of the Remaining Phase 1 sites, and they consequently cannot be used as mitigation.

Comment 11-t

While there will be no net loss of riparian and wetland habitats, replacement habitat will not necessarily be required at any specific location. The Riparian Revegetation and Monitoring Plan allows Reclamation to replace vegetation using a combination of replanting, regrowth of remnant vegetation, and natural recruitment. It also allows for flexibility to ensure riparian vegetation is replaced where appropriate in close proximity to the removal area, but not necessarily at the point of removal. For instance, replacement of riparian vegetation removed by a 2006 TRRP project just down river of Lewiston dam is not appropriate in this location because ROD flows consistent with water-year requirements would scour the vegetation. Consequently, 1:1 replacement of vegetation is accomplished where appropriate in consultation with the regulatory agencies and in cooperation with willing landowners.

The lead agency suggests that the commenter may have misinterpreted the statement that the TRRP will meet with potential willing landowners to discuss site-specific vegetative treatments on a case-by-case basis. The context of this statement appears to be related to the language of Mitigation Measure 4.8-1b as it relates to working with landowners to ensure the appropriate level of vegetative screening. The lead agency has not identified a specific need for a public meeting to determine the amount of vegetation screening to be maintained along the river. Consistent with the willing landowner policy, Reclamation will work with private landowners to reach a mutually agreeable riparian vegetation condition. In addition, Reclamation's TRRP office in Weaverville has an open-door policy and is willing to discuss its projects with the public at any time.

Comment 11-u

Impact 4.9-2 states that implementation of the project would have a less-than-significant impact on local businesses. The context of this impact statement is focused on existing businesses and the potential for the project to disrupt access to the services provided to the public (e.g., rafting and fishing guides).

The lead agency acknowledges that the bed and banks of the Trinity River are dynamic and subject to change, including changes in response to post-ROD flows and various channel restoration activities. Ongoing monitoring of the changes to the channel that have occurred since the 2000 ROD suggests that most of the observable changes to the bed and banks of the river occur on lands zoned as Scenic Conservation. Specific land use zoning information for each of the Remaining Phase 1 sites is provided in the Draft EIR beginning on page 7.2-2.

Based on information available to the lead agency, the CEQA process did not identify a significant impact related to the erosion of farmland/timberland. Therefore, no mitigation was developed.

Responses to Comment 11-v

The commenter is correct that Reclamation has included burning as an option to dispose of vegetation that has been cleared from its project areas. The Draft Master EIR identified several options, including burning, to dispose of construction-related vegetative material. Other options include chipping, hauling offsite, burying within spoils areas, or other appropriate methods. In addition, Reclamation will continue to work with local agencies to encourage the efficient use of chipping as a priority method for disposing of vegetative waste.

In the event that burning is selected as a means of disposing of vegetative material, Mitigation Measures 4.11-3a, 3b, and 3c will be used to ensure that impacts are reduced and that the requirements of the California Department of Forestry and Fire Protection and any other applicable federal, state, and local requirements are met.

Comment 11-w

The risk of increased landslides and/or flooding is specifically addressed in the Draft Master EIR and Draft EIR in sections 4.13 and 7.13, respectively. Additional information on these topics is also provided in other sections of the document (i.e., Geology, Water Resources, Water Quality). Based on information available to the lead agency, Impact 4.13-4 and Impact 7.13-4 were determined to be less than significant based on the criteria presented in Section 4.13; therefore, no mitigation was developed.

Section 2.2 of the Draft Master EIR provides a comprehensive discussion of the goals and objectives that form the basis for restoration activities analyzed in the document. The lead agency acknowledges that the modifications to the bed and banks of the Trinity River will increase the areal extent of the riverbanks that may be subject to inundation (e.g., floodplains) under a range of flows. A description of the specific activities proposed to increase inundation areas is provided on page 2-7 (Rehabilitation Activities B, C, and D). As indicated in previous responses, hydraulic analysis, including additional site-specific efforts during final design, will be performed to ensure that none of the activities authorized by Trinity County will have a significant impact on the base flood elevations.

As described for Activity I on page 2-8, large woody debris (e.g., logs, rootwads) will be incorporated into the final designs as appropriate to enhance habitat complexity for juvenile salmonids (hiding cover and velocity refuge). Consistent with its willing landowner policy, Reclamation will work closely with landowners to identify site-specific locations for placement of large woody debris to ensure that adjacent resources are not jeopardized by restoration activities.

Comment 11-x

The lead agency determined that Impact 4.8-1 in the Draft Master EIR would be significant, based on the significance criteria presented on page 4.8-4. The lead agency developed Mitigation Measures 4.8-1a and 4.8-1b to reduce this impact to a less-than-significant level. The lead agency believes that these mitigation measures are adequate and that additional measures are not required.

The lead agency is unaware of information supporting the statement that previous TRRP activities upstream from the Reading Creek site have had an impact on fishing and swimming within the boundaries of the Reading Creek site. Any additional information provided to Reclamation will be taken into account as the design process continues with input from specific landowners.

Comment 11-y

The commenter is correct that the lead agency believes that vegetation is critical to a properly functioning mainstem Trinity River. Riparian vegetation provides cover for fish and wildlife, minimizes erosion, and traps sediment. Over time, vegetative material is recruited to the river and provides valuable habitat for fish and other aquatic organisms.

The lead agency acknowledges that the historic (prior to TRD) Trinity River floodplain had less riparian vegetation, although the vegetation community that persisted prior to the TRD was more diverse in terms of age and species assemblages. As described in Chapter 1, the current riparian communities that occur along the Trinity River are distinctly different; the current riparian vegetation is more homogenous in age, structure, and species diversity. Implementation of the ROD is intended to ensure that complex and diverse riparian communities are restored.

The TRRP is not attempting to restore the Trinity River to pre-TRD conditions. Rather, the intent of the ROD is to restore the river ecosystem, its processes, and resultant riparian and aquatic habitat at a scale consistent with post-ROD flow regimes. Because post-ROD flows are lower than the pre-TRD levels, Reclamation's ability to enhance the riparian and aquatic habitat, thereby increasing the fishery of the Trinity River, is constrained by a variety of factors, including the ability to implement restoration activities on private lands at various locations.

CHAPTER 4

Changes to the Draft Master EIR

Chapter 4
Changes to the Draft Master EIR

No changes were made to the Draft Master EIR as a result of public comments. The lead agency made two revisions to correct minor errors. These changes are described below.

Figure 4.2-3 has been revised to correct landownership boundaries for BLM and Reclamation lands.

On page 4.3-23, the text immediately following "Impact 4.3.-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources," inadvertently indicates that the impact would be less than significant for the Proposed Project and Alternative 1. The text should have indicated that the impact would be significant. The analysis that follows the incorrect significance level concludes that the impact would be significant, and mitigation is provided to reduce the impact to a less-than-significant level. The significance level for Impact 4.3-3 is correct in Table 4.3-1, which summarizes the impacts related to geology, fluvial geomorphology, soils, and minerals.

Figure 4.3-7 on page 4.3-15 has been revised to reflect an update to the Bureau of Land Management database for mining claims specific to the Trinity River between Lewiston and Helena, California.

These figures are included on the following pages.

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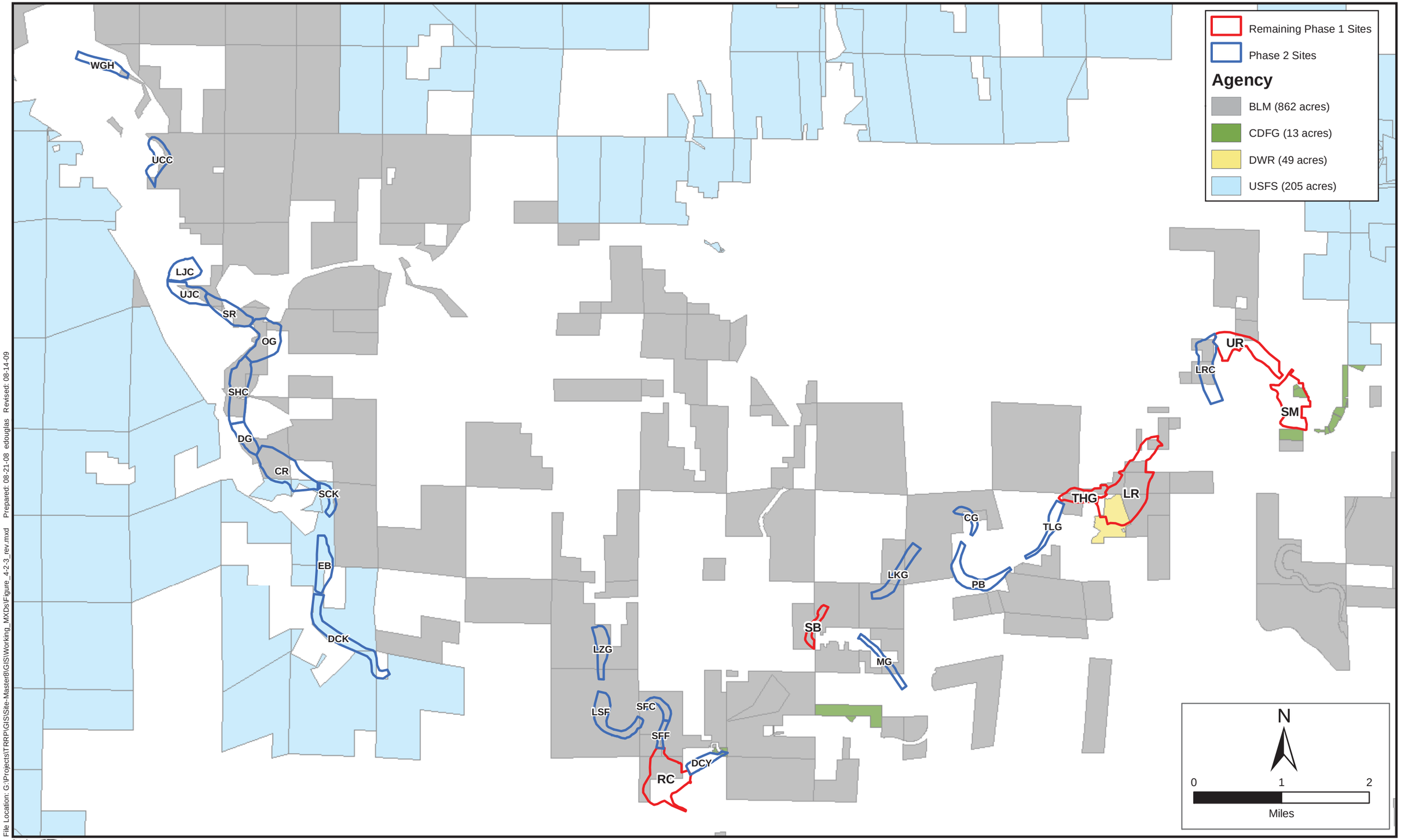

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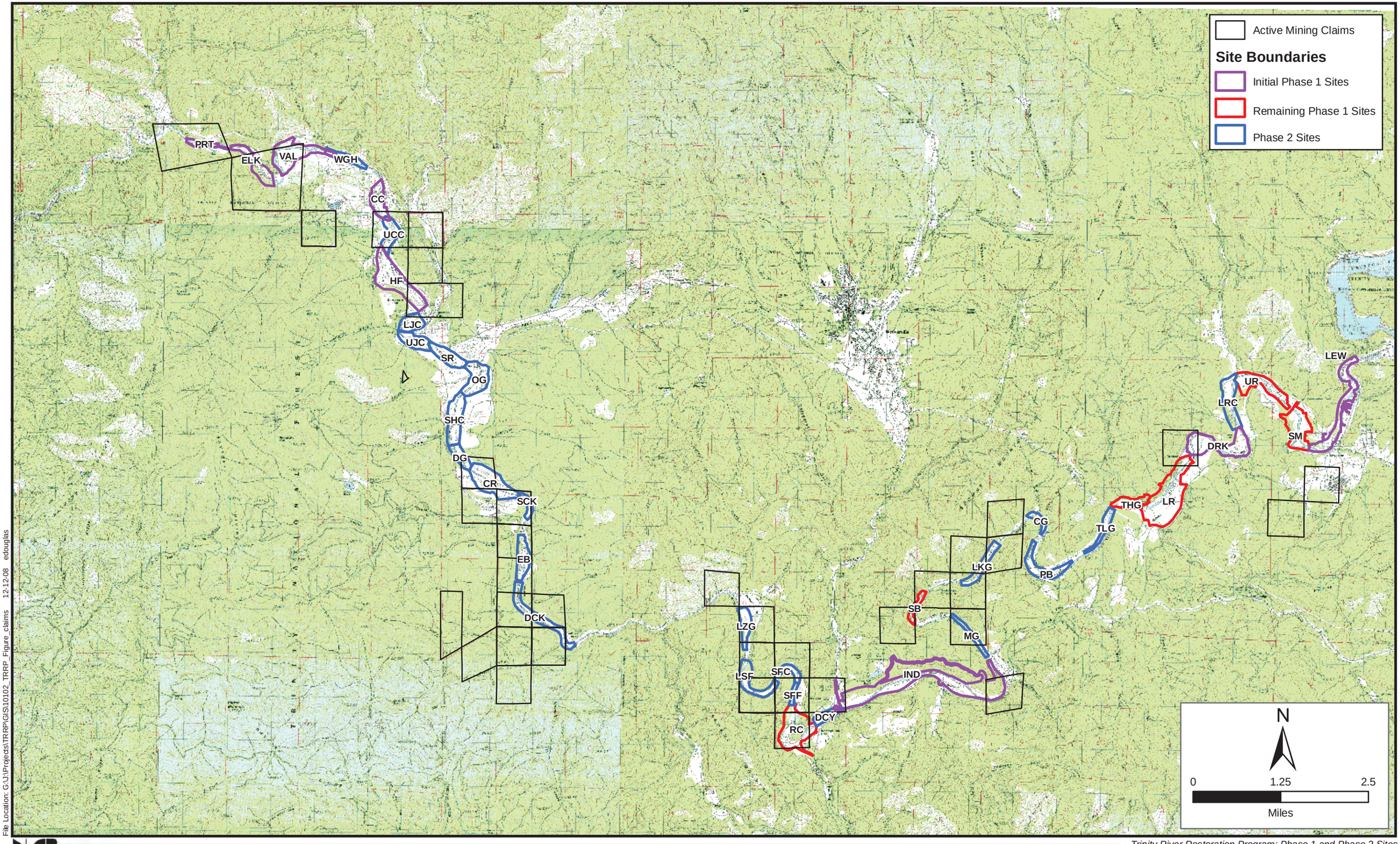
North State Resources, Inc.

Revised - Figure 4.2-3
TRRP Project Sites – Public Lands – Federal and State Agencies



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North State Resources, Inc.

Revised Figure 4.3-7
Active Mining Claims in General Vicinity of TRRP Sites

PART 2

Final EIR

CHAPTER 5

Proposed Project and Project Alternatives

Chapter 5
Proposed Project and Project Alternatives

Part 2 of this document, which begins with this chapter, is the Final EIR for the six Remaining Phase 1 sites. The Final EIR will allow the lead agency to make the necessary findings concerning whether the document provides adequate environmental review under CEQA for the Remaining Phase 1 sites. As explained in Chapter 1, the Draft EIR tiers from the Draft Master EIR and, similarly, the Final EIR tiers from the Draft EIR. The Final EIR incorporates by reference the Draft EIR.

This chapter provides a brief summary of the Proposed Project and the action alternative (Alternative 1) evaluated in the Draft EIR. Detailed descriptions of the Proposed Project, Alternative 1, and the No-Project Alternative were provided in Chapter 2 of the Draft Master EIR. Mitigation measures are provided in the MMRP in Appendix A.

The two action alternatives summarized below are considered feasible and contain measures that would avoid or substantially lessen potentially significant environmental effects of the project. Information on the No-Action Alternative is provided in Chapter 2 of the Draft Master EIR.

5.1 Proposed Project

The Proposed Project addressed in this Final EIR is the implementation of the mechanical channel rehabilitation and sediment management activities at the six Remaining Phase 1 sites, as described in Chapter 2 of this document and in more detail on pages 2-36 through 2-53 of the Draft Master EIR and evaluated at a site-specific level in the Final EIR. The following are the Remaining Phase 1 sites: Sawmill, Upper Rush Creek, Lowden Ranch, Trinity House Gulch, Steel Bridge Day Use, and Reading Creek.

The Proposed Project includes activities at 157 activities areas within the boundaries of the Remaining Phase 1 sites, as shown in Table 5.1.

Table 5.1. Number of Activity Areas at the Remaining Phase 1 Sites under the Proposed Project

Remaining Phase 1 Sites	Proposed Project
Sawmill	43
Upper Rush Creek	32
Lowden Ranch	24
Trinity House Gulch	17
Steel Bridge	11

Table 5.1. Number of Activity Areas at the Remaining Phase 1 Sites under the Proposed Project

Remaining Phase 1 Sites	Proposed Project
Reading Creek	30
Total	157

5.2 Alternative 1

Alternative 1 would implement mechanical channel rehabilitation and sediment management activities at the six Remaining Phase 1 sites similar to those for the Proposed Project as evaluated in the Draft EIR. However, the size, intensity, and magnitude of the rehabilitation activities would be reduced compared to the Proposed Project. As described in the Draft Master EIR on page 2-53, Alternative 1 responds to impacts to the biological and human environment.

The rehabilitation and sediment management activities for the Remaining Phase 1 sites under Alternative 1 are identical to those described on pages 2-53 through 2-67 of the Draft Master EIR. Alternative 1 includes activities at 121 activity areas within the boundaries of the Remaining Phase 1 sites, as shown in Table 5.2.

Table 5.2. Number of Activity Areas at the Remaining Phase 1 Sites under Alternative 1

Remaining Phase 1 Sites	Proposed Project
Sawmill	43
Upper Rush Creek	19
Lowden Ranch	16
Trinity House Gulch	15
Steel Bridge	8
Reading Creek	20
Total	121

CHAPTER 6

Comments and Responses to Comments on the Draft EIR

Chapter 6

Comments and Responses to Comments on the Draft EIR

As described in Chapter 3, 11 comment letters were submitted to the lead agency during the public review process. While seven of these comment letters focused on support for the Draft EIR, two of the comment letters do have some relevance to the Draft EIR. The lead agency believes that the responses prepared for these two comment letters are adequate to address both the Draft Master EIR and the Draft EIR. Therefore, additional responses are not included in this chapter. Table 6.1 lists the comment letters and associated comments that have some relevancy to the Draft EIR and/or the appendices.

Table 6.1. Comments Relevant to Draft EIR

Comment Letter	Agency/Affiliation	Comment Code
8	California Department of Fish and Game	c, d, e, f,
11	Landowner	h, k, l, m, o,

Consistent with previous chapters, the lead agency does not consider any of the comments and accompanying responses that may be relevant to the Draft EIR to be "significant new information" that would require the recirculation of some or all of the Draft EIR for additional formal public review and commentary.

For these reasons, the Regional Water Board, the CEQA lead agency, directed that a Final EIR be prepared.

CHAPTER 7

Changes to the Draft EIR

Chapter 7
Changes to the Draft EIR

No corrections and additions to the text of the Draft EIR were made as a result of public review of the document. This chapter consists of minor changes to the text, tables, and figures made by the lead agency related to land ownership, location of federal mining claims, and a wetland verification for two of the Remaining Phase 1 sites, Sawmill and Trinity House Gulch.

Figure 7.2-1a has not been revised, but this document reflects that all lands shown on this figure as Reclamation lands (brown) are in fact BLM lands (yellow). This change does not influence the analysis presented in the Land Use sections of the Draft EIR.

Tables and figures that have been changed from those presented in the Draft EIR are identified as "Revised." Changes in tables are shown as shaded and italicized. Revised figures are included at the end of this chapter. None of the changes constitutes new significant information or results in new significant impacts.

Based on the USACE wetland verification process (Appendix B), the following changes have been made to the Draft EIR.

Page 7.7-11 and Table 7.7-4 on page 7.7-12 of the Draft EIR have been revised as follows to reflect changes in the wetland delineation. Changes in the table are indicated by shading.

Ten ~~Eight~~ jurisdictional water types, including wetlands and other waters, occur within the boundaries of the Remaining Phase 1 sites. Wetland types include riparian wetland, seasonal wet meadow, fresh emergent wetland, and seasonal wetland. Other waters include riverine, intermittent stream, ephemeral stream, vegetated ditch, pond, and non-vegetated ditch. These jurisdictional waters types are discussed in greater detail in the Draft Master EIR (section 4.7). Table 7.7-4 summarizes the jurisdictional waters that occur at the Remaining Phase 1 sites, as shown on Figures 7.7-2a–f.

Revised Table 7.7-4. Summary of Jurisdictional Waters

	Sawmill	Upper Rush Creek	Lowden Ranch	Trinity House Gulch	Steel Bridge Day Use	Reading Creek
Wetlands (acres)						
Riparian wetland	0.62	0.00	3.31	3.95	0.00	3.40
Seasonal wet meadow	0.00	0.06	10.49	0.00	0.00	0.00
Fresh emergent wetland	0.00	0.00	1.43	0.00	0.00	0.00
Seasonal wetland	0.00	0.00	0.16	0.00	0.00	0.00

Total wetlands	**0.62**	**0.06**	**15.39**	**3.95**	**0.00**	**3.40**
Other Waters (acres)						
Trinity River (riverine)	26.78	39.83	34.16	10.67	15.07	31.50
Intermittent stream	0.00	0.01	0.04	0.04	0.00	0.00
Ephemeral stream	0.00	0.00	0.00	0.01	0.00	0.00
Vegetated ditch	0.00	0.00	0.14	0.00	0.00	0.00
Non-vegetated ditch	0.00	0.00	0.03	0.00	0.00	0.00
Pond (open water)	0.004	0.00	0.00	0.00	0.00	0.00
Total other waters	**26.78**	**39.84**	**34.37**	**10.72**	**15.07**	**31.50**
Total Jurisdictional Waters (acres)	**27.40**	**39.90**	**49.76**	**14.67**	**15.07**	**34.90**

Figure 7.7-2a and Figure 7.7-2d in the Draft EIR have been revised to reflect changes in the wetland delineation.

Page 7.7-21 and Table 7.7-6 on pages 7.7-21 and 7.7-22 of the Draft EIR have been revised as follows to reflect changes in the wetland delineation. Changes in the table are indicated by shading.

Table 7.7-6 lists acres of jurisdictional waters that would be affected by the Proposed Project (Figures 7.7-3a-f) and Alternative 1 (Figures 7.7-4a-f). Construction of the Proposed Project would result in a direct temporary impact to 57.76 ~~57.74~~ acres of jurisdictional waters and construction of Alternative 1 would result in a direct temporary impact to 46.20 ~~46.18~~ acres. This impact would be significant.

Revised Table 7.7-6. Expected Maximum Areas of Temporary Impacts to Jurisdictional Waters

Jurisdictional Water Type	Approximate Area of Disturbance (Acres)	
	Proposed Project	**Alternative 1**
Sawmill		
Riparian wetland	0.28	0.28
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	6.87	6.87
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Sawmill Total	**7.15**	**7.15**

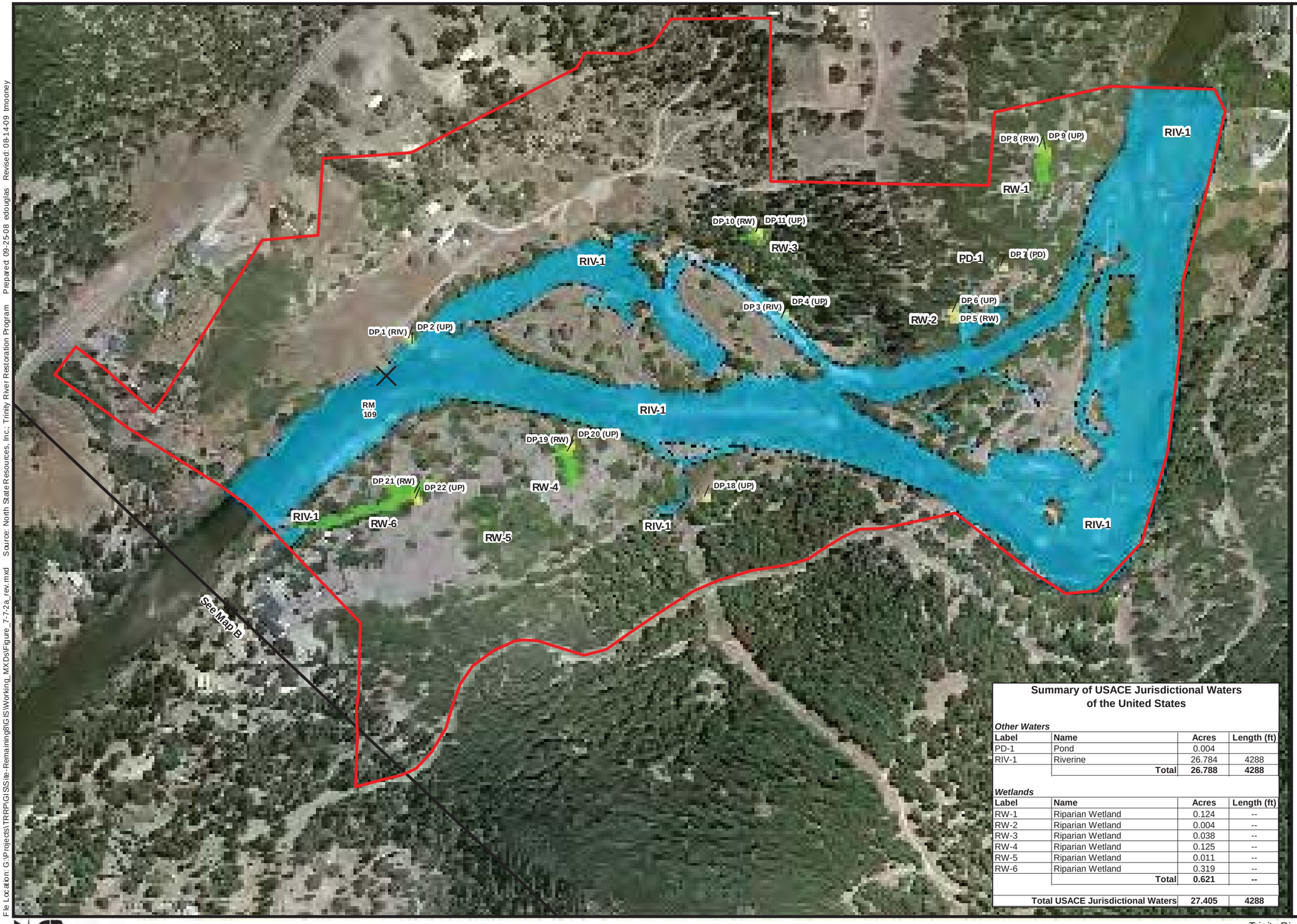
Revised Table 7.7-6. Expected Maximum Areas of Temporary Impacts to Jurisdictional Waters

Jurisdictional Water Type	Approximate Area of Disturbance (Acres)	
	Proposed Project	Alternative 1
Upper Rush Creek		
Riparian wetland	0.00	0.00
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	10.07	6.47
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Upper Rush Creek Total	**10.07**	**6.47**
Lowden Ranch		
Riparian wetland	1.06	1.06
Fresh emergent wetland	1.33	1.33
Seasonal wetland	0.00	0.00
Seasonal wet meadow	7.54	7.54
Trinity River (riverine)	16.68	11.67
Intermittent stream	0.02	0.02
Vegetated ditch	0.14	0.14
Non-vegetated ditch	0.03	0.03
Lowden Ranch Total	**26.80**	**21.79**
Trinity House Gulch		
Riparian wetland	0.76	0.76
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	1.40	1.40
Intermittent stream	0.02	0.02
Pond (open water)	0.00	0.00
Ephemeral stream ~~drainage~~	0.002	0.00
Trinity House Gulch Total	**2.182**	**2.18**
Steel Bridge Day Use		
Riparian wetland	0.00	0.00
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	2.37	2.06

Revised Table 7.7-6. Expected Maximum Areas of Temporary Impacts to Jurisdictional Waters

Jurisdictional Water Type	Approximate Area of Disturbance (Acres)	
	Proposed Project	Alternative 1
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Steel Bridge Day Use Total	**2.37**	**2.06**
Reading Creek		
Riparian wetland	1.17	1.17
Fresh emergent wetland	0.00	0.00
Seasonal wetland	0.00	0.00
Seasonal wet meadow	0.00	0.00
Trinity River (riverine)	8.02	5.38
Intermittent stream	0.00	0.00
Vegetated ditch	0.00	0.00
Non-vegetated ditch	0.00	0.00
Reading Creek Total	**9.19**	**6.55**

Figure 7.7-3a and Figure 7.7-3d in the Draft EIR have been revised to reflect changes to wetlands impacts under the Proposed Project as a result of the USACE verification. Figure 7.7-4a and Figure 7.7-4d in the Draft EIR have been revised to reflect changes to wetlands impacts under Alternative 1 as a result of the USACE verification.



Site Boundary (103.42 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
PD=Pond
UP=Upland

USACE Jurisdictional Waters of the United States

Other Waters

Pond (0.004 acre)

Riverine (26.784 acres)

Wetlands

Riparian Wetland (0.621 acre)

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
PD-1	Pond	0.004	
RIV-1	Riverine	26.784	4288
	Total	**26.788**	**4288**

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	0.124	--
RW-2	Riparian Wetland	0.004	--
RW-3	Riparian Wetland	0.038	--
RW-4	Riparian Wetland	0.125	--
RW-5	Riparian Wetland	0.011	--
RW-6	Riparian Wetland	0.319	--
	Total	**0.621**	**--**
Total USACE Jurisdictional Waters		**27.405**	**4288**

N

1:3,600

300 0 300

Feet

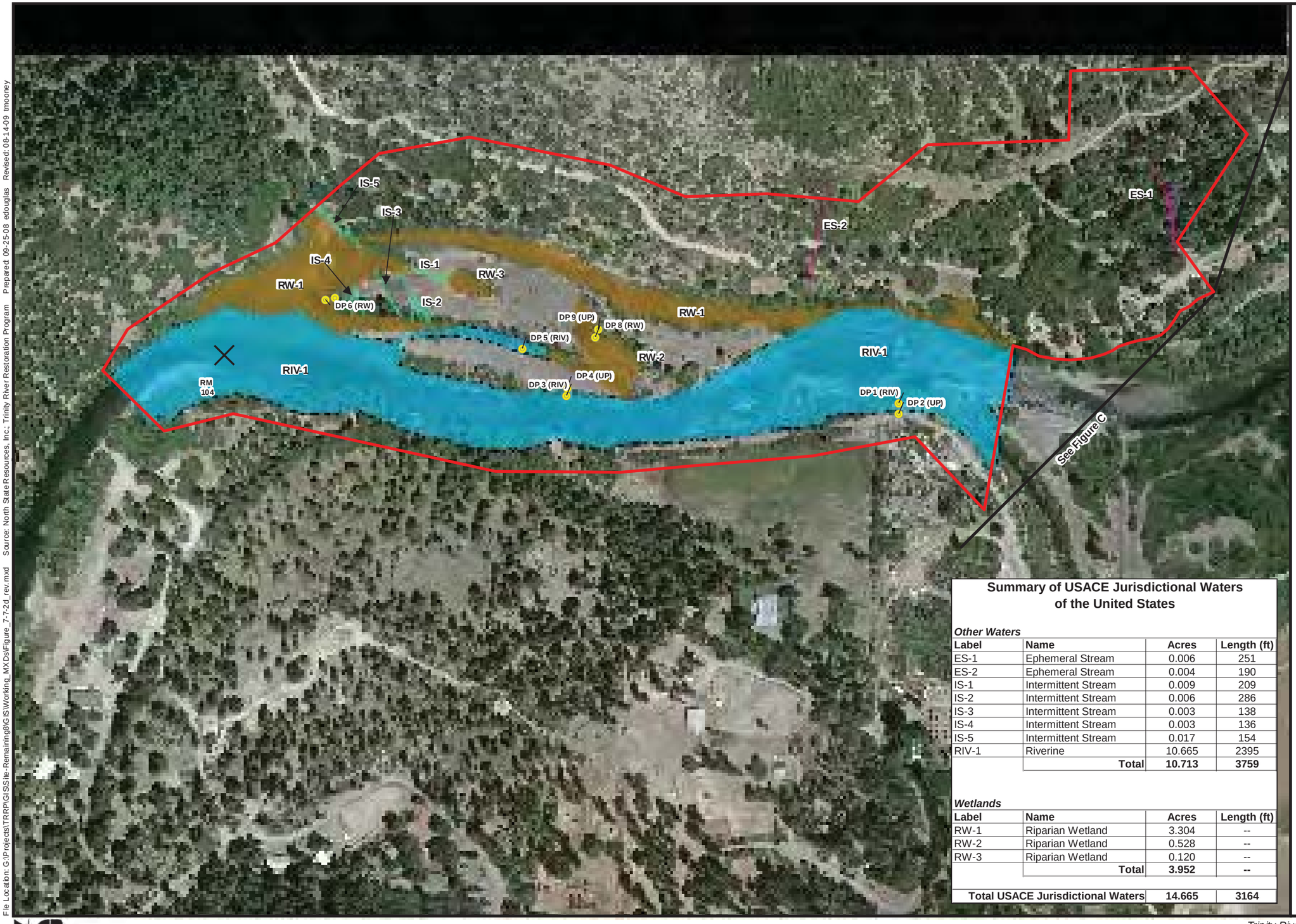
File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-2a_rev.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas Revised: 08-14-09 lmooney

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Revised - Figure 7.7-2a

Sawmill - Boundaries of Waters of the United States, Including Wetlands



Site Boundary (43.69 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJOW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Ephemeral Stream (0.010 acre)

Intermittent Stream (0.039 acre)

Riverine (10.665 acres)

Wetlands

Riparian Wetland (3.952 acres)

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
ES-1	Ephemeral Stream	0.006	251
ES-2	Ephemeral Stream	0.004	190
IS-1	Intermittent Stream	0.009	209
IS-2	Intermittent Stream	0.006	286
IS-3	Intermittent Stream	0.003	138
IS-4	Intermittent Stream	0.003	136
IS-5	Intermittent Stream	0.017	154
RIV-1	Riverine	10.665	2395
	Total	**10.713**	**3759**

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	3.304	--
RW-2	Riparian Wetland	0.528	--
RW-3	Riparian Wetland	0.120	--
	Total	**3.952**	**--**
Total USACE Jurisdictional Waters		**14.665**	**3164**

N

1 3,000

250 0 250

Feet

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-2d_rev.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas Revised: 08-14-09 tmooney

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Revised - Figure 7.7-2d

Trinity House Gulch - Boundaries of Waters of the United States, Including Wetlands

Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (6.866 acres)

Wetlands

Riparian Wetland (0.284 acre)

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

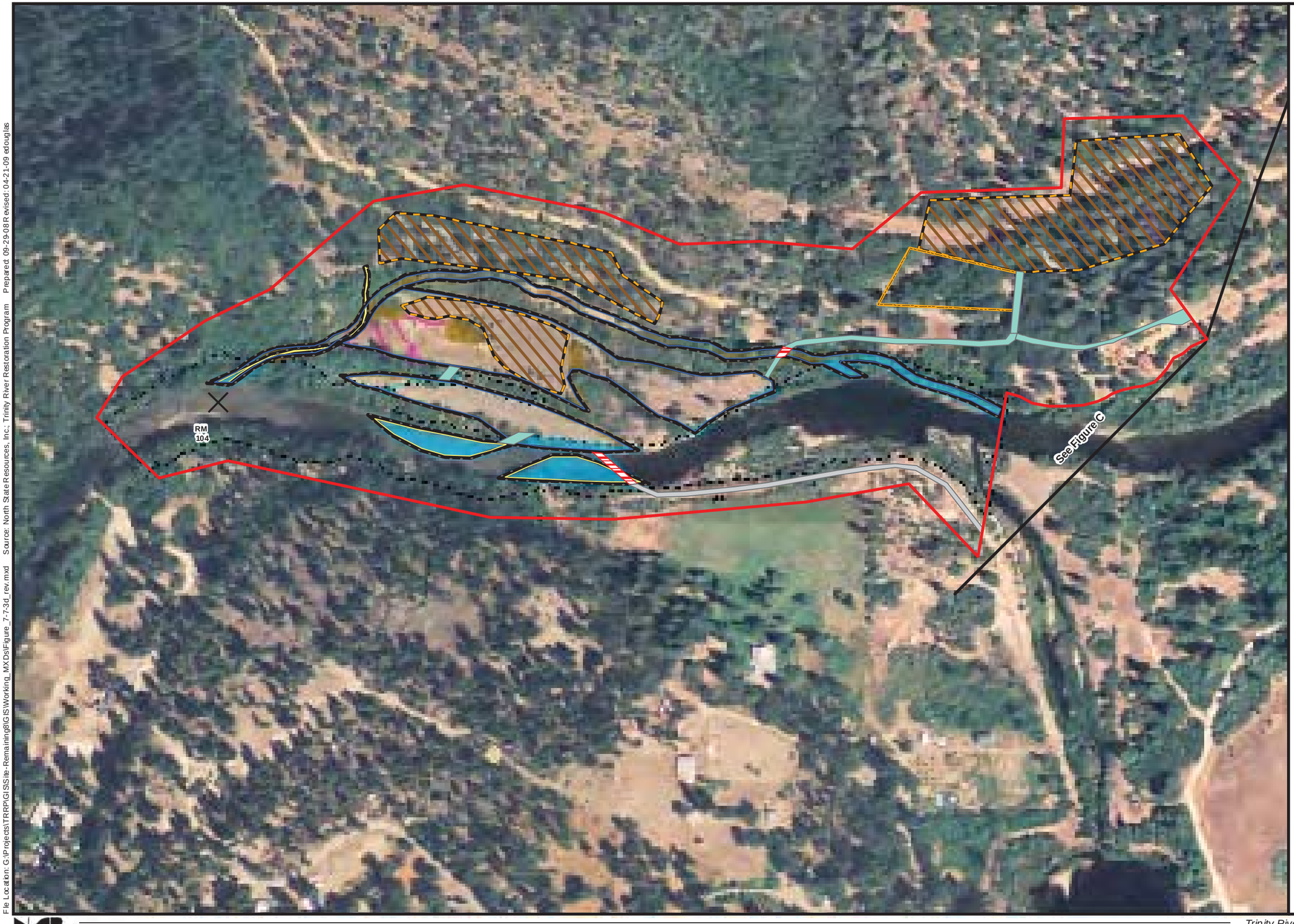
File Location: G:\Projects\TRRP\GIS\Site-Master8\GIS\Working_MXDs\Figure_7-7-3a_rev.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas Revised 08-14-09 tmooney

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Revised - Figure 7.7-3a

Sawmill - Impacts of Proposed Project to Waters of the United States, Including Wetlands



Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Ephemeral Stream (0.002 acre)

Intermittent Stream (0.018 acre)

Riverine (1.404 acres)

Wetlands

Riparian Wetland (0.757 acre)

N

1 3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-3d_rev.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 04-21-09 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Revised - Figure 7.7-3d

Trinity House Gulch - Impacts of Proposed Project to Waters of the United States, Including Wetlands

Site Boundary (103.421 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Staging Area

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Riverine (6.866 acres)

Wetlands

Riparian Wetland (0.284 acre)

N

1:3,600

300 0 300

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

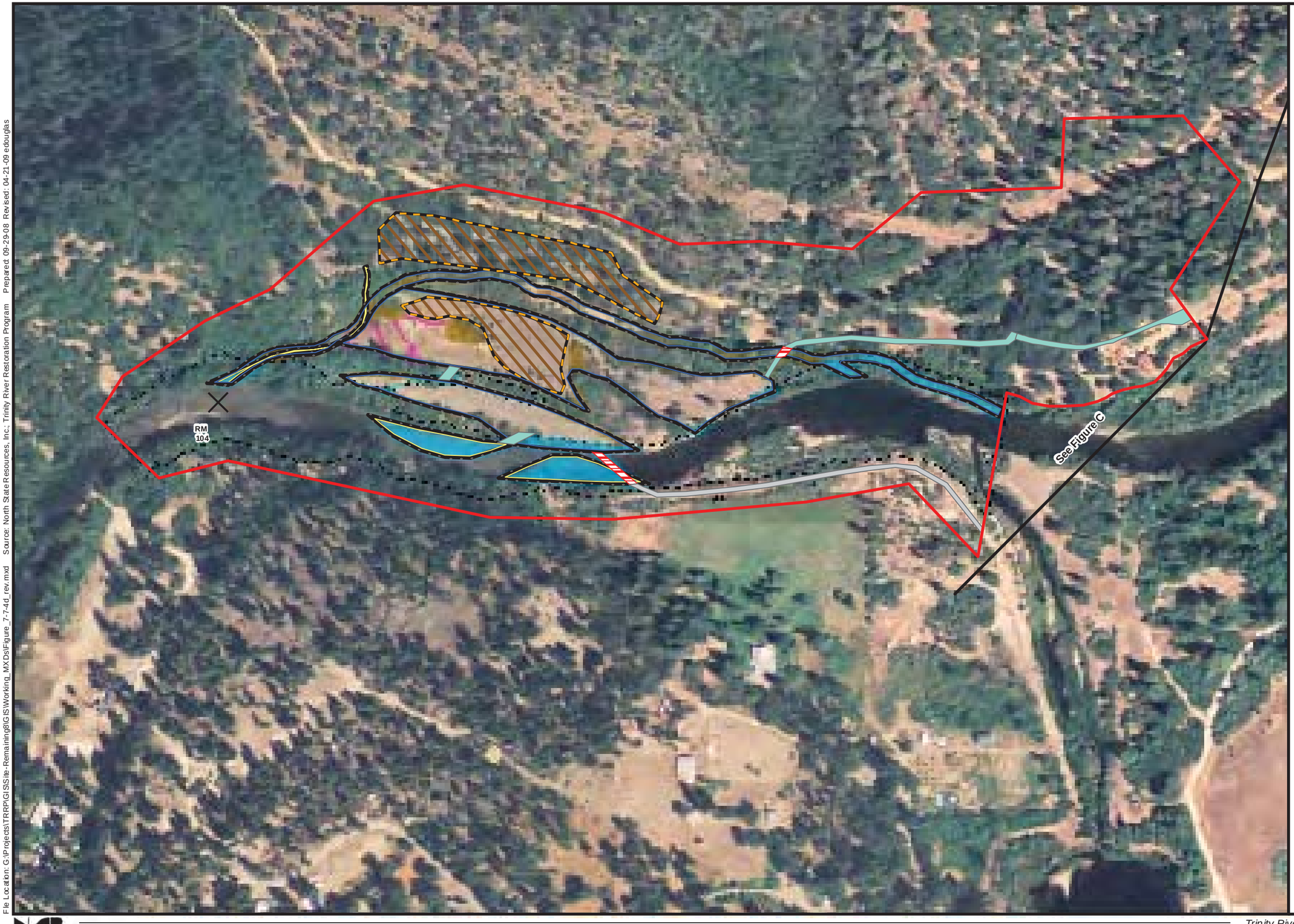
File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\Figure_7-7-4a_rev.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 04-21-09 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Revised - Figure 7.7-4a

Sawmill - Impacts of Alternative 1 to Waters of the United States, Including Wetlands



Site Boundary (43.695 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

Construction Areas

Name

Access Road - Existing

Access Road - New

Crossing

Activity Areas

Area

In Channel

Riverine

Upland

Impacts to Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.018 acre)

Riverine (1.404 acres)

Wetlands

Riparian Wetland (0.757 acre)

N

1 3,000

250 0 250

Feet

Note: Legend symbol swatches do not necessarily reflect map symbology based on rotation angle of north arrow.

File Location: G:\Projects\TRRP\GIS\Site-Remaining\GIS\Working_MXDs\Figure_7-7-4d_rev.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-29-08 Revised: 04-21-09 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Remaining Phase 1 Sites

Revised - Figure 7.7-4d

Trinity House Gulch - Impacts of Alternative 1 to Waters of the United States, Including Wetlands

PART 3

Discussion of Final Mitigation Monitoring and Reporting Program

CHAPTER 8

Discussion of Final Mitigation Monitoring and Reporting Program

Chapter 8

Discussion of Final Mitigation Monitoring and Reporting Program

8.1 Introduction

Volume 4 of the Draft Master EIR and Draft EIR provided a draft Mitigation Monitoring and Reporting Program (MMRP) as Appendix E. This chapter addresses the elements associated with the Final MMRP and project implementation. Appendix A contains a stand-alone version of the Final MMRP that will be included in the regulatory submittals necessary to implement this project.

The purpose of discussing the MMRP in the Final Master EIR and the Final EIR is to reiterate to the reader the mitigation responsibilities of Reclamation and the Regional Water Board in implementing the activities at the Remaining Phase 1 and Phase 2 sites. The mitigation measures listed in the Final MMRP are required by law or regulation and will be adopted by the Regional Water Board as part of its overall project approval.

Mitigation is defined by the California Environmental Quality Act (CEQA), Section 15370 as a measure which:

a) avoids the impact altogether by not taking a certain action or parts of an action

b) minimizes impacts by limiting the degree or magnitude of the action and its implementation

c) rectifies the impact by repairing, rehabilitating, or restoring the impacted environment

d) reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project

e) compensates for the impacts by replacing or providing substitute resources or environments

Mitigation measures provided in the Final MMRP are identified in Chapters 4 and 7, Environmental Setting and Environmental Impacts, of the Draft Master EIR and the Draft EIR, respectively, as feasible and effective in mitigating project-related environmental impacts. The draft mitigation measures were also summarized in Volume 1, Executive Summary, of the draft document. There were no changes to the MMRP as a result of comments received on the Draft Master EIR and Draft EIR.

This section includes discussions of the following topics related to the MMRP: legal requirements, the intent of the MMRP, the development and approval process for the MMRP, the authorities and responsibilities associated with the implementation of the MMRP, and resolution of noncompliance complaints.

8.2 Legal Requirements

The legal basis for the development and implementation of the MMRP lies within CEQA (including the California Public Resources Code). Sections 21002 and 21002.1 of the California Public Resources Code state:

a) 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; and

b) 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 Public Resources Code further requires that:

a) 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.

b) 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.

8.3 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 the Regional Water Board, 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.

8.4 Development and Approval Process

The timing elements for implementing mitigation measures and the definition of the approval process have been provided in detail throughout this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

8.5 Authorities and Responsibilities

Through the TRRP, Reclamation will have the primary responsibility for the execution and proper implementation of the MMRP. The Regional Water Board may provide Reclamation with support, as warranted. Reclamation will be responsible for the following activities:

a) coordination of monitoring activities

b) management of the preparation and filing of monitoring compliance reports

c) maintenance of records concerning the status of all approved mitigation measures

8.6 Summary of Monitoring Requirements

Appendix E of the Draft Master EIR and EA/Draft EIR summarizes the mitigation measures and associated monitoring requirements. The final MMRP is contained as Appendix A of this Final Master EIR and Final EIR.

8.7 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, via the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, CA 96093) and to the Regional Water Board, 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.

APPENDIX A

Mitigation Monitoring and Reporting Program

Appendix A
Mitigation Monitoring and Reporting Program

Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites

August 2009

Project Proponent
U. S. Department of the Interior
Bureau of Reclamation– Trinity River Restoration Program
P. O. Box 1300
1313 Main Street
Weaverville, CA 96093

California Lead Agency for CEQA
North Coast Regional Water Quality Control Board
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Cooperating Agencies
U. S. Department of Interior – Bureau of Land Management
Redding Field Office
U. S. Department of Agriculture – United States Forest Service
Shasta-Trinity National Forest

Cooperating Tribes
Hoopa Valley Tribe
Yurok Tribe

Applicant's Consultant
North State Resources, Inc

Mitigation Monitoring and Reporting Program

Introduction

This document comprises the Mitigation Monitoring and Reporting Program (MMRP) for the Trinity River Restoration Program Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites (project). The purpose of providing the MMRP as a stand-alone document in the Final Master Environmental Impact Report – Final Environmental Impact Report (Final MEIR – Final EIR) is to make clear 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 are required by law or regulation and will be adopted by the Regional Water Board as part of the overall project approval.

Mitigation is defined by the California Environmental Quality Act (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
- 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. Project design elements and construction criteria and methods provided in this MMRP have been identified in Chapter 2, Project Description and Alternative Development of the Draft MEIR – EA/Draft EIR. Mitigation measures provided in this MMRP have been identified in Chapter 4, Environmental Impacts and Mitigation

Measures of the Draft MEIR – EA/Draft EIR, 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 Public Resources Code). Sections 21002 and 21002.1 of the California Public Resources Code 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; and

- 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 Public Resources Code further requires that: the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.

- The monitoring program must be adopted when a public agency makes its findings under CEQA so that the program can be made a condition of project approval in order to mitigate significant effects on the environment. The program must be designed to ensure compliance with mitigation measures during project implementation to mitigate or avoid significant environmental effects.

Intent of The Mitigation Monitoring and Reporting Program

The MMRP is intended to satisfy the requirements of CEQA as they relate to the project. It is anticipated to be used by Reclamation and Regional Water Board staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project.

The primary objective of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as needed, on-site identification and resolution of environmental problems, and proper reporting to lead agency staff.

Development and Approval Process

The timing elements for implementing mitigation measures and the definition of the approval process have been provided in detail through this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

Authorities and Responsibilities

As the project proponent, Reclamation, functioning as the Trinity River Restoration Program (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
- 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. These mitigation measures are presented in the same form as originally prescribed in Chapter 4 of the Draft MEIR – EA/Draft EIR, Environmental Impacts and Mitigation Measures. The mitigation measures are organized by environmental issue area (i.e., Land Use, Water Quality, etc.) for both the Proposed Project and Alternative 1. Table A-1 is composed of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Draft MEIR/Draft EIR for the project. The mitigation numbering system used in the Draft MEIR/Draft EIR is carried forward in this MMRP.

- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure will need to be implemented.

- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., "implementation" or "monitoring").

- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

Resolution of Noncompliance Complaints

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the project. The complaint shall be directed to Reclamation at the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, CA 96093) and to the Regional Water Board at 5550 Skylane Boulevard, Suite A, Santa Rosa, California, 95403, in written form, providing detailed information on the purported violation. Reclamation and the Regional Water Board shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure is verified, Reclamation shall take the necessary action(s) to remedy the violation. The complainant shall receive written confirmation indicating the results of the investigation or the

final corrective action that was implemented in response to the specific noncompliance issue.

Table A-1. Summary of Mitigation Monitoring Requirements

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.2 Land Use			
Impact 4.2-3: Implementation of the project may affect the availability of a locally important mineral resource recovery site.			
4.2-3a Reclamation shall provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closure.		Reclamation	
4.3 Geology, Fluvial Geomorphology, and Soils			
Impact 4.3-2: Construction activities associated with the project could potentially result in increased erosion and short-term sedimentation of the Trinity River.			
4.3-2a Reclamation will implement the following measures during construction activities: ▪ Areas where ground disturbance would 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 (SWPPP review and approval) BLM (SWPPP review) NFMS (SWPPP review) CDFG (SWPPP review)	
4.3-2b Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention 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 CDFG) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following measures will be used as a guide to develop this plan: ▪ Restore disturbed areas to pre-construction contours to the fullest extent feasible.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ Salvage, store, and use the highest quality soil for revegetation. ▪ Discourage noxious weed competition and control noxious weeds. ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction. ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. ▪ To the fullest extent possible, cease excavation activities during significantly wet or windy weather. ▪ Use bales, wattles, and/or silt fencing as appropriate. ▪ Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. ▪ Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway. ▪ Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site would 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. ▪ 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 revegetated. If work activities take place during the rainy season, erosion control structures must be in place and operational at the end of each construction day.			
Impact 4.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.			
4.3-3a Reclamation will implement the following measures during construction: ▪ Areas where ground disturbance would 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.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.			
4.3-3b Reclamation will prepare an erosion and sedimentation control plan (SWPPP) as stipulated in Mitigation Measure 4.3-2b.			
4.3-3c Reclamation will coordinate with private land owners and owners of active mining claims to 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.			
4.5 Water Quality			
Impact 4.5-1: Construction of the 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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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 would 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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 (4.5-1a) 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 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
4.5-1d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed 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 4.5-2: Construction of the project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.			
4.5-2a Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River basin (North Coast Regional Water Quality Control Board 2007).			
4.5-2b To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed. ▪ If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. ▪ If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed.			
4.5-2c To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in Chapter 2 (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.			
Impact 4.5-3: Construction of the 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 would 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 must 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. 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.			
Water quality Mitigation Measures 4.5-1a-e, 4.5-2a-c, and 4.5-3a-c provide measures to protect the beneficial uses of the Trinity River.			
4.6 Fishery Resources			
Impact 4.6-1: 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.			
4.6-1a The proposed construction schedule avoids in-channel work during the time period that 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, 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 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.			
Impact 4.6-2: 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.			
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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ Due to the nature of the proposed restoration activities and the clarity of			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 would be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
BMPs until turbidity levels are at or below 20 NTU.			
4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
4.6-2d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. ▪ Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.6-3: 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.			
4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: ▪ Equipment and materials will be stored away from wetland and surface water features. ▪ Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. ▪ The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.		Reclamation (implementation)	
Impact 4.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state listed coho salmon.			
4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.			
4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials within 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.			
4.6-4e To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select locations where water velocities are too high, and juvenile salmonids would not be expected to be holding.			
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, would 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 4.6-5: Implementation of the project would result in the permanent and temporary loss of shaded riverine aquatic habitat (SRA) for anadromous salmonids.			
4.6-5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project 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 marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 3 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 Project site boundaries after 10 years.		Reclamation (implementation)	
Impact 4.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.			
4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.		Reclamation (implementation)	
4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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, or result in a temporary impairment to fish passage related to a bridge.			
4.7 Vegetation, Wildlife, and Wetlands			
Impact 4.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters, including wetlands.			
4.7-1a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, 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 post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 3 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 boundaries established for TRRP rehabilitation sites after 10 years.			
Impact 4.7-3: Construction of the project could result in the loss of individuals of a special-status plant species.			
4.7-3a A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, Mitigation Measures 4.7-3b and 4.7-3c will be implemented.		Reclamation (implementation)	
4.7-3b Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary.			
4.7-3c If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFG staff.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.			
4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, 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.		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 project site(s) and a 250-foot buffer around the site(s). The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey will be used to ensure that no nests of this species within or immediately adjacent to the project site(s) would be disturbed during project implementation. If an active nest is found, CDFG 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 project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog.			
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 yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey would need to 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 yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.			
4.7-5c Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.			
4.7-5d The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.			
Impact 4.7-6: Construction activities associated with the project could result in impacts to the western pond turtle.			
4.7-6a A minimum of one survey for 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 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 turtles out of the construction area to nearby suitable habitats.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-6c During construction, in the event that a pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits.			
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-c) will be fully implemented.			
Impact 4.7-7: Construction activities associated with the project could result in impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts.			
4.7-7a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, 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 August. 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.		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 August. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.			
4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the project site(s) and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
used to ensure that no nests of these species within or immediately adjacent to the project site(s) would 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 project 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 4.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawk.			
4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, 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 would 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.		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 would be expected. If it is not possible to schedule construction during this Mitigation Measures 4.7-8c and 4.7-8d will be implemented.			
4.7-8c Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
eagle and northern goshawk nests. If an active nest is found close enough (i.e., within 500 feet) to the construction area to be disturbed by these activities, the biologist, in consultation with the CDFG, will determine the extent of a construction-free buffer zone to be established around the nest.			
4.7-8d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the project 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 4.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.			
4.7-9a A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would 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. CDFG 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 project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project 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 (as determined by a Memorandum of Understanding with CDFG), 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			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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 the darker hours.			
4.7-9c If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that 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, the individuals will be safely evicted under the direction of a qualified biologist. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.			
Impact 4.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.			
Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less-than-significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less-than-significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less-than-significant level.		Reclamation (implementation)	
Impact 4.7-13: Implementation of the 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-13d Ensure all construction equipment is thoroughly washed prior to entering 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.			
4.8 Recreation			
Impact 4.8-1: Construction associated with the project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.			
4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas within the project area managed by BLM, STNF, and DFG (e.g., Bucktail River Access, Steel Bridge Campground, Douglas City Campground, Indian Creek River Access, Junction City Campground). Additionally, public notification of Proposed Project construction activities and associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.8-1b Reclamation will repair and/or replace any facilities associated with Remaining Phase 1 or Phase 2 sites that are impacted by project activities. This measure would include installation of interpretive signage consistent with the requirements of the STNF and 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 4.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries.			
Implementation of Mitigation Measures 4.8-1a-b, which provide precautionary signage and/or buoys adjacent to project boundaries and public notice at river access sites, would make this impact less than significant.		Reclamation (implementation)	
Impact 4.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing turbidity levels in the Trinity River.			
4.8-3a 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 2007), is summarized below. ▪ Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. ▪ 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 would			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
4.8-3b To ensure that turbidity levels do not exceed the thresholds described above (4.8-3a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. ▪ If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.8-3c 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.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.8-3d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (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 BMPs and 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 met during stockpiling of materials.			
4.8-3e 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 or its contractor will implement the following protocols: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. ▪ Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			
4.10 Cultural Resources			
Impact 4.10-2: Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural resources, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist shall be consulted. Once the find has been identified, Reclamation shall be responsible for developing a treatment plan for the		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the Programmatic Agreement (PA) and in compliance with the National Historic Preservation Act (NHPA).			
4.10-2b If human remains are encountered during construction on non-federal lands, work in that area must be halted and the Trinity County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC shall 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 U.S.C. 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 shall be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.			
4.11 Air Quality			
Impact 4.11-1: 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.			
4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: ▪ Inactive construction areas will be watered as needed to ensure dust control. ▪ Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1–2 feet vertical distance between top of load		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
and the trailer). ▪ Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion. ▪ Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. ▪ All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. ▪ Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. ▪ All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 miles per hour, as directed by the North Coast Unified Air Quality Management District (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 4.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.			
4.11-2a Reclamation will comply with NCUAQMD Rule 104 (3.0) Particulate Matter. This compliance could occur through the use of portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		Reclamation (implementation)	
Impact 4.11-3: Construction activities associated with the project and removal of vegetation could result in vegetative materials that managers will 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: ▪ Ensure that burning occurs only on approved burn days as defined by the			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
NCUAQMD (determined via 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 ºF). ▪ 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 would minimize smoke emissions. ▪ Slash piles will not be constructed on logs, stumps, on 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 4.11-5: 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 the Lewiston or Douglas City 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 Phase 2 and Remaining Phase 1 project activity and the Lewiston, Douglas City, and Junction City elementary schools of construction activity located near the schools prior to site construction activities.			
4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation sites, which contains a phone number for the public to contact for concerns related to air quality.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.12 Aesthetics			
Impact 4.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.			
Mitigation Measures 4.7-1a-c (Vegetation, Wildlife, and Wetlands), which generally describes the Riparian Revegetation and Monitoring Plan that is required, will be implemented where applicable. 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. Visual impacts related to water quality (i.e., the potential for increased turbidity to adversely affect the aesthetic quality of the river) will be mitigated through implementation of mitigation measures 4.8-3a-f.		Reclamation (implementation)	
4.14 Noise			
Impact 4.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.			
4.14-1a Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, 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 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 (i.e., behind existing barriers, storage piles, unused equipment).			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
4.15 Public Services and Utilities/Energy			
Impact 4.15-3: Implementation of the project could result in disruption to emergency services or disruption to 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.			
4.16 Transportation/Traffic Circulation			
Impact 4.16-2: 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 the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.			
Impact 4.16-3: Implementation of the project would obstruct access to adjacent land uses.			
4.16-3a Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River.			
4.16-3b During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period.		Reclamation (implementation)	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.16-4: Construction activities would increase wear-and-tear on local roadways.			
4.16-4a Reclamation will perform a pre-construction survey of local federal, state, and private 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 would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.		Reclamation (implementation)	
Impact 4.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, or equestrians.			
4.16-5a Reclamation will prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians and equestrians from construction activities.		Reclamation (implementation)	

Design Element Excerpts from Draft Master EIR—Chapter 2

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 Remaining Phase 1 project sites.

Hydraulics

The Project would occur in areas that FEMA has designated as Special Hazard Zones AE and X, as described in section 4.4 of the Draft MEIR – EA/DEIR. 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 any action alternative 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 described in Chapter 2 of the Draft MEIR – EA/DEIR, 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 alternatives. 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 action alternatives requires comparing estimated seasonal base flows and estimated return-period flows. U.S. Army Corps of Engineer's Hydraulic Engineering Center River Analysis System (HEC-RAS) hydraulic model will be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table 2-4 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 alternatives meet the flood constraints described above.

Table 2-4. Estimated Mainstem Trinity River Flow Conditions Used for Alternative Designs

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 DWR and provided to the TRRP as part of the administrative record. This model was calibrated to match measured water-surface elevations (WSEs) in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the project sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the action alternatives. 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 2-4 as the "best available information" per FEMA requirements. The FEMA Q100 "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (U.S. Army Corps of Engineers 1976) used by FEMA to develop the current flood insurance rate maps (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 action alternatives.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter

portray the design topography concepts. The final designs will ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

Roadway Approaches

The Remaining Phase 1 sites are accessible by vehicles from roads, parking areas, and private driveways. Primary roadways for each of the Remaining Phase 1 sites are described in Chapter 2 of the Draft MEIR – EA/DEIR. Public roads that access these sites are managed by the Bureau of Land Management (BLM), Caltrans, or Trinity County. In addition to Trinity County, the BLM, DWR, and CDFG maintain river access points within the boundaries of these sites.

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 Project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, with up to 36 trucks per day hauling materials offsite, generally between August 1 and October 15. Depending on funding and timing of implementation, these trucks would be used for approximately 5 seasons of construction work. 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, Department of Water Resources (DWR), and California Department of Fish and Game (CDFG), 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, DWR, and CDFG; 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, particularly in the area surrounding the Upper Rush Creek and Steel Bridge sites to ensure that service would not be disrupted. Additional information on utilities is provided in sections 4.15 and 7.15 of the Draft MEIR – EA/DEIR.

Construction Criteria and Methods

Project construction criteria and methods are specific 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 construction criteria and methods have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, project construction criteria and methods 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 Remaining Phase 1 project sites.

Construction Process Overview

The following provides a general overview of the construction process for the Remaining Phase 1 Project sites. A list of equipment that may be used is provided in section 4.14, Noise of the Draft MEIR – EA/DEIR.

- 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 M) would be used to access the activity areas. New access roads (activity N) and haul routes 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 will 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 will 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, including removal of grade control features and introduction of coarse sediment, 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. High-flow coarse sediment augmentation would occur during high flows at various rehabilitation sites described previously. Coarse sediment would be introduced at these high flow sites by pushing gravel into the river with heavy equipment or by using a conveyor system to carry the gravel to mid-channel locations (see Figure 2.3j at the end of the chapter). Long-term annual coarse sediment introduction will also replenish material transported downstream from activity areas within the Lewiston-Dark Gulch sites, using either a conveyor or shoreline placement method.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures will be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps will 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 will remove materials used to isolate these side channels after they have been constructed.

- Final grading would occur as necessary for all activity areas.

- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.

- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects will be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.

In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.

In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation will 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 recreation access to BLM, DWR, CDFG, and private recreation facilities within the boundaries of the Remaining Phase 1 sites will be provided in coordination with agencies and landowners. Once construction activities are complete, Reclamation, in consultation with these agencies and landowners, would ensure that these temporary access facilities are rehabilitated consistent with any land use agreements. Temporary access facilities may be closed to the public after the project is completed to prevent damage to private property and public resources.

- 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 and Alternative 1 are shown on Figures 2-1a through 2-1f and 2-2a through 2-2f, respectively, and listed in Tables 2-3 and 2-6. 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 will 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 will 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 will also be required to provide recycling bins for on-site waste materials.

Contract documents will also specify that the contractor will be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes will be in

conformance with criteria established by NMFS and CDFG 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 will 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 shall implement water pollution control measures that conform to applicable and appropriate permits. Reclamation will 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 shall be implemented by Reclamation are listed below:

- Every reasonable precaution will be exercised and BMPs will 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 will be cleaned of dirt and grease prior to any in-channel activities. All construction equipment will be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits will be onsite at all times and, where feasible, berms or other containment methods will 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 shall 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 shall 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 shall develop an agency-approved Storm Water Pollution Prevention Plan (SWPPP) to effectively control water pollution during construction of the project. The SWPPP shall 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 shall 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 shall not be allowed to enter, or be placed where they will later enter, a live stream, soil, or groundwater.

Tentative Schedule

Construction associated with either of the action alternatives cannot begin until the environmental process is completed. In addition, the following must have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; hazardous materials site assessments; acquisition of rights-of-way; acquisition of permits; and design approvals from local, state, and federal agencies.

The total construction time for the project (completion of Remaining Phase 1 sites) is anticipated to be 3 to 5 years, with approximately 140 days of construction annually between July 15, 2009, and December 31, 2013. However, the schedule depends on funding and the availability of coarse sediment for in-river placement. Initial in-channel gravel additions would be completed during the summer work season (July 15 to September 15). Prior to, or in conjunction with high spring flows (May), coarse sediment augmentation would occur at the sites illustrated on Figure 1-2.

To minimize impacts to breeding bird habitat, vegetation removal activities would also occur in the early spring before nesting. 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. Excavation and other grading activities would typically occur between July 15 and December 1 and prior to the onset of the wet season, as site

conditions permit. Processing of coarse sediment where stockpiles are large (e.g., SM C-7 and C-13 areas) may extend beyond typical work windows, and processing is expected to continue until the quantity of gravel is depleted (>5 years). Any revegetation (planting/seeding) would take place in the wet season (fall/winter) following construction. It is expected that annual spring additions of coarse sediment will continue indefinitely during peak annual releases from Lewiston Dam.

Phase 2 Sites

As described in the Draft MEIR – EA/DEIR, Phase 2 of the Project is conceptual. While the specific timing, location, and extent of these activities have not been fully defined, the nature of these activities is similar to those included in the Remaining Phase 1 sites and previous projects implemented by the Trinity River Restoration Program. The timing and extent of work activities at selected Phase 2 sites would be similar to the schedule described for Remaining Phase 1 sites.

Site-specific information (e.g., biological, physical, and social information) would influence the planning and design efforts at Phase 2 sites. In general, the design elements and construction criteria and methods applied in the planning, design, and implementation of Phase 2 sites will be similar to those described for the Remaining Phase 1 sites in the preceding section of this document.

APPENDIX B

U.S. Army Corps of Engineers Verification Package

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

JUL 20 2009

Regulatory Division

SUBJECT: File Number 2009-00075

Mr. Mike A. Hamman
Executive Director
Trinity River Restoration Program
P.O. Box 1300
Weaverville, California 96093

Dear Mr. Hamman:

This letter is written in response to your letter, *Request for Verification of Jurisdictional Delineation of Waters of the U.S. for the Remaining 8 Group of Trinity River Mechanical Channel Rehabilitation Project Locations*, from the Trinity River Restoration Program (TRRP) which we received on February 9, 2009, requesting confirmation of the extent of Corps of Engineers jurisdiction at several sites adjacent to the Trinity River located between Lewiston and Douglas City downstream of Trinity and Lewiston Dams. This jurisdictional determination includes review of five of the eight project sites including: (1) Sawmill, (2) Reading Creek, (3) Upper Rush Creek, (4) Steel Bridge, and (5) Trinity House Gulch.. North State Resources, Inc. prepared the following document, *Trinity River Mechanical Channel Rehabilitation Project Remaining 8 Group, Delineation of Waters of the United States Including Wetlands*, December 2008, which was provided to the U.S. Army Corps of Engineers (Corps) on February 9, 2009. Two of the remaining sites (Chapman Ranch and Wheel Gulch) are not included in this determination. North State Resources, Inc. has not yet completed a wetland delineation for Wheel Gulch and Chapman Ranch is not a priority site for 2009. The last remaining of the three sites is Lowden Ranch site. We have requested additional field review of this site by our San Francisco office wetland specialist in the near future.

Enclosed are maps showing the extent and location of Corps of Engineers jurisdiction at the above mentioned five sites (Enclosures 1A, 1B, 1C, 1D and 1E). We have based these jurisdictional delineations on the current conditions on these sites as verified during field inspections performed by our Eureka staff on April 15, 2009, April 16, 2009, May 13, 2009 and May 14, 2009. A change in those conditions may also change the extent of our jurisdiction. This jurisdictional delineation will expire in five years from the date of this letter. However, if there has been a change in circumstances that affects the extent of Corps jurisdiction, a revision may be completed before that date.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

Your proposed activity is within our jurisdiction and a permit will) be required for your project. Application for Corps authorization should be made to this office using the application form enclosed (Enclosure 2). The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your project, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a Public Notice for a period of 30 days.

Our Nationwide Permits and Regional General Permits have already been issued to authorize certain activities provided specified conditions are met. Your completed application will enable us to confirm that your activity is already authorized. You are advised to refrain from starting your proposed activity until we make a determination that the project is covered by an existing permit. Commencement of work before you receive our notification will be interpreted as a violation of our regulations.

You are advised that the Corps has established an Administrative Appeal Process, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; March 28, 2000), and outlined in the enclosed flowchart (Enclosure 3) and "Notification of Administrative Appeal Options, Process, and Request for Appeal" form (NAO-RFA)(Enclosure 4). If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to the District Engineer for reconsideration or submit a completed NAO-RFA form to the Division Engineer to initiate the appeal process. You will relinquish all rights to appeal, unless the Corps receives new information or a completed NAO-RFA form within sixty (60) days of the date of the NAO-RFA.

Should you have any questions regarding this matter, please call David Ammerman of our Eureka Office, Regulatory Division at 707-443-0855. Please address all correspondence to the Eureka Office, USACE, 601 Startare Drive, Slip 14, Eureka, California 95501 and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available online at http://per2.nwp.usace.army.mil/survey.html.

Sincerely,

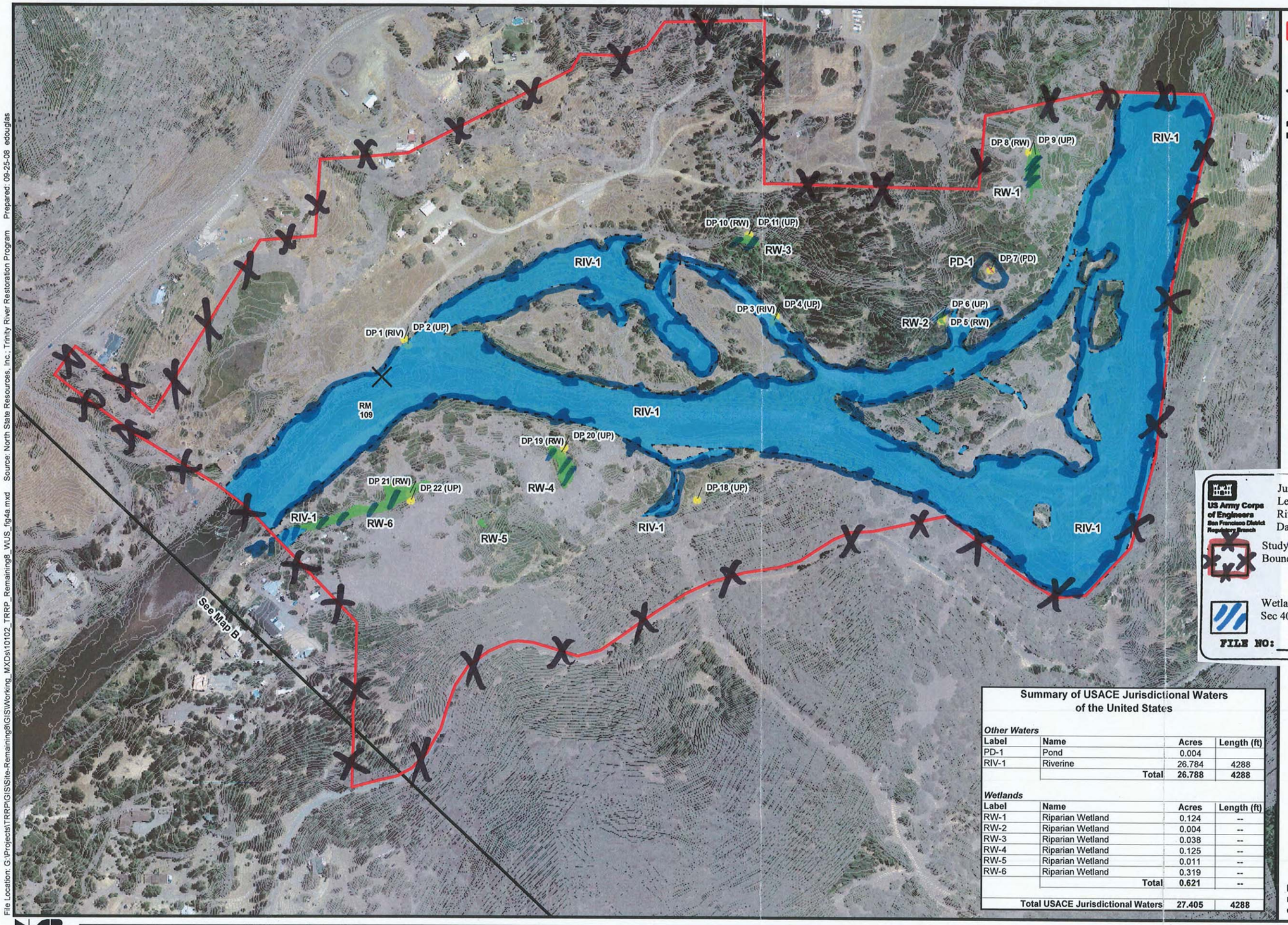
for

Jane M. Hicks
Chief, Regulatory Division

Enclosures

Copy Furnished (w/o encl):

Mr. Julian Colescott
North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002



Site Boundary (103.42 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)
RIV=Riverine
RW=Riparian Wetland
PD=Pond
UP=Upland

USACE Jurisdictional Waters of the United States

Other Waters

Open Water (0.004 acre)

Riverine (26.784 acres)

Wetlands

Riparian Wetland (0.621 acre)

Enclosure 1A

US Army Corps of Engineers
San Francisco District
Regulatory Branch

Jurisdictional Determination for Sawmill Site Lewiston, Trinity County, California, Trinity River Restoration Program, Confirmed By: David Ammerman, USACE, Eureka

Study Area Boundary

Waters of U.S. Ponds/S 404

Wetlands/ Sec 404

Waters of US Riverine/S 404

FILE NO: 2009-00075 DATE: 7-14-09

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
PD-1	Pond	0.004	
RIV-1	Riverine	26.784	4288
	Total	26.788	4288

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	0.124	--
RW-2	Riparian Wetland	0.004	--
RW-3	Riparian Wetland	0.038	--
RW-4	Riparian Wetland	0.125	--
RW-5	Riparian Wetland	0.011	--
RW-6	Riparian Wetland	0.319	--
	Total	0.621	--
Total USACE Jurisdictional Waters		27.405	4288

N

1:3,600

300 0 300
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\10102_TRRP_Remaining8_WUS_fig4a.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas

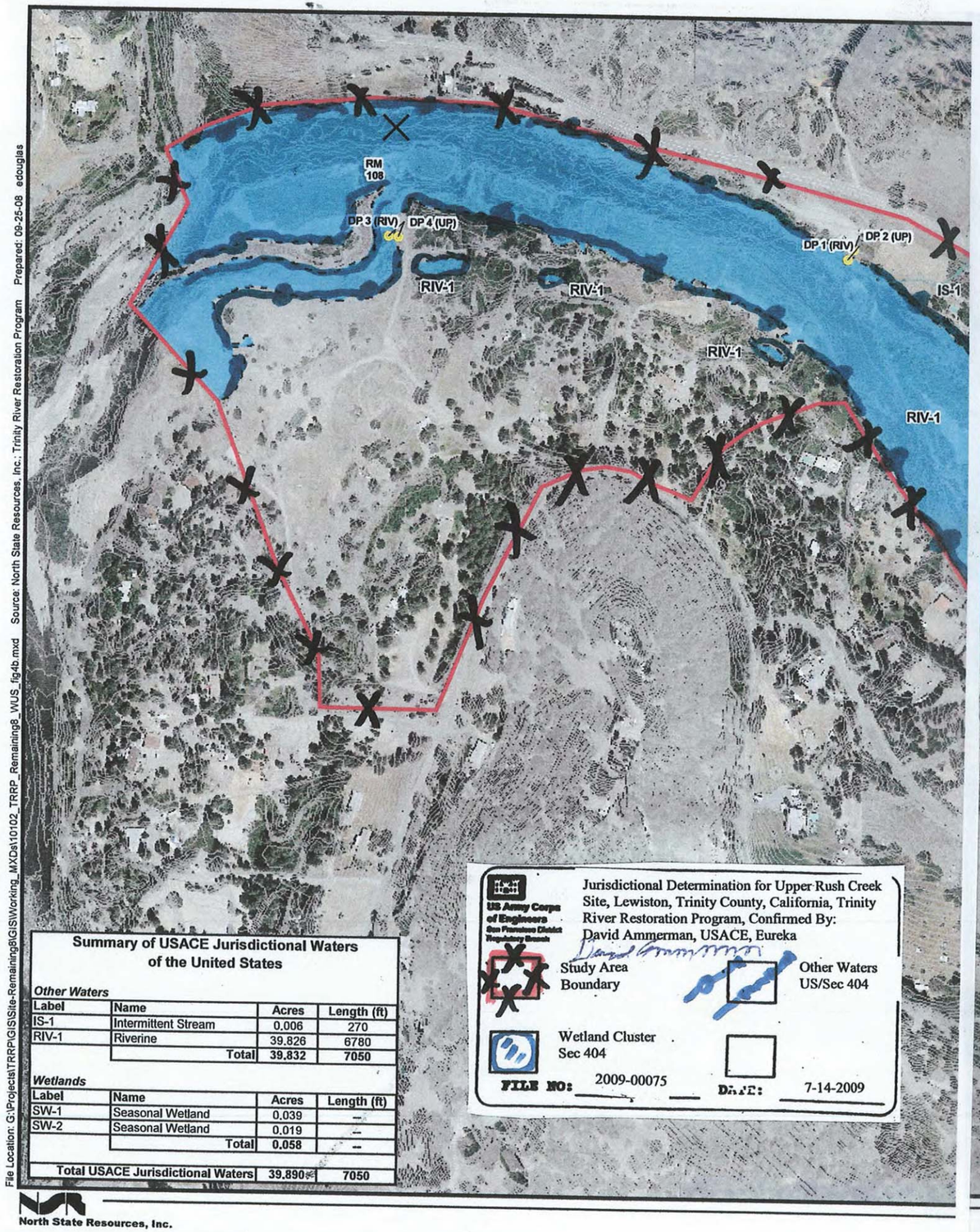
North State Resources, Inc.

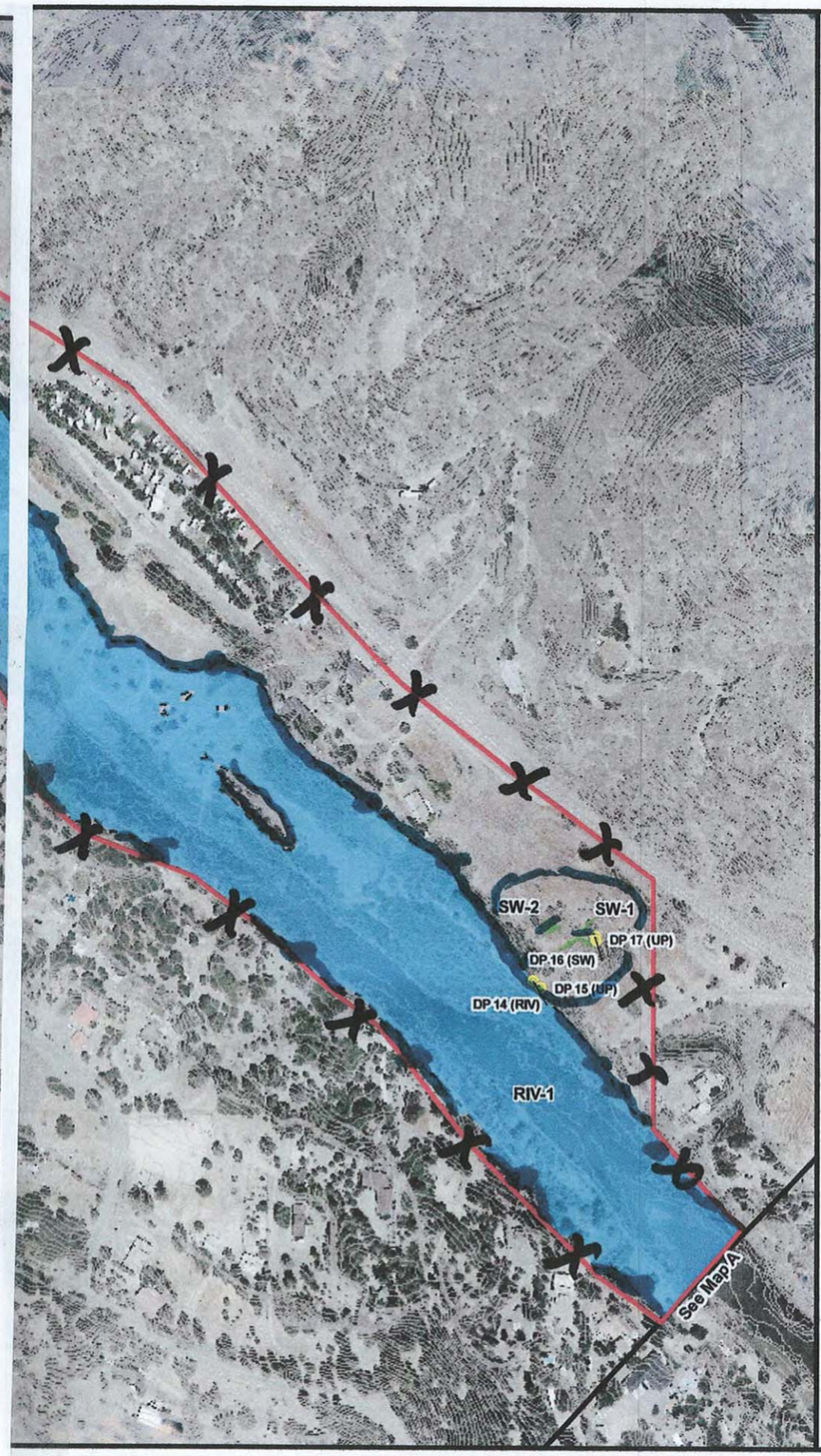
REVISED for ACOE verificaiton

Trinity River Restoration Program: Near-Term Sites

Figure 4a

Sawmill - Boundaries of Waters of the United States, Including Wetlands





Site Boundary (92.27 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Intermittent Stream (0.006 acre)

Riverine (39.826 acres)

Wetlands

Seasonal Wetland (0.058 acre)

Enclosure 1C

N

1:4,200

350 0 350
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
IS-1	Intermittent Stream	0.006	270
RIV-1	Riverine	39.826	6780
	Total	39.832	7050

Wetlands

Label	Name	Acres	Length (ft)
SW-1	Seasonal Wetland	0.039	--
SW-2	Seasonal Wetland	0.019	--
	Total	0.058	--
Total USACE Jurisdictional Waters		39.890	7050

US Army Corps of Engineers
San Francisco District
Regulatory Branch

Jurisdictional Determination for Upper Rush Creek Site, Lewiston, Trinity County, California, Trinity River Restoration Program, Confirmed By: David Ammerman, USACE, Eureka

David Ammerman

Study Area Boundary

Other Waters US/Sec 404

Wetland Cluster Sec 404

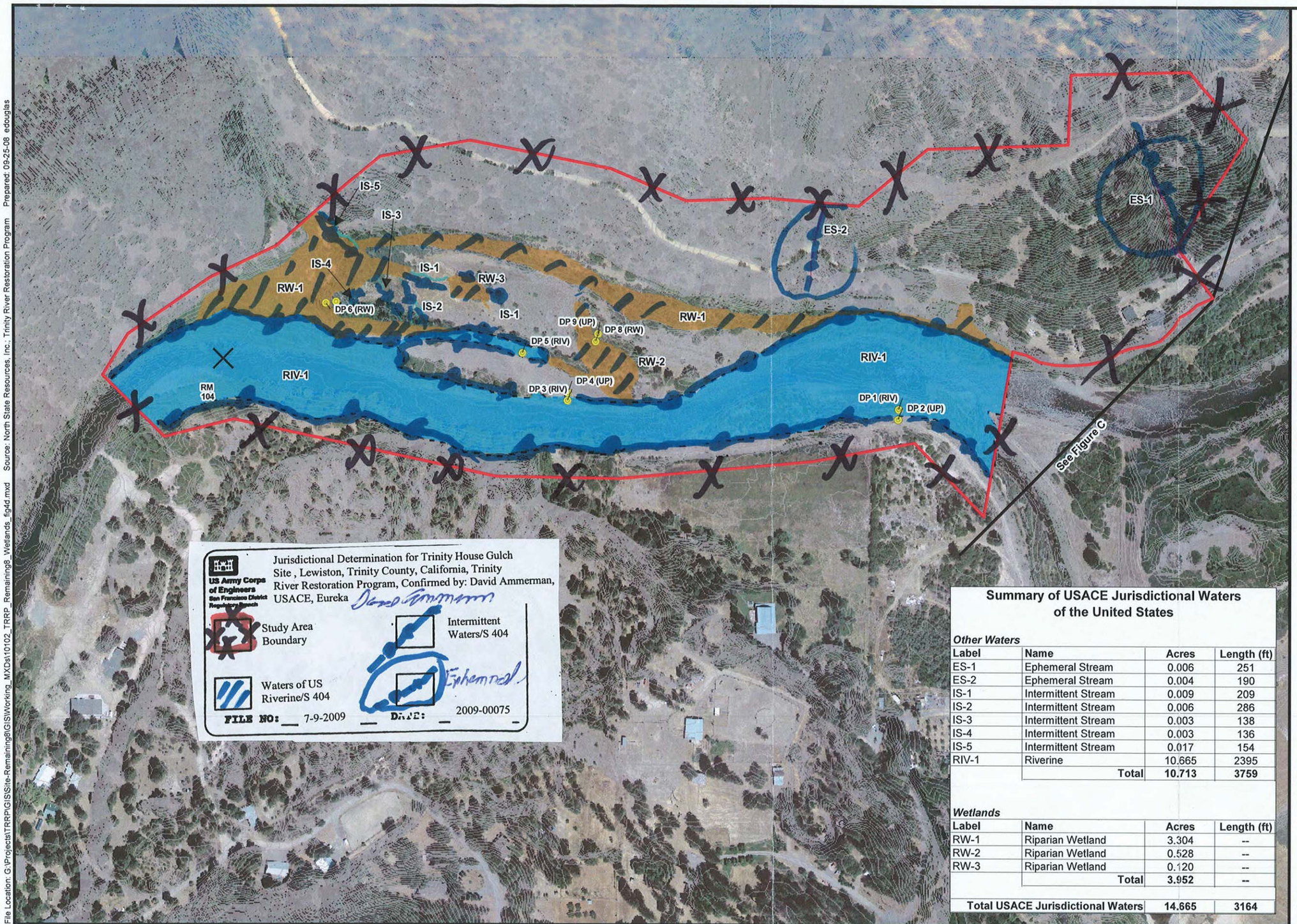
FILE NO: 2009-00075 DATE: 7-14-2009

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\10102_TRRP_Remaining8_WUS_fig4b.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 08-25-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Near-Term Sites

Figure 4b
Upper Rush Creek - Boundaries of Waters of the United States, Including Wetlands



Site Boundary (43.69 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

1 ft Contour Interval

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Ephemeral Stream (0.010 acre)

Intermittent Stream (0.039 acre)

Riverine (10.665 acres)

Wetlands

Riparian Wetland (3.952 acres)

Enclosure 1E

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
ES-1	Ephemeral Stream	0.006	251
ES-2	Ephemeral Stream	0.004	190
IS-1	Intermittent Stream	0.009	209
IS-2	Intermittent Stream	0.006	286
IS-3	Intermittent Stream	0.003	138
IS-4	Intermittent Stream	0.003	136
IS-5	Intermittent Stream	0.017	154
RIV-1	Riverine	10.665	2395
	Total	**10.713**	**3759**

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	3.304	--
RW-2	Riparian Wetland	0.528	--
RW-3	Riparian Wetland	0.120	--
	Total	**3.952**	--
Total USACE Jurisdictional Waters		**14.665**	**3164**

N

1:3,000

250 0 250
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

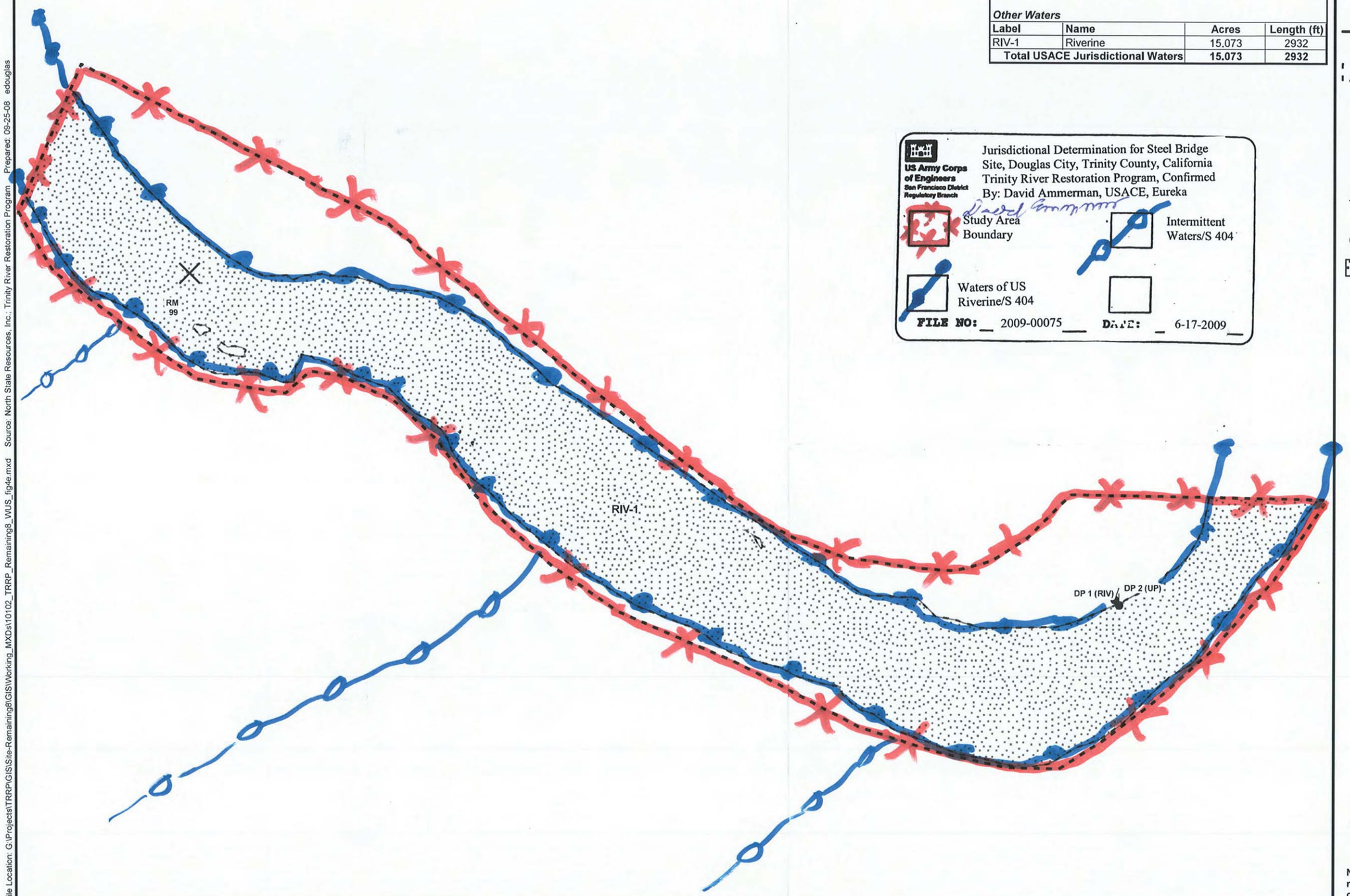
File Location: G:\Projects\TRRP\GIS\Site-Remaining6\GISWorking_MXDs\10102_TRRP_Remaining8_Wetlands_fig4d.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Near-Term Sites

REVISED for ACOE verificaiton

Figure 4d
Trinity House Gulch - Boundaries of Waters of the United States, Including Wetlands



Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
RIV-1	Riverine	15.073	2932
Total USACE Jurisdictional Waters		**15.073**	**2932**

US Army Corps of Engineers
San Francisco District
Regulatory Branch

Jurisdictional Determination for Steel Bridge Site, Douglas City, Trinity County, California
Trinity River Restoration Program, Confirmed
By: David Ammerman, USACE, Eureka

David Ammerman

Study Area Boundary

Intermittent Waters/S 404

Waters of US Riverine/S 404

FILE NO: 2009-00075 DATE: 6-17-2009

Site Boundary (22.47 acres)

River Mile (RM)

Matchline

Ordinary High Water Mark (OHWM) - 6000 cfs

3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Riverine (15.073 acres)

Enclosure 10

N

1:2,400

200 0 200
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GIS\Working_MXDs\110102_TRRP_Remaining8_WUS_fig4e.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Near-Term Sites

Figure 4e
Steel Bridge Day Use Area - Boundaries of Waters of the United States, Including Wetlands

Summary of USACE Jurisdictional Waters of the United States

Other Waters

Label	Name	Acres	Length (ft)
RIV-1	Riverine	31.494	9504
RIV-2	Riverine	0.010	--
	Total	31.504	9504

Wetlands

Label	Name	Acres	Length (ft)
RW-1	Riparian Wetland	0.553	--
RW-2	Riparian Wetland	0.035	--
RW-3	Riparian Wetland	1.057	--
RW-4	Riparian Wetland	0.089	--
RW-5	Riparian Wetland	0.094	--
RW-6	Riparian Wetland	0.026	--
RW-7	Riparian Wetland	0.391	--
RW-8	Riparian Wetland	0.028	--
RW-9	Riparian Wetland	0.302	--
RW-10	Riparian Wetland	0.820	--
	Total	3.396	--
Total USACE Jurisdictional Waters		34.900	9504

RIV-1
RIV-2
RW-1
RW-2
RW-3
RW-4
RW-5
RW-6
RW-7
RW-8
RW-9
RW-10
DP 1 (RIV)
DP 2 (UP)
DP 3 (RIV)
DP 4 (UP)
DP 5 (RIV)
DP 6 (RW)
DP 7 (UP)
DP 8 (RW)
DP 9 (UP)
DP 10 (RIV)
DP 11 (RW)
DP 12 (UP)
DP 13 (RIV)
DP 14 (UP)
DP 15 (RW)
RM 93

Site Boundary (135.87 acres)
River Mile (RM)
Matchline
Ordinary High Water Mark (OHWM) - 6000 cfs
1 ft Contour Interval
3-parameter Data Point (DP)

RIV=Riverine
RW=Riparian Wetland
UP=Upland
NJ OW=Non-jurisdictional Open Water

USACE Jurisdictional Waters of the United States

Other Waters

Riverine (31.504 acres)

Wetlands

Riparian Wetland (3.396 acres)

Enclosure 1B

US Army Corps of Engineers
San Francisco District
Regulatory Branch

Jurisdictional Determination for Reading Creek Site, Douglas City, Trinity County, California
Trinity River Restoration Program, Confirmed By: David Ammerman, USACE, Eureka

Study Area Boundary

Other Waters Sec 404 OHW

Wetlands/ Sec 404

FILE NO: 2009-00075 DATE: 6-17-2009

N

1:4,200

350 0 350
Feet

Note: Legend symbol swatches do not necessary reflect map symbology based on rotation angle of north angle.

File Location: G:\Projects\TRRP\GIS\Site-Remaining8\GISWorking_MXDs\10102_TRRP_Remaining8_WUS_fig4f.mxd Source: North State Resources, Inc.; Trinity River Restoration Program Prepared: 09-25-08 edouglas

North State Resources, Inc.

Trinity River Restoration Program: Near-Term Sites

Figure 4f
Reading Creek - Boundaries of Waters of the United States, Including Wetlands

ATTACHMENT 1

Finding of No Significant Impact

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

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), the Trinity River Restoration Program (TRRP) office of the U.S. Bureau of Reclamation (Reclamation) has found that the Proposed Action, supported by 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* (Final Master EIR – EA/Final EIR), will result in no significant impacts on the human environment considering the context and intensity of impacts.

Part 1 of the supporting documentation, referred to as a Master Environmental Impact Report (Master EIR), is a programmatic document prepared in part to meet the requirements of the California Environmental Quality Act (CEQA). The state Master EIR is analogous to the federal Trinity River Mainstem Fisheries Restoration Final Environmental Impact Statement (FEIS) programmatic document prepared in 2000. Much of the design and analysis for the Proposed Action is discussed in the Draft Master EIR, which, as noted above, is Part 1 of the combined Draft Master EIR – EA/Draft EIR document. Part 2 of this document is an Environmental Assessment (EA) that has been prepared to support the authorization of the Proposed Action at the Remaining Phase 1 sites. Preparation of an Environmental Impact Statement to further analyze possible impacts is not required pursuant to Section 102(2) of the National Environmental Policy Act of 1969 and 40 CFR 1508.27.

Reference: Environmental Assessment for Remaining Phase 1 Channel Rehabilitation and Sediment Management Activities: Trinity River Mile 92.2 to 109.7

Environmental review by:

F. Brandt Gutermuth — July 30, 2009
Environmental Specialist, Trinity River Restoration Program — Date

Approved by:

Mike A. Hamman — 7-30-09
Executive Director, Trinity River Restoration Program — Date
FONSI No.TR-EA 0109

Francis Berg — 7/31/09
for: Acting Steven W. Anderson — Date
Field Manager, Redding Field Office
Bureau of Land Management, Cooperating Agency — FONSI No. DOI-BLM-CA-N060-2009-0085-EA
This decision is made only for authorization pursuant to BLM Authority

FINDING OF NO SIGNIFICANT IMPACT

Remaining Phase 1 Channel Rehabilitation and Sediment Management Activities: Trinity River Mile 92.2 to 109.7

LEAD AGENCY

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BACKGROUND AND NEED

Completion of the Trinity and Lewiston Dams in 1964 blocked migratory fish access to habitat upstream of Lewiston Dam, eliminated coarse sediment transport from over 700 square miles of the upper watershed, and restricted anadromous fish populations to the remaining habitat below Lewiston 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 included encroachment of riparian vegetation, establishment of riparian berms[1], and fossilization of point bars at various locations along the river, as far downstream as the North Fork Trinity River. These geomorphic changes resulted in a decrease in the diversity of species and age classes of riparian vegetation along the river, impaired floodplain access, and adversely affected fish habitat.

In 1994, the U.S. Fish and Wildlife Service (USFWS) as the NEPA lead agency began the NEPA process for developing the Trinity River Mainstem Fishery Restoration Environmental Impact Statement (EIS). The 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) directed Department of the Interior agencies to implement the Flow Evaluation Alternative as the Preferred Alternative identified in the FEIS/EIR to restore the Trinity River's anadromous fishery. The ROD directed the U.S. Bureau of Reclamation (Reclamation), through the Trinity River Restoration Program (TRRP), to restore the Trinity River fishery by implementing a combination of higher releases from Lewiston Dam (up to 11,000 cubic feet per second [cfs]), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an Adaptive Environmental Assessment and Management Program. The FEIS functions as project-level guidance for policy decisions associated with

[1] The condition is not as extensive as early studies indicated (e.g., the Trinity River Flow Evaluation Final Report 1999).

managing Trinity River flows and as a programmatic NEPA document providing first-tier support of related mechanical restoration and sediment management actions.

The TRRP, acting under the guidance of the Trinity Management Council (TMC), provides overall program direction to restore, enhance, and conserve the natural production of anadromous fisheries, native plant communities, and associated wildlife resources of the Trinity River basin. The TRRP provides technical and administrative support to the TMC related to both scientific evaluation of restoration progress and management implementation. The TRRP is responsible for the overall implementation of the ROD. The Remaining Phase 1 Channel Rehabilitation and Sediment Management Activities: Trinity River Mile 92.2 to 109.7 (project) is part of the mechanical channel rehabilitation and sediment management components of the ROD. The project is located between Lewiston Dam and the North Fork of the Trinity River and is designed to create, restore, and enhance the full range of anadromous fish habitats in the Trinity River by restoring fluvial processes. Activities to restore fluvial processes include rescaling the river channel and floodplain and managing coarse sediment at the Remaining Phase 1 sites, augmenting gravel at high-flow placement areas, and controlling fine sediment at the Hamilton Ponds. Specifically, this project would selectively remove fossilized berms and encroaching riparian vegetation; revegetate and/or reestablish complex and diverse assemblages of native riparian vegetation; and recreate alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of Lewiston and Trinity dams. These rehabilitation activities are expected to increase habitat suitability and availability for salmonids and other native fish and wildlife species during a wide range of river flow conditions.

Implementing channel rehabilitation work at the remaining six Phase 1 sites would continue implementation of the ROD throughout the reach. Implementation of the Proposed Action (Proposed Project) at the Sawmill site, expected in 2009, would be the fifth in a sequence of channel rehabilitation projects (Hocker Flat constructed in 2005, the Canyon Creek Suite in 2006, Indian Creek in 2007, and Lewiston-Dark Gulch in 2008) to implement the ROD's mechanical channel rehabilitation components, and to rework the Trinity River floodplain based on pre-dam channel morphology characteristics. In addition to ongoing approximately annual sediment management at the Hamilton Ponds and coarse sediment augmentation during high flows, activities at the Sawmill site constitute the third TRRP channel rehabilitation project to implement portions of the ROD's coarse sediment management activities. Gravel processing and augmentation activities initially occurred at the Indian Creek and Lewiston–Dark Gulch sites under both high and low flow conditions (e.g., high-flow injection and low-flow in-channel gravel bar construction). The Proposed Action identified for the Remaining Phase 1 sites is intended to meet the overarching goals of the TRRP: to enhance river processes in order to increase channel complexity and fisheries habitat throughout the mainstem Trinity River downstream of Lewiston Dam. Implementation of the Proposed Action would contribute to the restoration of aquatic habitat in the mainstem Trinity River through the development of properly functioning channel conditions. Rehabilitation activities as described in the Draft Master EIR – EA/Draft EIR, combined with ROD flow releases, are expected to contribute to the restoration of the Trinity River mainstem fishery.

The EA/Draft EIR for the project considered three alternatives: the No-Action Alternative, the Proposed Action, and Alternative 1. After inclusion of all mitigation measures (discussed in detail in Part 1 of the Draft Master EIR – EA/Draft EIR), no significant impacts were determined for the Proposed Action pursuant to NEPA or the California Environmental Quality Act (CEQA). Details concerning these alternatives and other alternatives considered but not carried forward for evaluation are included in Part 2 of *Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 Sites* (Draft Master EIR – EA/Draft EIR). The Proposed Action maximizes environmental benefits with less-than-significant environmental impacts and is preferred for implementation. The Proposed Action is described below.

The FEIS acknowledged that the various rehabilitation sites exhibit a variety of conditions that require site-specific designs. The FEIS also recognized that, in many instances, the entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to initiate development of a dynamic alluvial channel that will promote the formation and maintenance of an alternate bar channel in both treated and untreated areas.

An interdisciplinary team of the TRRP identified discrete activity areas within the boundaries of the six Remaining Phase 1 sites. Activity areas were identified based on the type of activity that would occur in a specific place and include in-channel, riverine, upland, construction staging, road, and temporary crossing areas. Remaining Phase 1 channel rehabilitation site locations and their associated number of discrete activity areas are as follows: Sawmill, 43; Upper Rush Creek, 31; Lowden Ranch, 24; Trinity House Gulch, 17; Steel Bridge Day Use, 11; and Reading Creek, 30. Access to these areas requires existing and new roads and low-flow crossings of the Trinity River in portions of the Remaining Phase 1 sites that would otherwise be inaccessible. The type, extent, and level of activity in each area may be different, depending on the alternative.

For each site, riverine activities are labeled with an R followed by the construction site number (e.g., R-1, R-2); upland activities are labeled with a U and followed by the construction site number (e.g., U-1, U-2); in-channel work areas (e.g., coarse sediment placement or grade control removal) are identified with an IC; and staging/use areas are characterized with a C. Temporary low-flow channel crossings are labeled with an X, and roads are identified as existing or new. In the Lewiston area, four site locations were defined as Sawmill (SM), Upper Rush Creek (URC), Lowden Ranch (LR) and Trinity House Gulch (THG). In the Douglas City area, two site locations were defined as Steel Bridge Road Day Use (SB) and Reading Creek (RC). The setting and additional details on these activity areas are provided in Chapters 2, 4, and 7 of the Draft Master EIR – EA/Draft EIR.

The TRRP has developed programmatic objectives for channel rehabilitation projects, which are described in Chapter 2 of the Draft Master EIR – EA/Draft EIR. The programmatic objectives were used to identify a number of specific activities that could be applied at each site location. Each activity area was established to meet a suite of specific objectives in conformance with the overall goals and objectives outlined for the TRRP. The activities included in the Proposed Action for the Remaining Phase 1 sites focus on modifying existing grade control features, reconnecting the river's floodplain with the river, establishing or expanding side-channel habitat, and enhancing the bed and banks of the Trinity River for

increased river function and aquatic habitat development. Removal of alluvial material at select locations will provide opportunities to enhance the development of alternate point bars and supplement coarse sediment. Ultimately, the goal of these channel rehabilitation efforts is to provide functional aquatic habitat for all life stages of anadromous salmonids under a range of flow conditions; to provide suitable salmonid rearing habitat, which is presently believed to be a limiting factor in the system; and to reestablish healthy alluvial river geomorphic processes, which will ultimately maintain high-quality salmonid habitat at a dynamic equilibrium.

The Proposed Action includes 15 rehabilitation activities. Each rehabilitation activity is identified with an alpha code for reference throughout the Draft Master EIR – EA/Draft EIR. The rehabilitation activities are shown in Table 1.

Table 1. Remaining Phase 1 Rehabilitation Activities

Label	Activity Type
A	Recontouring and vegetation removal
B	Constructed inundation surface (450 cfs*)
C	Constructed inundation surface (1,000 – 4,500 cfs)
D	Constructed inundation surface (6,000 cfs)
E	Low-flow side channel (300 cfs)
F	Medium-flow side channel (1000 cfs)
G	Alcove (450 cfs; 6,000 cfs)
H	Grade control removal
I	Sediment management (coarse and fine)
J	Placement of excavated materials
K	Staging/use areas (includes gravel processing and stockpiling)
L	Roads, existing
M	Roads, new
N	Temporary channel crossings (Trinity River and Tributaries)
O	Revegetation

Note: cfs = cubic feet per second.

Activities A–I would all occur within riverine areas included for rehabilitation activities as part of the Proposed Action. However, the type and degree of activity would differ slightly for each area along the Remaining Phase 1 reaches. Activities J and K would be associated with the transfer, placement, and stabilization of material excavated from the riverine areas. The location and extent of material stockpiled, transported, and placed would differ for each area. Other activities, including road creation, water crossings, and processing/transportation of alluvial materials, are designed to minimize impacts to the resources described in Chapters 4 and Chapter 7 of the Draft Master EIR – EA/Draft EIR, as revised in the Final Master EIR – EA/Final EIR. The inclusion of in-channel activities is intended to enhance the ability of the river to readjust to changes in the flow and sediment regime provided by the ROD. The Riparian Revegetation Management Plan, prepared in cooperation with the California Department of Fish and Game, U.S. Army Corps of Engineers (USACE), and the Regional Water Quality Control Board – North Coast Region (Regional Water Board), will be implemented to ensure that riparian habitat (e.g., riparian vegetation) is restored in a manner (species and size classes) that supports the TRRP objective of

restoring the form and function of an alluvial river over time. Implementation of the Riparian Revegetation Management Plan will also ensure that the State of California's requirement of "no net-loss of riparian habitat" is met through a 1:1 replacement of affected riparian habitat over time. Project monitoring requirements will allow critical evaluation in order to adjust future rehabilitation plans to incorporate those practices that perform best in the field. A comprehensive discussion of these rehabilitation site activities is provided in Chapter 2 of the Draft Master EIR – EA/Draft EIR.

The Proposed Action meets the requirements of the Trinity River ROD, the Endangered Species Act (ESA), the Clean Water Act, NEPA, the Clean Air Act, the Wild and Scenic Rivers Act , the National Historic Preservation Act, and the Resource Management Plan for the Redding Field Office of the Bureau of Land Management as amended by the Northwest Forest Plan.

FINDINGS

The No-Action Alternative, Proposed Action, and Alternative 1 were evaluated in the EA with respect to their impacts in the following issue areas: land use; geomorphic environment; water resources; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; socioeconomics; tribal trust; cultural resources; air quality; environmental justice; aesthetics; hazards and hazardous materials; noise; public services and utilities/energy; and transportation/traffic circulation. Based on the following summary of the implementation effects of the Proposed Action (as discussed fully in the Final Master EIR –EA/Final EIR), implementation of the Proposed Action would result in no significant impacts to the quality of the human environment.

Land Use

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

Geology, Fluvial Geomorphology, and Soils

Implementation of the Proposed Action is consistent with the 10 healthy river attributes described in the Trinity River Flow Evaluation Study that provide a basis for the TRRP efforts to restore and enhance native fish and wildlife populations. Project construction activities and disturbance would increase the potential for short-term wind and water erosion and could interfere with mineral resources. However, project implementation would include sediment and erosion control measures, and mitigation measures to reduce and avoid potential impacts on mineral resources. Therefore, the Proposed Action would not have significant impacts on geologic resources or processes.

Water Resources

Based on the USACE hydraulic model HEC-RAS, implementation of the Proposed Action, including excavation or placement of alluvial materials in the 100-year floodplain and low-flow channel, would not increase the base flood elevation of the Trinity River. Additionally, project implementation would not result in significant risk of injury, death or loss involving flooding or erosional processes. The proposed activities are expected to have minimal, if any, effects on groundwater elevations or groundwater quality. Therefore, the Proposed Action would not have a significant impact on water resources.

Water Quality

Implementation of the Proposed Action , including construction activities in and adjacent to the low-flow channel, could temporarily increase turbidity and total suspended solids in the water column. It could also result in a spill of hazardous materials (e.g., grease, solvents) into the Trinity River. Construction activities would be staged and timed to minimize potential water quality effects, and appropriate mitigation measures would be implemented to avoid and reduce water quality impacts. Therefore, the Proposed Action would not have a significant impact on water quality.

Fisheries Resources

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

Any temporary construction impacts on fish-rearing habitat are expected to be offset by permanent beneficial changes to physical rearing habitat associated with project implementation. Improved river access to the floodplain during flows in excess of summer base flows (450 cubic feet per second), is expected to increase the availability of the slow, shallow edge habitat preferred by juvenile salmonids. Collective improvements in fluvial channel dynamics contributed by the Proposed Action in conjunction with future channel rehabilitation projects throughout the Trinity River between Lewiston Dam and the North Fork Trinity River are ultimately expected to improve rearing habitat diversity for all anadromous salmonids. Because of the Proposed Action's limited construction near the water, inclusion of mitigation measures to protect fishes, and generally localized effects, no significant effects would occur to fisheries resources.

Vegetation, Wildlife, and Wetlands

Construction activities associated with the Proposed Action would result in a temporary loss of riparian vegetation, but the value provided by this vegetation would be offset by restoring floodplain function and riverine processes. Revegetation of alluvial features (i.e., floodplains) would increase structural and species diversity and would speed reestablishment of native riparian vegetation. Long-term changes in river inundation periods are expected to increase both seasonal and perennial riparian habitats.

Reclamation conducted informal consultation with the USFWS concerning effects to the ESA-listed northern spotted owl. Based on the consultation, the known lack of suitable habitat and spotted owl nests in the area (nest data provided by the STNF), and Trinity River bird distribution data provided by the Forest Service's Redwood Sciences Laboratory, Reclamation determined that a biological assessment was not required because the project would have no effect on the northern spotted owl or its critical habitat.

Specific design and contract criteria are included in the project description to ensure that project activities occur in a manner that addresses potential impacts to special-status species, including avian and amphibian species. These activities and prescriptive measures, combined with rapid riparian revegetation rates, ensure that the Proposed Action will not result in significant project impacts to vegetation, wildlife, and wetlands.

Recreation

The Trinity River was federally designated as a National Wild and Scenic River in 1981. Implementation of the Proposed Action would result in a long-term benefit to the form and function of the Trinity River, thereby enhancing the Outstandingly Remarkable Values for which it was designated as a Wild and Scenic River, including its anadromous fishery. Implementation of the project would alter the riverine environment; however, construction under the Proposed Action would not permanently affect the scenic or recreational values of the Trinity River for which it was designated. Although the Proposed Action could result in limited temporary interruptions of public access and use, river access would continue to be available at a number of temporary locations within the project boundaries and adjacent to the project sites. Because of the continued availability of river use and access, the generally localized effects, and inclusion of mitigation measures to protect recreationists, impacts on recreation resulting from project implementation would not be significant.

Socioeconomics, Population, and Housing

The Proposed Action could directly generate short-term income growth through the payment of wages and salaries, but would result in little increased long-term economic activity. A short-term increase in demand for housing in the general vicinity (i.e., Weaverville) could also occur as construction workers seek lodging during the construction period. However, because of the limited project size and duration, there would be no significant impact on socioeconomic conditions, population, or housing.

Tribal Trust

TRRP's overarching goals of restoring, enhancing, and conserving the natural production of anadromous fisheries, native plant communities, associated wildlife resources, and overall health of the Trinity River basin are consistent with federal Tribal Trust responsibilities. The primary TRRP goals originate partly from the federal government's trust responsibility to protect fishing rights for ceremonial, subsistence, and commercial purposes of the region's Indian tribes. Several short-term impacts that would affect Tribal Trust assets are considered acceptable provided that long-term fishery and healthy river goals are supported. These impacts are generally associated with construction activities, which would temporarily affect fish and wildlife resources, vegetation, and water quality in localized areas of the Remaining Phase 1 sites. Potential impacts on Tribal Trust assets would be avoided and minimized by project design criteria and mitigation measures provided to protect Tribal Trust assets. While some level of impact to fisheries and water quality cannot be avoided during construction activities, the impacts that would occur to these Tribal Trust assets would be kept at a less-than-significant level. Therefore, the Proposed Action would not have a significant impact on Tribal Trust assets.

Cultural Resources

Cultural resources identified within the Area of Potential Effect are primarily associated with dredger tailing piles at the Sawmill, Lowden Ranch, Trinity House Gulch, and Reading Creek sites. The types of dredger tailings identified include dragline dredge, ground sluice placer, bucket-line dredge, and placer. A hydraulic mining cut was identified at the Sawmill site, and a river crossing, known as "Lowden crossing," was identified near Lowden Ranch in Grass Valley. Reclamation archaeologists determined that one of the identified cultural resource sites (Reading Creek Ground Sluice Placer Tailings and Historic Artifacts) is eligible for listing on the National Register of Historic Places (NRHP). Therefore, the project was revised during the planning stages to avoid potentially significant features. If cultural materials or human remains are encountered during work for the project, the impacts would be negligible because construction would be halted and the proper agency contacted. Because of these pre-project cultural resource surveys, subsequent design changes to avoid potentially significant resources, and mitigation measures to cover potential finds during construction, project impacts to cultural resources during implementation of the Proposed Action would not be significant.

Air Quality

Construction associated with the Proposed Action requires the use of equipment that would temporarily contribute to air pollution in the Trinity River basin in the form of ozone precursors, particulate matter (PM_{10}), and greenhouse gas emissions. Because Reclamation would include provisions in construction contract documents that minimize construction-related impacts on air quality resulting from project activities, the Proposed Action would not result in a significant impact on air quality.

Environmental Justice

There is no evidence to suggest that the Proposed Action would cause a disproportionately high adverse human health or environmental effect on minority or low-income populations. The Proposed Action would not have a significant impact on environmental justice.

Aesthetics

Over the long-term, implementation of the Proposed Action is expected to complement the visual resources and aesthetic values of the project area by restoring the function and form typical of an alluvial river. Design of the Proposed Action incorporates the diversity of the landscape and vegetation types in the project vicinity into the character of the rehabilitated riverine and upland areas. Excavated material and disturbed dredger tailings piles would be placed in a manner that blends into the contours of the existing dredger tailings piles. Retention of existing topographic features would lessen the degree of visual impacts and improve the aesthetic quality of the affected reach of the Trinity River. Changes to the landscape will not be noticeable in the long term. Based on these findings, the Proposed Action would not have a significant impact on aesthetics.

Hazardous Materials

Implementation of the Proposed Action would potentially release hazardous materials through accidental spills that could pose a public hazard. However, Reclamation will ensure that the contractor follows Best Management Practices to prevent the release of hazardous materials into the environment (e.g., oils, gasoline) and to provide adequate response measures in case a spill does occur. These practices would ensure that implementation of the Proposed Action would not have a significant impact with respect to hazardous materials.

Noise

Construction and traffic associated with the Proposed Action would generate noise. To minimize potential noise impacts, construction activities would be scheduled between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Additional time constraints may be imposed for activities occurring immediately adjacent to residences and schools. Gravel placement would use local topography to dampen/deflect/decrease the noise leaving the site. During working hours, Reclamation will ensure that the contractor will operate all equipment to minimize noise impacts to nearby sensitive receptors (residences, etc.) so that no significant project impacts from noise would occur.

Public Services and Utilities/Energy

Construction work and temporary road closures would be staged in a manner to allow for access by emergency service providers. Therefore, no significant effects to public services would result from implementation of the Proposed Action.

Transportation/Traffic Circulation

Implementation of the Proposed Action would minimize the use of heavy construction equipment to transport material to and from the project work site. Equipment would be staged on site during construction. Since local roads are built to service occasional heavy equipment traffic, no measurable road wear would result from ingress or egress of construction equipment or during hauling of restoration materials (e.g., gravel) to the sites. For safety reasons, Reclamation will ensure that the contractor will implement a traffic control plan to protect the public during construction. Implementation of these

planning measures will ensure that no significant effects to traffic circulation would result from project implementation.

SUMMARY

Implementation of the Proposed Action, including mitigation measures, would contribute to the long-term environmental quality and sustainability of the Trinity River ecosystem with no significant impacts to the environment.

FINDING OF NO SIGNIFICANT IMPACT IN ACCORDANCE WITH 40 CFR 1508.27

After considering the environmental effects described for the Proposed Action in the Draft Master EIR and EA specific to the Remaining Phase 1 sites, it has been determined that it will not have a significant effect on the quality of the human environment considering the context and intensity of impacts. Furthermore, it is determined that the Proposed Action is not a major federal action, individually or cumulatively, and will not significantly affect the quality of the environment. Therefore, an environmental impact statement is not needed. This determination is based on the Draft Master EIR – EA/Draft EIR and the context and intensity of the following factors (40 CFR 1508.27):

1) **There will be no significant effects, beneficial or adverse, resulting from implementation of this project.** The finding is not biased by the beneficial effects of the action. The construction of the Remaining Phase 1 rehabilitation sites along a 17.5-mile reach of the Trinity River is expected to provide localized improvements in aquatic and riparian habitats that currently exist at the sites. The sites will incrementally assist in meeting long-term needs to enhance fish habitat and provide properly functioning river conditions. Viewed within the context of a *healthy* Trinity River, and against implementing the larger river restoration program required under the ROD, this channel rehabilitation project will not result in any significant impacts.

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

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

4) **Based on public participation and the involvement of resource specialists, effects of the Proposed Action on the quality of the human environment are not expected to be highly controversial.** Previously, the types of activities associated with the Proposed Action have received general support by Trinity County and its citizenry. Controversy that existed has been resolved through the planning process; therefore, these effects are not determined to be highly controversial. With input from technical staff from the lead, cooperating, and responsible agencies, environmental, social, and economic issues have been addressed in the Draft Master EIR – EA/Draft-EIR so that this project should avoid major scientific controversy over environmental effects.

5) **There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks.** The effects of the Proposed Action have been clearly evaluated in the Draft Master EIR – EA/Draft EIR. Furthermore, similar actions have been completed by the TRRP in the past with no unpredicted developments.

6) **These actions do not set a precedent for other projects that may be implemented to meet the goals and objectives of the Trinity River Restoration Program.** The Trinity River Mainstem Fishery Restoration EIS, the ROD, and the Trinity River Flow Evaluation Report all evaluated and recommended channel rehabilitation projects on the Trinity River below Lewiston Dam. The EIS constitutes the basis for tiering in this instance. The environmental effects of future projects will be analyzed based on need dictated by the ROD, but the need will be balanced by any new information collected during implementation of this project and other recently implemented projects.

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

8) **Based on surveys accomplished prior to this decision, this action will not adversely affect sites or structures eligible for the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural, or historic resources**. Interdisciplinary teams and individual resource experts have visited the sites and provided recommendations to modify the location of one of the upland disposal areas to avoid a potentially significant cultural resource feature associated with the dredger tailings within the boundaries of the Remaining Phase 1 sites. These modifications would avoid the site that Reclamation determined is eligible for listing on the NRHP. Based on project design and measures described in the Draft Master EIR – EA/Draft EIR, the decision maker has

determined that the project would not result in the destruction of scientific, cultural, or historic resources.

9) **The project would not adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973**. A biological opinion addressing foreseeable TRRP activities (National Marine Fisheries Service 2000) was written in response to a biological assessment that reflected the findings in the Trinity River Mainstem Fishery Restoration EIS. The opinion was written because Trinity River coho salmon are federally listed as threatened. The opinion describes adverse effects that could result from the channel rehabilitation measures that are included in the preferred alternative described in the EIS. Such adverse effects were determined to be minor and short-lived, dwarfed by the long-term beneficial outcome from implementing the Proposed Action. The displacement of juvenile coho salmon "…is not expected to result in lethal take of these fish." (National Marine Fisheries Service 2000).

   The bald eagle has been removed from the Endangered Species list, and consultation is no longer required for this species. The project may affect but would not likely adversely affect the bald eagle because eagles are not known nor expected to nest within or near the project area. There is a potential to temporarily displace foraging eagles for short periods of time (at discrete activity areas) during a time of relatively low eagle foraging activity in the area. Other reaches of the Trinity River would remain undisturbed and available for foraging eagles. Fish, and thus foraging eagles, are expected to start reusing the area immediately following project implementation.

   Informal consultation with the USFWS concerning effects to the ESA-listed northern spotted owl was conducted by Reclamation. Based on this informal consultation, known lack of suitable habitat and spotted owl nests in the area (nest data provided by the U.S. Forest Service), and Trinity River bird distribution data provided by the Redwood Sciences Laboratory, Reclamation determined that a biological assessment was not required since the project would have no effect on the northern spotted owl or its critical habitat.

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

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

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

- Section 404, Clean Water Act, Nationwide Permit 27 (San Francisco District, U.S. Army Corps of Engineers),
- Section 401, Clean Water Act Water Quality Certification (Regional Water Quality Control Board – North Coast Region),
- Section 402, Clean Water Act National Pollutant Discharge Elimination System (NPDES) Stormwater Pollution Prevention Plan (Regional Water Quality Control Board – North Coast Region),
- Section 10, Endangered Species Act, Incidental Take Permit (National Marine Fisheries Service)
- Encroachment Permits (Trinity County),
- Floodplain Development Permit (Trinity County).

Findings Required by Other Laws and Regulations

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

Implementation Date

The Proposed action will be implemented in phases beginning in summer 2009. It is expected that all Phase 1 projects will be completed by 2014.

Contact

For additional information concerning the overall decision to implement the Proposed Action, contact Brandt Gutermuth, Project Manager, Trinity River Restoration Program, P.O. Box 1300, and 1313 Main Street, Weaverville California, 96093.